Pioneer Military
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Pioneer-Standard

Industrial Electronics
15th Edition

Now you can put a test lab in your tool kit... and still have room for tools.

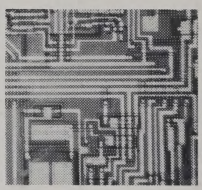
From now on, you won't have to give up accuracy and high resolution when the job calls for a handheld DMM...now there's Fluke's new 4½-digit 8060A.

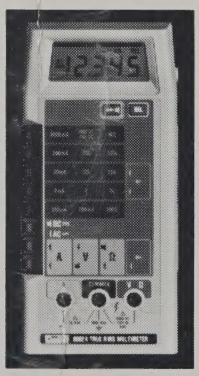
This remarkable state-of-the-art multimeter combines portability with performance, and has a unique combination of features that lets you reach beyond traditional handheld DMM applications: 0.04% basic dc accuracy, 10 μV resolution, True RMS AC, frequency measurements, direct reading dB and more. A companion model, the 8062A, makes many of the same measurements at a lower price. Compare their capabilities:

	4½-Digit Resolution	Wideband True RMS AC	Continuity (Audible & Visual)	dBm, Relative dB	Frequency	Relative Reference (Offset)	Autoranging Megohms	Conductance	Constant-Current Diode Test	Self Diagnostics	Basic DC Accuracy	U.S. List Price
8060A	•	100 kHz	•	•	200 kHz	•	•	•	•	•	0.04%	$349
8062A	•	30 kHz	•			•	•		•	•	0.05%	$279

FLUKE®

Advanced Fluke LSI technology produced this custom CMOS integrated circuit which is the heart of 8060A's capabilities.





For applications not requiring frequency and dB functions, we offer the companion model 8062A with full-scale 4½-digit resolution and True RMS measurements to 30 kHz.

See pages 601 thru 608 for Fluke products

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Pages 387-390
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Page 132

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Pages 133-136
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Pages 139-140,318-319

ANALOG PANEL INSTRUMENTS
Pages 675-676
SIGMA INTERNATIONAL INSTRUMENTS DIVISION

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MICROPROCESSOR CRYSTALS
Page 93

FLOPPY DISK DRIVES
Pages 150-151
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MOSTEK
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Pages 54-56

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FLOPPY DISK DRIVES
Page 158
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Page 407

DIGITAL MULTIMETERS
Pages 589-592
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- Semiconductors & MPU's
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- Index

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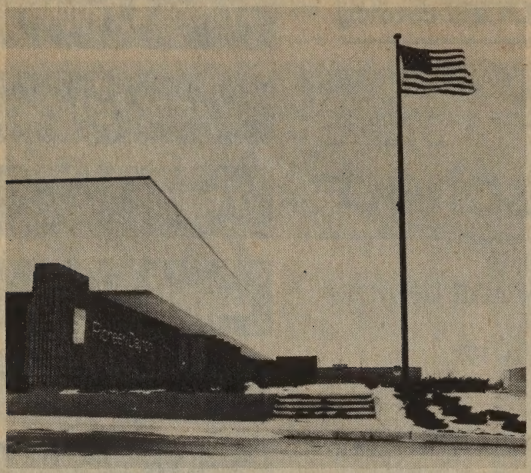
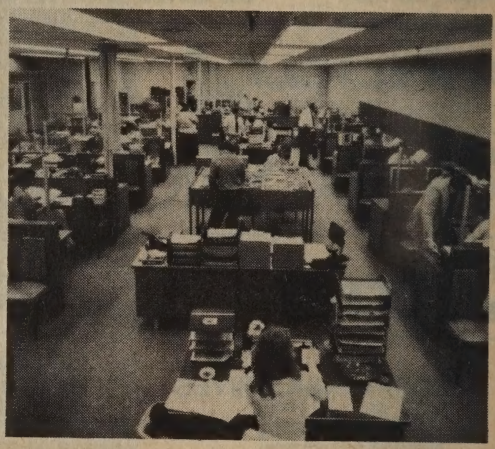


Pictured is one of our seventeen modern industrial locations. These modern locations have a total of 325,000 square feet devoted to the distribution of electronic components, instruments; microsystem and peripheral products.

You have probably talked with many of our sales personnel and, therefore, picture them as Pioneer.



Sales is a very important part of Pioneer, but without our "operations group" nothing would happen. As an example, our warehouse groups perform receiving, stocking, order checking, and shipping functions. Through direct or computer contact they respond to the sales departments needs. Purchasing, Accounting and Data Processing functions are performed in a way to make it as easy as possible for customers to do business with us.

Each facility also maintains its own well-stocked catalog room. An ample supply of all manufacturers catalogs are kept by trained personnel.They stand ready to send you catalogs, data sheets and application notes on request.

Pioneer-Standard

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    5853 Point West Drive
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    1207 Putman Drive N.W.
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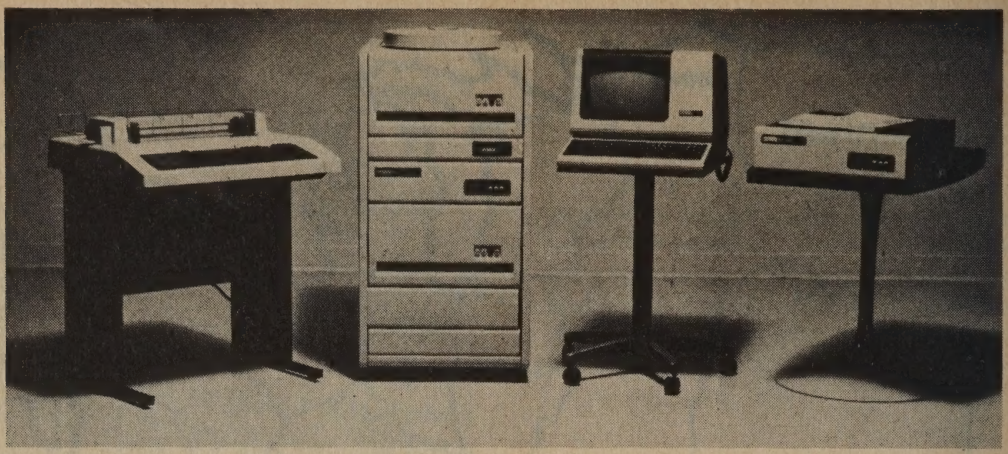


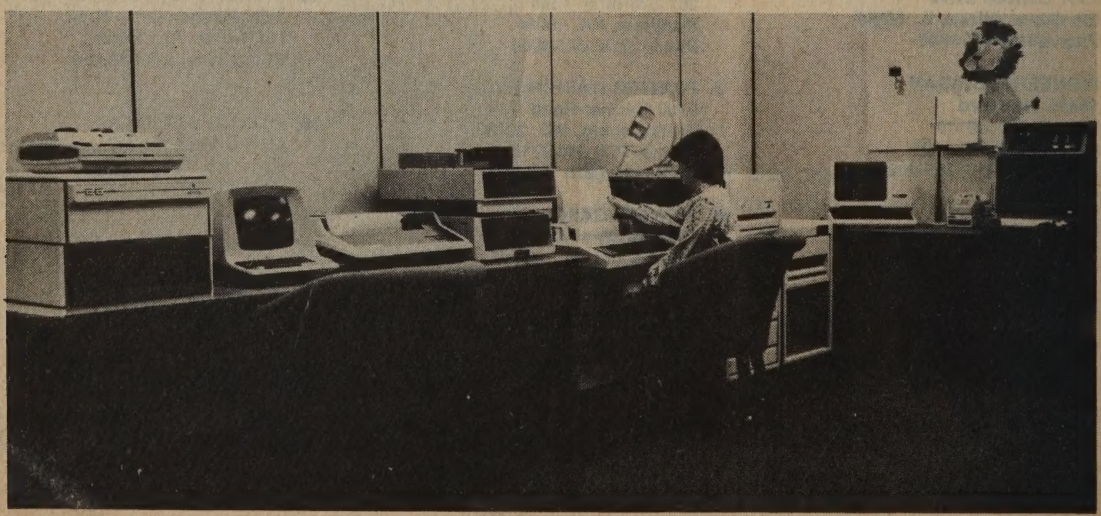
MICROSYSTEM AND PERIPHERAL DEMONSTRATION CENTERS

PIONEER has established many Microsystem and Peripheral Demonstration Centers. They are available by appointment for your use.

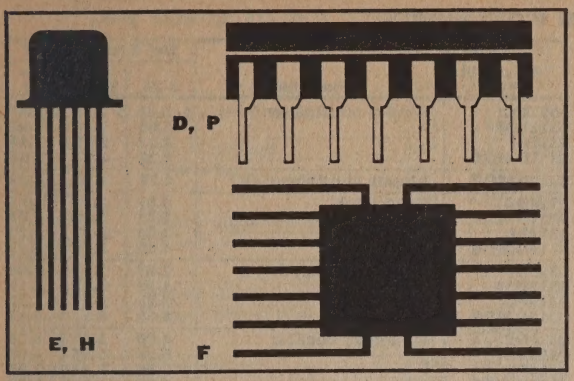
Our Field Application Engineers are prepared to introduce microsystems, single board systems, and development systems to those who have not used them before. Comparisons of types and suppliers can be made. We also demonstrate data terminals, disk drives, and printers. Our facilities can be made available for those who need a place to develop and test their software.

Each of our Centers is equipped to demonstrate products from some or all of the following: Data Systems Design, Digital Equipment Corporation, Intel, Lear Siegler, Microprocessor Peripherals Incorporated, Mostek, Motorola, National and Qume.

These Centers also program both prototype and production quantity PROM and EPROM requirements in accordance with your specifications.



Digital Integrated Circuits



Fairchild digital integrated circuits ordering procedure: Last two letters in suffix indicate package and temperature range: **First Letter—D**, ceramic DIP; **E**, plastic can circular lead configuration; **F**, ceramic flat pack; **H**, metal can circular lead configuration; **P**, plastic DIP. **Second Letter—C**, commercial/industrial range 0° C to +75° C; **M**, military range −55° C to +125° C. In addition to the part number, the date code will be marked on the part. The Fairchild F will appear in front of the date code.

STANDARD TTL/MSI

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
5442DM 5442DMQB	BCD-to-decimal decoder/ driver	$ 4.12 4.95	$ 3.48 4.19	$ 2.81 3.38
5443DMQB	Excess-3-to-decimal decoder	5.57	4.72	3.80
5444DMQB	Excess-3 Gray-to-decimal decoder	7.34	6.21	5.00
5445DM 5445DMQB	1-of-10 decoder	7.28 8.11	6.16 6.86	4.92 5.53
5447DM	BCD-to-7-segment decoder	5.92	5.01	4.05
5448DMQB	BCD-to-7-segment decoder	7.13	6.04	4.87
5449DMQB	BCD-to-7-segment decoder	7.07	5.98	4.83
5475DM 5475DMQB	Quad latch	2.72 3.55	2.30 3.00	1.86 2.43
5476DM 5476DMQB	Dual J-K master-slave flip-flop	2.10 2.77	1.78 2.34	1.43 1.89
5477DMQB	Quad latch	8.11	6.86	5.53
5480DMQB	Full adder	3.02	2.55	2.06
5482DMQB	2-bit binary full adder	4.97	4.20	3.39
5483DM 5483ADMQB	4-bit binary full adder	7.28 5.87	6.16 4.96	4.97 4.00
5485DM 5485DMQB	4-bit magnitude comparator	5.10 5.92	4.31 5.00	3.50 4.05
5490DM 5490DMQB	Decade counter	3.06 3.89	2.59 3.24	2.09 2.66
5491DMQB	8-bit shift register	5.57	4.72	3.81
5492DM 5492DMQB	Divide by 12 counter	3.06 3.89	2.59 3.29	2.09 2.66
5493DM 5493DMQB	4-bit binary counter	3.06 3.89	2.59 3.29	2.09 2.66
5494DMQB	4-bit shift register	4.97	4.20	3.39
5495ADM 5495ADMQB	4-bit right/left shift register	3.24 4.08	2.74 3.45	2.15 2.78
5496DM 5496DMQB	5-bit shift register	4.74 5.57	4.01 4.47	3.23 3.61
5497DM 5497DMQB	Synchronous rate multiplier	9.48 11.04	8.03 8.03	6.48 6.48
54107DM 54107DMQB	Dual J-K master-slave flip-flop	1.95 2.62	1.65 2.22	1.33 1.79
54123DM 54123DMQB	Dual retriggerable one-shot	5.32 5.90	4.50 5.00	3.64 4.10
54145DM 54145DMQB	BCD-to-decimal decoder/ driver	7.11 7.95	6.02 6.72	4.85 5.42
54150DM 54150DMQB	16-input multiplexer	4.68 5.51	3.96 4.66	3.20 3.76
54151DM 54151DMQB	8-input multiplexer	4.78 5.61	4.00 4.75	3.26 3.83
54152DMQB	8-input multiplexer	5.51	4.66	3.76
54153DM 54153DMQB	Dual 4-input multiplexer	4.68 5.51	3.96 4.66	3.20 3.76
54155DM 54155DMQB	Dual 1-of-4 decoder	4.43 5.05	3.75 4.28	3.02 3.45
54156DM 54156DMQB	Dual 1-of-4 decoder OC	4.43 5.05	3.75 4.28	3.02 3.45
54157DM 54157DMQB	Quad 2-input multiplexer	4.68 5.51	3.96 4.66	3.20 3.76
54160DM 54160DMQB	BCD decade counter	4.43 5.05	3.75 4.28	3.02 3.45

STANDARD TTL/MSI (CONTINUED)

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
54161DM 54161DMQB	4-bit binary counter	$ 4.14 4.89	$ 3.50 4.14	$ 2.83 3.34
54162DMQB	BCD decade counter	5.05	4.28	3.45
54163DM 54163DMQB	4-bit binary counter	4.14 4.89	3.50 4.14	2.83 3.34
54164DM 54164DMQB	8-bit serial-to-parallel converter	5.67 8.59	4.80 7.26	3.87 5.86
54165DM 54165DMQB	8-bit parallel-to-serial converter	10.82 11.65	9.15 9.85	7.38 7.95
54166DM 54166DMQB	8-bit shift register	10.82 11.65	9.15 9.85	7.38 7.95
54167DMQB	Synchronous rate multiplier	11.04	9.35	7.54
54170DM 54170DMQB	4-by-4 register file	13.20 14.04	11.17 11.88	9.01 9.58
54173DM 54173DMQB 54173FMQB	4-bit D type register	4.78 6.03 10.10	4.05 5.10 8.55	3.27 4.12 6.90
54174DM 54174DMQB	Hex D type flip-flop with clear	5.32 8.24	4.50 6.97	3.63 5.62
54175DM 54175DMQB	Quad D type flip-flop with clear	5.20 6.03	4.40 5.10	3.55 4.12
54176DM 54176DMQB	BCD decade counter	4.43 5.26	3.75 4.45	3.02 3.60
54177DM 54177DMQB	4-bit binary counter	4.43 5.26	3.75 4.45	3.02 3.60
54178DMQB	4-bit shift register	5.82	4.92	3.97
54179DMQB	4-bit shift register	5.82	4.92	3.97
54180DM 54180DMQB	8-bit parity generator/ checker	5.62 6.45	4.75 5.45	3.83 4.40
54190DMQB	Up/down decade counter	9.13	7.76	6.23
54191DM 54191DMQB	Up/down binary counter	8.30 9.13	7.02 7.76	5.66 6.23
54192DM 54192DMQB	Up/down decade counter	9.46 10.50	8.00 8.88	6.46 7.17
54193DM 54193DMQB	Up/down binary counter	9.46 10.50	8.00 8.88	6.46 7.17
54195DM 54195DMQB	4-bit right/left shift register	3.02 3.95	2.55 3.34	2.06 2.70
54196DM 54196DMQB	Decade counter	5.32 6.36	4.50 5.38	3.63 4.34
54197DM 54197DMQB	4-bit binary counter	5.32 6.36	4.50 5.38	3.63 4.34
54198DMQB	8-bit shift register	13.31	11.26	9.10
54199DM 54199DMQB	8-bit shift register	12.48 13.31	10.56 11.26	8.52 9.10
54283DM 54283DMQB	4-bit full adder	4.47 5.41	3.78 4.58	3.05 3.69
54293DMQB	Binary counter	3.95	3.34	2.70
54298DM 54298DMQB	Quad 2-input multiplexer	5.30 6.14	4.49 5.19	3.62 4.19
7442DC 7442PC	1-of-10 decoder	2.43 .77	2.02 .64	1.72 .55
7445DC 7445PC	BCD-to-decimal decoder/ driver 30 V	3.84 .99	3.19 .82	2.73 .70
7446DC 7446PC	BCD-to-7-segment decoder	3.22 2.16	2.68 1.79	2.29 1.53
7447DC 7447PC	BCD-to-7-segment decoder	3.12 1.36	2.60 1.13	2.22 .97
7448PC	BCD-to-7-segment decoder	2.01	1.67	1.43
7475DC 7475PC	Quad latch	1.49 .76	1.24 .64	1.06 .55
7483DC 7483PC	4-bit binary full adder	4.27 .99	3.54 .82	3.03 .70
7485PC	4-bit magnitude comparator	1.12	.93	.79
7490DC 7490PC	Decade counter	1.69 .60	1.40 .49	1.20 .42
7491PC	8-bit shift register	.99	.82	.70
7492DC 7492PC	Divide by 12 counter	1.66 .77	1.38 .64	1.18 .55
7493PC	4-bit binary counter	.69	.58	.49
7495ADC 7495APC	4-bit right/left shift register	2.31 .82	1.92 .68	1.64 .58
7496DC 7496PC	5-bit shift register	2.63 1.84	2.18 1.52	1.87 1.30
7497DC 7497PC	Synchronous rate multiplier	6.30 3.22	5.23 2.68	4.47 2.29
74145DC 74145PC	BCD-to-decimal decoder/ driver	3.10 1.24	2.58 1.03	2.20 .88
74150DC 74150PC	16-bit data selector	5.33 2.01	4.43 1.67	3.78 1.43
74151DC 74151PC	8-bit data selector	2.36 .72	1.96 .60	1.67 .51

STANDARD TTL/MSI CONTINUED ON FOLLOWING PAGE

STANDARD TTL/MSI (CONTINUED)

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
74153DC 74153PC	Dual 4-input multiplexer	$ 3.22 .79	$ 2.68 .66	$ 2.29 .56
74154PC	1-of-16 decoder	2.23	1.85	1.58
74155DC 74155PC	Dual 1-of-4 decoder	2.73 .82	2.27 .68	1.94 .58
74157DC 74157PC	Quad 2-input multiplexer	2.21 .72	1.83 .60	1.57 .51
74161DC 74161PC	4-bit binary counter	2.43 .94	2.02 .78	1.72 .67
74163DC 74163PC	4-bit binary counter	2.43 .94	2.02 .78	1.72 .67
74164DC 74164PC	8-bit serial-to-parallel converter	3.17 .89	2.64 .74	2.25 .63
74165DC 74165PC	8-bit parallel-to-serial converter	3.17 1.02	2.64 .84	2.25 .72
74166DC 74166PC	8-bit shift register	6.20 1.49	5.15 1.24	4.40 1.06
74167PC	Synchronous rate multiplier	4.84	4.02	3.43
74170DC 74170PC	4-by-4 register file	8.08 2.48	6.72 2.06	5.74 1.76
74173DC 74173PC	4-bit D type register	2.73 1.49	2.27 1.24	1.94 1.06
74174DC 74174PC	Hex D type flip-flop with clear	3.99 .99	3.32 .82	2.83 .70
74175DC 74175PC	Quad D type flip-flop with clear	3.72 .79	3.09 .66	2.64 .56
74180DC 74180PC	Parity generator/checker	3.92 1.12	3.25 .93	2.78 .79
74190PC	Up/down decade counter	.97	.80	.69
74191DC 74191PC	Up/down binary counter	4.96 1.09	4.12 .91	3.52 .77
74192DC 74192PC	Up/down decade counter	4.79 .89	3.98 .74	3.40 .63
74193DC 74193PC	Up/down binary counter	4.79 .89	3.98 .74	3.40 .63
74194DC 74194PC	4-bit right/left shift register	2.58 1.12	2.14 .93	1.83 .79
74195DC 74195PC	4-bit shift register	1.79 .84	1.48 .70	1.27 .60
74196DC 74196PC	Decade counter	3.25 1.69	2.70 1.40	2.31 1.20
74197DC 74197PC	4-bit binary counter	3.25 1.19	2.70 .99	2.31 .84
74283DC 74283PC	4-bit full adder	2.65 1.61	2.20 1.34	1.88 1.14
74290PC	Decade counter	1.17	.97	.83
74298DC 74298PC	Quad 2-input multiplexer	3.22 1.24	2.68 1.03	2.29 .88
9300DC 9300DM 9300PC 9300DMQB	4-bit universal register	2.84 4.24 1.07 5.07	2.40 3.59 .92 4.29	1.86 2.90 .74 3.46
9301DC 9301DM 9301PC 9301DMQB	1-of-10 decoder	3.05 4.00 2.12 4.86	2.85 3.41 1.80 4.12	2.45 2.75 1.44 3.32
9302PC 9302DMQB	1-of-10 decoder OC	2.40 4.86	2.02 4.12	1.65 3.32
9304DC 9304DM 9304PC 9304DMQB	Dual full adder	3.70 4.24 2.65 5.07	3.40 3.59 2.25 4.29	2.95 2.90 1.83 3.46
9305PC 9305DMQB	Variable modulo counter	2.12 6.45	1.80 5.45	1.46 4.40
9307PC 9307DMQB	BCD-to-7-segment decoder	3.45 6.20	2.93 5.26	2.38 4.24
9308DC 9308DM 9308PC 9308DMQB	8-bit latch	6.05 8.46 2.27 9.30	5.55 7.16 1.94 7.86	4.65 5.77 1.57 6.34
9309DC 9309DM 9309PC 9309DMQB	Dual 4-input multiplexer	2.45 4.00 2.12 4.86	2.25 3.41 1.80 4.12	1.95 2.75 1.44 3.32
9310DC 9310DM 9310PC 9310DMQB	BCD-decade counter	4.00 5.61 1.03 6.45	3.70 4.75 .88 5.45	3.20 3.83 .72 4.40
9311DC 9311DM 9311PC 9311DMQB	1-of-16 digital decoder	4.62 8.46 2.37 9.30	3.80 7.16 2.02 7.87	3.15 5.77 1.64 6.34

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
9312DC 9312DM 9312PC 9312DMQB	8-input multiplexer	$ 2.45 3.95 2.12 4.22	$ 2.25 3.34 1.80 3.57	$ 1.95 2.70 1.44 2.88
9313DMQB	8-input multiplexer OC	4.78	4.04	3.26
9314DC 9314DM 9314PC 9314DMQB	Quad latch	3.05 3.62 2.00 4.45	2.85 3.06 1.69 3.76	2.45 2.47 1.37 3.03
9315DC 9315DM 9315PC 9315DMQB	1-of-10 decoder/driver	2.87 4.55 2.21 5.40	2.43 3.87 1.87 4.57	1.98 3.12 1.52 3.69
9316DC 9316DM 9316PC 9316DMQB	Up binary counter	4.00 5.94 1.56 4.70	3.70 5.03 1.32 3.97	3.20 4.06 1.07 3.20
9317BDC 9317BDM 9317BPC 9317CDC 9317CDM 9317CPC 9317CDMQB	BCD-to-7-segment decoder/driver	5.20 5.39 3.45 4.80 4.82 3.45 5.65	4.75 4.56 2.93 4.40 4.08 2.93 4.78	4.15 3.68 2.38 3.85 3.29 2.38 3.86
9318DC 9318PC 9318DMQB	8-input priority encoder	7.50 4.15 8.20	6.90 3.50 6.93	6.00 2.81 5.59
9319PC 9319DMQB	Decade sequencer	1.77 5.82	1.50 4.93	1.21 3.98
9320DMQB	Decade sequencer	5.82	4.93	3.98
9321DC 9321DM 9321PC 9321DMQB	Dual 1-of-4 decoder	3.05 4.24 2.12 5.07	2.85 3.59 1.80 4.29	2.45 2.90 1.44 3.46
9322DC 9322DM 9322PC 9322DMQB	Quad 2-input multiplexer	1.85 4.24 1.54 5.07	1.56 3.59 1.30 4.29	1.23 2.90 1.06 3.46
9324DC 9324DM 9324PC 9324DMQB	5-bit comparator	4.10 5.39 1.13 6.20	3.47 4.56 .97 5.25	2.80 3.68 .79 4.24
9328DC 9328DM 9328PC 9328DMQB	Dual 8-bit shift register	7.50 7.82 4.40 8.65	6.90 6.62 3.73 7.32	6.00 5.34 3.03 5.90
9334DC 9334DM 9334PC 9334DMQB	8-bit addressable latch	6.05 10.17 5.20 11.00	5.60 8.60 4.40 9.30	4.85 6.94 3.57 7.50
9338DC 9338DM 9338PC 9338DMQB	8-bit multiport register	7.35 11.52 5.75 12.35	6.80 9.75 4.85 10.45	5.90 7.87 3.95 8.43
9340DC 9340DM 9340PC 9340DMQB	4-bit arithmetic logic unit	9.70 22.05 8.60 22.88	8.95 18.65 7.40 19.36	7.77 15.05 6.05 15.62
9341DC 9341PC 9341DMQB	4-bit arithmetic logic unit	9.70 8.80 14.35	8.95 7.45 12.14	7.77 5.95 9.80
9342PC 9342DMQB	Carry lookahead	2.60 5.67	2.07 4.80	1.61 3.87
9344DMQB	4 x 2-bit multiplier	24.96	21.12	17.04
9348DC 9348DM 9348PC 9348DMQB	12-bit parity checker	4.95 8.46 4.00 9.25	4.55 7.16 3.37 7.83	3.95 5.77 2.75 6.31
9368DC 9368PC	FND-70 driver/latch	2.90 2.60	2.65 2.10	2.30 1.78
9370DC 9370PC	7-segment decoder/driver latch	2.90 3.32	2.65 2.82	2.30 2.29
9374DC 9374PC	LED digit driver	2.90 2.60	2.45 2.10	2.00 1.78

LOW POWER TTL/MSI

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
9L04DM	Hex inverter	$ 3.20	$ 2.95	$ 2.55
9L24DC 9L24DM	J-K flip-flop	1.32 6.50	1.20 6.00	1.05 5.20
9L54DM	AND/NOR gate	2.55	2.35	2.05
9L86DM	Exclusive-OR gate	4.65	4.25	3.70
93L00DC 93L00DM 93L00PC	4-bit shift register	3.15 7.45 1.13	2.90 6.85 .97	2.50 5.95 .79

LOW POWER TTL/MSI CONTINUED ON NEXT PAGE

PRICES LISTED ARE FOR GUIDANCE ONLY

LOW POWER TTL/MSI (CONTINUED)

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
93L01DC 93L01DM	1-to-10 decoder	$ 3.05 7.45	$ 2.80 6.85	$ 2.45 5.95
93L01PC	1-to-10 decoder	2.66	2.25	1.84
93L08DC 93L08DM 93L08PC	8-bit latch	6.05 9.25 5.30	5.60 8.50 4.20	4.85 7.40 3.55
93L09PC	Dual 4-input multiplexer	2.20	2.00	1.70
93L10DC 93L10DM 93L10PC	BCD decade counter	4.00 12.20 3.75	3.70 11.20 3.45	3.20 9.75 2.95
93L11PC	1-of-16 digital decoder	5.30	4.20	3.55
93L12DC 93L12DM 93L12PC	8-input digital multiplexer	2.45 5.55 2.37	2.25 5.10 2.02	1.95 4.45 1.64
93L14DC 93L14DM 93L14PC	Quad latch	3.00 5.55 2.52	2.80 5.10 2.12	2.45 4.45 1.74
93L16DC 93L16DM 93L16PC	4-bit binary counter	4.00 12.20 3.75	3.70 11.20 3.45	3.20 9.75 2.95
93L18PC	8-input priority encoder	5.00	4.25	3.45
93L21PC	Dual 1-of-4 decoder	2.66	2.25	1.84
93L22DC 93L22DM 93L22PC	Quad 2-input multiplexer	2.45 5.55 2.20	2.25 5.10 2.00	1.95 4.45 1.70
93L24DC 93L24DM 93L24PC	5-bit comparator	6.20 11.05 4.15	5.70 10.20 3.50	4.95 8.85 2.85
93L28DC 93L28DM 93L28PC	8-bit shift register	7.50 14.95 5.35	6.90 13.75 4.50	6.00 11.95 3.65
93L34DC 93L34PC	8-bit addressable latch	6.05 5.65	5.60 5.30	4.85 4.30
93L38DC 93L38PC	8-bit multiport register	7.35 6.85	6.80 5.75	5.90 4.70

LOW POWER SCHOTTKY TTL

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
54LS00DM 54LS00DMQB 54LS00FMQB	Quad 2-input NAND gate	$0.94 2.29 10.40	$0.79 1.94 8.80	$0.64 1.56 7.10
54LS02DM 54LS02DMQB 54LS02FMQB	Quad 2-input NOR gate	.94 2.29 10.40	.79 1.94 8.80	.64 1.56 7.10
54LS03DM 54LS03DMQB 54LS03FMQB	Quad 2-input NAND gate OC	.94 2.89 10.40	.79 1.94 8.80	.64 1.56 7.10
54LS04DM 54LS04DMQB 54LS04FMQB	Hex inverter	1.04 2.54 10.40	0.88 2.15 8.80	0.71 1.73 7.10
54LS05DM 54LS05DMQB 54LS05FMQB	Hex inverter OC	1.04 2.54 10.40	.88 2.15 8.80	.71 1.73 7.10
54LS08DM 54LS08DMQB 54LS08FMQB	Quad 2-input AND gate	.94 2.29 10.40	.79 1.94 8.80	.64 1.56 7.10
54LS09DM 54LS09DMQB 54LS09FMQB	Quad 2-input AND gate OC	.94 2.29 10.40	.79 1.94 8.80	.64 1.56 7.10
54LS10DM 54LS10DMQB 54LS10FMQB	Triple 3-input NAND gate	.94 2.29 8.53	.79 1.94 7.22	.64 1.56 5.82
54LS11DM 54LS11DMQB 54LS11FMQB	Triple 3-input NAND gate OC	.94 2.29 10.40	.79 1.94 8.80	.64 1.56 7.10
54LS13DMQB 54LS13FMQB	Dual 4-input Schmitt trigger	3.12 10.61	2.64 8.98	2.13 7.24
54LS14DM 54LS14DMQB 54LS14FMQB	Hex Schmitt trigger	2.60 3.74 10.61	2.20 3.17 8.98	1.78 2.56 7.24
54LS15DMQB	Triple 3-input AND gate OC	2.29	1.94	1.56
54LS20DM 54LS20DMQB 54LS20FMQB	Dual 4-input NAND gate	.94 2.29 10.40	.79 1.94 8.80	.64 1.56 7.10
54LS21DM 54LS21DMQB 54LS21FMQB	Dual 4-input AND gate	.94 2.29 10.40	.79 1.94 8.80	.64 1.56 7.10
54LS26DM 54LS26DMQB	Quad 2-input NAND gate 15 V OC	1.14 2.70	.97 2.29	.78 1.85
54LS27DM 54LS27DMQB	Triple 3-input NOR gate	.94 2.29	.79 1.94	.64 1.56
54LS30DM 54LS30DMQB	8-input NAND gate	.94 2.29	.79 1.94	.64 1.56

LOW POWER SCHOTTKY TTL (CONTINUED)

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
54LS32DM 54LS32DMQB 54LS32FMQB	Quad 2-input OR gate	$ 0.94 2.29 10.30	$ 0.79 1.94 8.80	$ 0.64 1.56 7.10
54LS33DMQB 54LS33FMQB	Quad 2-input NOR buffer OC	2.78 10.30	2.38 8.80	1.92 7.10
54LS37DM 54LS37DMQB 54LS37FMQB	Quad 2-input NAND buffer	.93 2.78 10.30	.79 2.38 8.80	.64 1.92 7.10
54LS38DM 54LS38DMQB 54LS38FMQB	Quad 2-input NAND buffer	.93 2.78 10.30	.79 2.38 8.80	.64 1.92 7.10
54LS40DMQB 54LS40FMQB	Dual 4-input NAND buffer	2.78 10.40	2.38 8.80	1.92 7.15
54LS42DM 54LS42DMQB 54LS42FMQB	1-of-10 decoder	3.24 4.49 12.48	2.75 3.80 10.56	2.22 3.07 8.52
54LS51DM 54LS51DMQB 54LS51FMQB	Dual AND/OR invert gate	.94 2.29 10.40	.79 1.94 8.80	.64 1.56 7.10
54LS54DM 54LS54DMQB 54LS54FMQB	2-3-3-2-input AND/OR invert gate	.94 2.29 10.40	.79 1.94 8.80	.64 1.56 7.10
54LS55DMQB 54LS55FMQB	2-wide 4-input AND/OR invert gate	2.29 10.40	1.94 8.80	1.56 7.10
54LS74DM 54LS74DMQB 54LS74FMQB	Dual D type flip-flop	1.87 3.02 10.61	1.58 2.55 8.98	1.28 2.06 7.24
54LS83ADM 54LS83AFMQB	4-bit binary full adder	4.46 14.35	3.70 13.73	3.17 11.08
54LS95BDM 54LS95DMQB	4-bit shift register	4.40 4.87	3.69 4.12	3.15 3.32
54LS109DM 54LS109DMQB	Dual edge-triggered flip-flop	1.87 3.02	1.58 2.55	1.28 2.06
54LS112DM 54LS112DMQB	Dual variable skew flip-flop	1.87 3.02	1.58 2.55	1.28 2.06
54LS113DMQB	Dual edge-triggered flip-flop	3.02	2.55	2.06
54LS114DMQB	Dual edge-triggered flip-flop	3.02	2.55	2.06
54LS125ADM 54LS125DMQB	Quad 3-state buffer	2.36 3.12	1.96 2.64	1.67 2.13
54LS126DM 54LS126DMQB	Quad 3-state buffer	1.98 3.12	1.67 2.64	1.35 2.13
54LS133DM 54LS133DMQB	13-input NAND gate	.94 2.29	.79 1.94	.64 1.56
54LS136DM 54LS136DMQB	Quad Exclusive-OR gate OC	1.87 3.02	1.58 2.55	1.28 2.06
54LS138DM 54LS138DMQB	1-of-8 decoder/ demultiplexer	3.33 4.47	2.82 3.78	2.27 3.05
54LS139DM 54LS139DMQB	Dual 1-of-4 decoder/ demultiplexer	3.33 4.47	2.82 3.78	2.27 3.05
54LS151DM 54LS151DMQB	8-input multiplexer	2.64 3.79	2.24 3.20	1.80 2.58
54LS152FMQB	8-input multiplexer	13.18	11.26	9.09
54LS153DM 54LS153DMQB	Dual 4-input multiplexer	2.64 3.79	2.34 3.20	1.80 2.58
54LS155DM 54LS155DMQB	Dual 1-of-4 decoder	3.33 4.47	2.82 3.78	2.27 3.05
54LS156DMQB	Dual 1-of-4 decoder OC	4.47	3.78	3.05
54LS157DM 54LS157DMQB	Quad 2-input multiplexer non-inverting	3.25 4.39	2.75 3.71	2.22 3.00
54LS158DM 54LS158DMQB	Quad 2-input multiplexer inverting	3.25 4.39	2.75 3.71	2.22 3.00
54LS160DMQB	BCD decimal counter asynchronous reset	4.68	3.96	3.20
54LS161DMQB	4-bit binary counter asynchronous reset	4.68	3.96	3.20
54LS162DMQB	BCD counter synchronous reset	4.68	3.96	3.20
54LS163DMQB	4-bit binary counter synchronous reset	4.68	3.96	3.20
54LS170DMQB	4-by-4 register file	10.40	8.80	7.10
54LS174DM 54LS174DMQB	Hex D type flip-flop with clear	3.72 4.87	3.15 4.12	2.54 3.32
54LS175DM 54LS175DMQB	Quad D type flip-flop with clear	3.72 4.87	3.15 4.12	2.54 3.32
54LS192DM 54LS192DMQB	Up/down decade counter	3.72 4.87	3.15 4.12	2.54 3.32
54LS193DM 54LS193DMQB	Up/down binary counter	3.72 4.87	3.15 4.12	2.54 3.32
54LS194ADM 54LS194DMQB	4-bitright/left shift register	4.40 4.87	3.69 4.12	3.15 3.32
54LS195ADM 54LS195DMQB	4-bit shift register	4.40 4.87	3.69 4.12	3.15 3.32

LOW POWER SCHOTTKY TTL CONTINUED ON NEXT PAGE

LOW POWER SCHOTTKY TTL (CONTINUED)

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
54LS251DMQB	8-input 3-state multiplexer	$ 4.87	$ 4.12	$ 3.32
54LS253DM 54LS253DMQB	Dual 4-input 3-state multiplexer	3.72 4.87	3.15 4.12	2.54 3.32
54LS257DMQB	Quad 2-input 3-state multiplexer	4.87	4.12	3.32
54LS258ADM 54LS258DMQB	Quad 2-input 3-state multiplexer	4.40 4.87	3.69 4.12	3.15 3.32
54LS259DM 54LS259DMQB	8-bit address latch	11.19 12.11	9.47 10.24	7.64 8.26
54LS260DM 54LS260DMQB	Dual 5-input NOR gate	.94 2.89	.79 1.94	.64 1.56
54LS266DM 54LS266DMQB	Quad Exclusive-OR gate OC	1.87 3.02	1.58 2.55	1.28 2.06
54LS279DM 54LS279DMQB	Quad S-R latch	1.98 3.12	1.67 2.64	1.35 2.13
54LS283DM	4-bit binary full adder	3.42	3.11	2.70
54LS295DMQB	4-bit shift register	5.43	4.59	3.71
54LS298DM 54LS298DMQB	Quad 2-input multiplexer without latch	4.28 5.43	3.63 4.59	2.93 3.71
54LS365ADM 54LS365DMQB	Hex buffer 3-state with common enable	2.36 3.12	1.96 2.64	1.67 2.13
54LS366ADM 54LS366DMQB	Hex inverter 3-state with common enable	2.36 3.12	1.96 2.64	1.67 2.13
54LS367ADM 54LS367DMQB	Hex buffer 3-state 4-bit and 2-bit	2.36 3.12	1.96 2.64	1.67 2.13
54LS368ADM 54LS368DMQB	Hex inverter 3-state 4-bit and 2-bit	2.36 3.12	1.96 2.64	1.67 2.13
54LS670DM 54LS670DMQB	4-by-4 register file 3-state	9.71 11.96	8.22 10.12	6.63 8.17
74LS00DC 74LS00PC	Quad 2-input NAND gate	.62 .40	.52 .33	.44 .28
74LS02DC 74LS02PC	Quad 2-input NOR gate	.62 .40	.52 .33	.44 .28
74LS03DC 74LS03PC	Quad 2-input NAND gate OC	.62 .40	.52 .33	.44 .28
74LS04DC 74LS04PC	Hex inverter	.69 .42	.58 .35	.49 .30
74LS05DC 74LS05PC	Hex inverter OC	.69 .47	.58 .39	.49 .33
74LS08DC 74LS08PC	Quad 2-input AND gate	.62 .40	.52 .33	.44 .28
74LS09PC	Quad 2-input AND gate OC	.55	.45	.39
74LS10DC 74LS10PC	Triple 3-input NAND gate	.62 .40	.52 .33	.44 .28
74LS11DC 74LS11PC	Triple 3-input NAND gate OC	.62 .47	.52 .39	.44 .33
74LS13PC	Dual 4-input Schmitt trigger	.62	.51	.44
74LS14DC 74LS14PC	Hex Schmitt trigger	2.36 .84	1.96 .70	1.67 .60
74LS15PC	Triple 3-input AND gate OC	.47	.39	.33
74LS20DC 74LS20PC	Dual 4-input NAND gate	.62 .45	.52 .37	.44 .32
74LS21DC 74LS21PC	Dual 4-input AND gate	.62 .47	.52 .39	.44 .33
74LS26DC 74LS26PC	Quad 2-input NAND gate OC 15 V	.74 .57	.62 .47	.53 .40
74LS27DC 74LS27PC	Triple 3-input NOR gate	.62 .47	.52 .39	.44 .33
74LS28PC	Quad 2-input NOR buffer	.72	.60	.51
74LS30DC 74LS30PC	8-input NAND gate	.62 .40	.52 .33	.44 .28
74LS32DC 74LS32PC	Quad 2-input OR gate	.62 .40	.52 .33	.44 .28
74LS33PC	Quad 2-input NOR buffer OC	.72	.60	.51
74LS37DC 74LS37PC	Quad 2-input NAND buffer	.74 .57	.62 .47	.53 .40
74LS38DC 74LS38PC	Quad 2-input NAND buffer OC	.74 .57	.62 .47	.53 .40
74LS40PC	Dual 4-input NAND buffer	.45	.37	.32
74LS42DC 74LS42PC	1-of-10 decoder	2.43 .74	2.02 .62	1.72 .53
74LS51DC 74LS51PC	Dual AND/OR invert gate	.62 .42	.52 .35	.44 .30
74LS54DC 74LS54PC	2-3-3-2-input AND/OR invert gate	.62 .47	.52 .39	.44 .33
74LS55PC	2-wide 4-input AND/OR invert gate	.47	.39	.33

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
74LS74DC 74LS74PC	Dual D type flip-flop	$ 1.41 .52	$ 1.20 .43	$ 0.96 .37
74LS83ADC 74LS83APC	4-bit binary full adder	2.50 1.74	2.08 1.44	1.78 1.23
74LS85DC 74LS85PC	4-bit magnitude comparator	3.42 1.26	2.84 1.05	2.43 .90
74LS86DC 74LS86PC	Quad Exclusive-OR gate	1.69 .52	1.41 .43	1.20 .37
74LS90DC 74LS90PC	Decade counter	2.16 .74	1.79 .62	1.53 .53
74LS93DC 74LS93PC	4-bit binary counter	2.16 .87	1.79 .72	1.53 .62
74LS95BDC 74LS95BDP	4-bit shift register	3.42 .99	2.84 .82	2.43 .70
74LS109DC 74LS109PC	Dual edge-triggered flip-flop	1.69 .57	1.41 .47	1.20 .40
74LS112DC 74LS112PC	Dual variable skew flip-flop	1.69 .57	1.41 .47	1.20 .40
74LS113PC	Dual edge-triggered flip-flop	.79	.66	.56
74LS125ADC 74LS125ADP	Quad 3-state buffer	1.02 1.12	.84 .93	.72 .79
74LS126DC 74LS126PC	Quad 3-state buffer	1.36 1.14	1.13 .95	.97 .81
74LS132DC 74LS132PC	Quad 2-input Schmitt trigger	2.11 1.02	1.75 .84	1.50 .72
74LS133DC 74LS133PC	13-input NAND gate	.69 .47	.58 .39	.49 .33
74LS136DC 74LS136PC	Quad Exclusive-OR gate OC	.99 .62	.82 .52	.70 .44
74LS138DC 74LS138PC	1-of-8 decoder/ demultiplexer	2.95 .82	2.45 .68	2.09 .58
74LS139DC 74LS139PC	Dual 1-of-4 decoder/ demultiplexer	2.95 .82	2.45 .68	2.09 .58
74LS151DC 74LS151PC	8-input multiplexer	2.43 .79	2.02 .66	1.72 .56
74LS153DC 74LS153PC	Dual 4-input multiplexer	2.43 .77	2.02 .64	1.72 .55
74LS155DC 74LS155PC	Dual 1-of-4 decoder	2.95 1.09	2.45 .91	2.09 .77
74LS156PC	Dual 1-of-4 decoder OC	2.23	1.85	1.58
74LS157DC 74LS157PC	Quad 2-input multiplexer non-inverting	2.98 .72	2.47 .60	2.11 .51
74LS158DC 74LS158PC	Quad 2-input multiplexer inverting	2.98 .74	2.47 .62	2.11 .53
74LS160PC	BCD-to-decimal counter with asynchronous reset	1.19	.99	.84
74LS161DC 74LS161PC	4-bit binary counter with asynchronous reset	3.35 1.19	2.78 .99	2.38 .84
74LS162PC	BCD counter with synchronous reset	1.19	.99	.84
74LS163DC 74LS163PC	4-bit binary counter with synchronous reset	3.35 1.19	2.78 .99	2.38 .84
74LS168DC 74LS168PC	Up/down decade counter	2.98 2.48	2.47 2.06	2.11 1.76
74LS169DC 74LS169PC	Up/down binary counter	2.98 2.48	2.47 2.06	2.11 1.76
74LS170PC	4-by-4 register file	2.23	1.85	1.58
74LS173DC 74LS173PC	4-bit D register 3-state	2.93 .94	2.43 .78	2.08 .67
74LS174DC 74LS174PC	Hex D type flip-flop with clear	3.42 .82	2.84 .68	2.43 .58
74LS175DC 74LS175PC	Quad D type flip-flop with clear	3.42 .84	2.84 .70	2.43 .60
74LS181PC	4-bit arithmetic logic unit	4.22	3.50	2.99
74LS190PC	Up/down decade counter	2.03	1.69	1.44
74LS191DC 74LS191PC	Up/down binary counter	4.61 1.36	3.83 1.13	3.27 .97
74LS192DC 74LS192PC	Up/down decade counter	3.42 1.07	2.84 .89	2.43 .76
74LS193DC 74LS193PC	Up/down binary counter	3.42 1.07	2.84 .89	2.43 .76
74LS194ADC 74LS194APC	4-bit right/left shift register	3.42 1.14	2.84 .95	2.43 .81
74LS195ADC 74LS195APC	4-bit shift register	3.42 .94	2.84 .78	2.43 .67
74LS196PC	Decade counter	2.23	1.85	1.58
74LS197DC 74LS197PC	4-bit binary counter	3.42 1.22	2.84 1.01	2.43 .86
74LS240PC 74LS241PC	Octal bus driver	1.61 1.61	1.34 1.34	1.14 1.14

LOW POWER SCHOTTKY TTL CONTINUED ON NEXT PAGE

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LOW POWER SCHOTTKY TTL (CONTINUED)

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
74LS251DC 74LS251PC	8-input multiplexer 3-state	$ 3.10 .92	$ 2.58 .76	$ 2.20 .65
74LS253DC 74LS253PC	Dual 4-input multiplexer 3-state	3.42 .99	2.84 .82	2.43 .70
74LS257ADC 74LS257APC	Quad 2-input multiplexer 3-state	3.42 .94	2.84 .78	2.43 .67
74LS258ADC 74LS258APC	Quad 2-input multiplexer 3-state	3.42 .77	2.84 .64	2.43 .55
74LS259DC 74LS259PC	8-bit address latch	4.96 1.71	4.12 1.42	3.52 1.21
74LS260DC 74LS260PC	Dual 5-input NOR gate	.62 .55	.52 .45	.44 .39
74LS266DC 74LS266PC	Quad Exclusive-NOR gate OC	.99 .57	.82 .47	.70 .40
74LS273PC	8-bit D type register	1.73	1.44	1.23
74LS279DC 74LS279PC	Quad S-R latch	1.36 .71	1.13 .59	.97 .51
74LS283DC 74LS283PC	4-bit binary full adder	2.50 1.02	2.08 .84	1.78 .72
74LS290DC 74LS290PC	Decade counter	2.43 1.24	2.02 1.03	1.72 .88
74LS293DC 74LS293PC	4-bit binary counter	2.43 1.24	2.02 1.03	1.72 .88
74LS295ADC 74LS295APC	4-bit shift register	3.94 1.86	3.28 1.55	2.80 1.32
74LS298DC 74LS298PC	Quad 2-input multiplexer without latch	3.94 1.31	3.28 1.09	2.80 .93
74LS365ADC 74LS365APC	Hex buffer 3-state with common enable	1.36 .87	1.13 .72	.97 .62
74LS366ADC 74LS366APC	Hex inverter 3-state with common enable	1.36 1.04	1.13 .87	.97 .74
74LS367DC 74LS367APC	Hex buffer 3-state 4-bit and 2-bit	1.22 .64	1.01 .54	.86 .46
74LS368ADC 74LS368APC	Hex inverter 3-state 4-bit and 2-bit	1.36 .64	1.13 .54	.97 .46
74LS377PC	8-bit D type register	1.73	1.44	1.23
74LS378PC	Hex D flip-flop	1.24	1.03	.88
74LS390DC 74LS390PC	Dual decade counter	4.56 3.82	3.79 3.17	3.24 2.71
74LS393DC 74LS393PC	Dual 4-bit binary counter	4.84 1.36	4.02 1.13	3.43 .97
74LS395DC 74LS395PC	4-bit shift register 3-state	2.06 2.73	1.71 2.27	1.46 1.94
74LS490PC	Dual decade counter	4.12	3.42	2.92
74LS670DC 74LS670PC	4-by-4 register file 3-state	4.46 2.48	3.71 2.06	3.17 1.76

STANDARD TTL/SSI

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
5400DM 5400DMQB	Quad 2-input NAND gate	$1.25 1.97	$1.05 1.67	$0.85 1.35
5401DM 5401DMQB	Quad 2-input NAND gate OC	1.25 1.97	1.05 1.67	.85 1.35
5402DM 5402DMQB	Quad 2-input NOR gate	1.25 1.97	1.05 1.67	.85 1.35
5403DM 5403DMQB	Quad 2-input NAND gate OC	1.25 1.97	1.05 1.67	.85 1.35
5404DM 5404DMQB	Hex inverter	1.56 2.22	1.32 1.88	1.06 1.50
5405DM 5405DMQB	Hex inverter OC	1.56 2.22	1.32 1.88	1.06 1.50
5406DM 5406DMQB	30 V hex inverter/ driver OC	2.18 2.85	1.84 2.41	1.49 1.94
5407DM 5407DMQB	30 V hex buffer/ driver OC	2.18 2.85	1.84 2.41	1.49 1.94
5408DM 5408DMQB	Quad 2-input AND gate	1.25 1.97	1.05 1.67	.85 1.35
5409DM 5409DMQB	Quad 2-input AND gate OC	1.25 1.97	1.05 1.67	.85 1.35
5410DM 5410DMQB	Triple 3-input NAND gate	1.25 1.97	1.05 1.67	.85 1.35
5412DM 5412DMQB	Triple 3-input NAND gate OC	1.35 1.97	1.14 1.67	.92 1.35
5413DM 5413DMQB	Dual 4-input and Schmitt trigger	2.72 3.39	2.30 2.87	1.86 2.31
5414DM 5414DMQB	Hex Schmitt trigger	3.14 3.80	2.65 3.22	2.14 2.59
5416DM 5416DMQB	Hex inverter buffer/ driver OC	1.95 2.62	1.65 2.21	1.33 1.80
5417DM 5417DMQB	15 V hex buffer/ driver OC	1.95 2.62	1.65 2.20	1.33 1.79
5420DM 5420DMQB	Dual 4-input NAND gate	1.25 1.97	1.05 1.67	.85 1.35

STANDARD TTL/SSI (CONTINUED)

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
5421DM 5421DMQB	Dual 4-input AND gate	$ 1.25 1.97	$ 1.05 1.67	$ 0.85 1.35
5423DMQB	Dual 4-input NOR gate with strobe	2.68	2.27	1.83
5425DM 5425DMQB	Dual 4-input NOR gate with strobe	2.02 2.68	1.71 2.27	1.38 1.83
5426DM 5426DMQB	Quad 2-input NAND gate	1.65 2.32	1.41 1.97	1.14 1.59
5427DM 5427DMQB	Triple 3-input NOR gate	2.10 2.77	1.78 2.34	1.43 1.89
5430DM 5430DMQB	8-input NAND gate	1.35 1.97	1.14 1.67	.92 1.35
5432DM 5432DMQB	Quad 2-input NOR gate	1.68 2.35	1.43 1.99	1.15 1.60
5437DM 5437DMQB	Quad 2-input NAND buffer	1.95 2.62	1.65 2.22	1.33 1.79
5438DM 5438DMQB	Quad 2-input NAND buffer OC	1.95 2.62	1.65 2.22	1.33 1.79
5439DM 5439DMQB	Quad 2-input NAND buffer OC	2.18 2.85	1.84 2.41	1.49 1.95
5440DM 5440DMQB	Dual 4-input NAND buffer	1.25 1.97	1.05 1.67	.85 1.35
5450DM 5450DMQB	Dual AND/OR gate inverter/expander	1.25 1.97	1.05 1.67	.85 1.35
5451DM 5451DMQB	Dual 2-input AND/OR invert gate	1.25 1.97	1.05 1.67	.85 1.35
5453DM 5453DMQB	Expandable 4-wide 2-input AND/OR invert gate	1.25 1.97	1.05 1.67	.85 1.35
5454DM 5454DMQB	Expandable 4-wide 2-input AND/OR invert gate	1.25 1.97	1.05 1.67	.85 1.35
5460DM 5460DMQB	Dual 4-input expander	1.25 1.97	1.05 1.67	.85 1.35
5470DMQB	J-K edge-triggered flip-flop	2.32	1.97	1.59
5472DM 5472DMQB	J-K master-slave flip-flop	1.68 2.32	1.43 1.97	1.15 1.59
5473DM 5473DMQB	Dual J-K master-slave flip-flop	2.03 2.75	1.72 2.30	1.39 1.85
5474DM 5474DMQB	Dual D type flip-flop	2.03 2.75	1.72 2.30	1.39 1.85
5486DM 5486DMQB	Quad Exclusive-OR gate	2.37 3.04	2.00 2.57	1.62 2.07
54125DM 54125DMQB	Quad 3-state buffer	1.87 2.81	1.58 2.38	1.28 1.92
54126DMQB	Quad 3-state buffer	2.81	2.38	1.92
54132DM 54132DMQB	Quad 2-input Schmitt trigger	2.16 2.80	1.83 2.37	1.48 1.92
54279DM 54279DMQB	Quad S-R latch	2.10 3.02	1.78 2.55	1.43 2.06
7400DC 7400PC	Quad 2-input NAND gate	.57 .40	.47 .33	.40 .28
7401DC 7401PC	Quad 2-input NAND gate OC	.57 .40	.47 .33	.40 .28
7402DC 7402PC	Quad 2-input NOR gate	.57 .40	.47 .33	.40 .28
7403DC 7403PC	Quad 2-input NAND gate OC	.57 .40	.47 .33	.40 .28
7404DC 7404PC	Hex inverter	.71 .42	.59 .35	.50 .30
7405DC 7405PC	Hex inverter OC	.71 .50	.59 .41	.50 .35
7406DC 7406PC	30 V hex inverter/driver	2.28 .50	1.90 .41	1.62 .35
7407DC 7407PC	30 V hex buffer/driver	2.28 .67	1.90 .56	1.62 .48
7408DC 7408PC	Quad 2-input AND gate	.74 .50	.62 .41	.53 .35
7409DC 7409PC	Quad 2-input AND gate OC	.74 .50	.62 .41	.53 .35
7410DC 7410PC	Triple 3-input NAND gate	.57 .40	.47 .33	.40 .28
7411DC 7411PC	Triple 3-input AND gate	.74 .50	.62 .41	.53 .35
7412DC 7412PC	Triple 3-input NAND gate OC	.87 .47	.72 .39	.56 .33
7413DC 7413PC	Dual 4-input Schmitt trigger	2.11 .72	1.75 .60	1.50 .51
7414DC 7414PC	Hex Schmitt trigger	4.32 .84	3.58 .70	3.06 .60
7416DC 7416PC	15 V hex inverter/driver	1.91 .62	1.59 .52	1.36 .44
7417DC 7417PC	15 V hex buffer/driver	1.91 .62	1.59 .52	1.36 .44
7420DC 7420PC	Dual 4-input NAND gate	.57 .40	.47 .33	.40 .28

STANDARD TTL/SSI CONTINUED ON NEXT PAGE

Digital Integrated Circuits

STANDARD TTL/SSI (CONTINUED)

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
7421DC 7421PC	Dual 4-input AND gate	$ 0.57 .50	$ 0.47 .41	$ 0.45 .30
7425DC 7425PC	Dual 4-input NOR gate with strobe	1.12 .57	.93 .47	.79 .40
7426DC 7426PC	Quad 2-input NAND gate	.74 .60	.62 .49	.53 .42
7427DC 7427PC	Triple 3-input NOR gate	1.36 .57	1.13 .47	.97 .40
7430DC 7430PC	8-input NAND gate	.57 .40	.47 .33	.40 .28
7432DC 7432PC	Quad 2-input NOR gate	.89 .52	.74 .43	.63 .37
7437DC 7437PC	Quad 2-input buffer	.99 .57	.82 .47	.70 .40
7438DC 7438PC	Quad 2-input buffer OC	.99 .57	.82 .47	.70 .40
7439DC	Quad 2-input buffer OC 15 V	1.74	1.44	1.23
7440DC 7440PC	Dual 4-input buffer	.57 .47	.47 .39	.40 .33
7450DC 7450PC	Dual 2-wide 2-input AND/OR gate inverter/expander	.57 .40	.47 .33	.40 .28
7451DC 7451PC	Dual 2-wide 2-input AND/OR gate inverter/expander	.57 .40	.47 .33	.40 .28
7453DC 7453PC	4-wide 2-input AND/OR gate inverter/expander	.57 .40	.47 .33	.40 .28
7454DC 7454PC	4-wide 2-input AND/OR gate inverter/expander	.57 .40	.47 .33	.40 .28
7470PC	J-K flip-flop	.69	.58	.49
7472DC 7472PC	J-K master-slave flip-flop (AND inputs)	.88 .64	.73 .54	.62 .46
7473DC 7473PC	Dual J-K master-slave flip-flop	1.50 .64	1.25 .54	1.06 .46
7474DC 7474PC	Dual D type flip-flop	1.28 .62	1.06 .52	.91 .44
7476DC 7476PC	Dual J-K master-slave flip-flop	1.56 .57	1.30 .47	1.11 .40
7486DC 7486PC	Quad Exclusive-OR gate	1.24 .57	1.03 .47	.88 .40
74107DC 74107PC	Dual J-K master-slave flip-flop	1.50 .67	1.25 .56	1.06 .48
74123DC 74123PC	Dual retriggerable one-shot multivibrator	2.38 .62	1.98 .56	1.69 .44
74125DC 74125PC	Quad 3-state buffer	1.24 .99	1.03 .82	.88 .70
74126PC	Quad 3-state buffer	.99	.82	.70
74132DC 74132PC	Quad 2-input Schmitt trigger	3.20 .99	2.66 .82	2.27 .70
74279DC 74279PC	Quad S-R latch	1.39 .94	1.15 .78	.99 .67
9001DC 9001DM	J-K master-slave flip-flop	1.19 6.30	1.07 5.05	.91 4.20
9002DC 9002DM	Quad 2-input NAND gate	.66 3.80	.59 3.05	.50 2.55
9003DC 9003DM	Triple 3-input NAND gate	.66 3.80	.59 3.05	.50 2.55
9004DC 9004DM	Dual 4-input NAND gate	.66 3.80	.59 3.05	.50 2.55
9005DC 9005DM	Dual Exclusive-OR gate	.66 3.80	.59 3.05	.50 2.55
9007DC 9007DM	8-input NAND gate	.66 3.80	.59 3.05	.50 2.55
9008DC 9008DM	AND/OR invert gate	.66 3.80	.59 3.05	.50 2.55
9009DC 9009DM	Dual buffer	.88 4.35	.78 3.50	.66 2.90
9012DC 9012DM	Quad 2-input NAND gate OC	.66 3.80	.59 3.05	.50 2.55
9014DC 9014DM	Quad Exclusive-OR gate	1.18 4.80	1.07 3.90	.91 3.20
9015DC 9015DM	Quad NOR gate	.88 4.35	.78 3.50	.66 2.90
9016DC 9016DM	Hex inverter	1.05 4.80	.94 3.85	.80 3.20
9020DC 9020DM	Dual J-K flip-flop	1.73 9.60	1.56 7.70	1.33 6.45
9022DC 9022DM	Dual J-K master-slave flip-flop	1.98 10.20	1.78 8.15	1.51 6.85
9024DC 9024DM	Dual J-K flip-flop	1.26 8.40	1.14 6.70	.97 5.65

HIGH SPEED TTL/SSI

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
54H00DM	Quad 2-input NAND gate	$ 3.05	$ 2.45	$ 2.05
54H01DM	Quad 2-input NAND gate OC	3.05	2.45	2.05
54H04DM	Hex inverter	3.80	3.05	2.55
54H05DM	Hex inverter	3.80	3.05	2.55
54H08DM	Quad 2-input AND gate	3.95	3.20	2.65
54H10DM	Triple 3-input NAND gate	3.05	2.45	2.05
54H11DM	Triple 3-input AND gate	3.95	3.20	2.65
54H20DM	Dual 4-input NAND gate	3.05	2.45	2.05
54H21DM	Dual 4-input AND gate	3.05	2.45	2.05
54H22DM	Dual 4-input NAND gate OC	3.05	2.45	2.05
54H30DM	8-input NAND gate	3.05	2.45	2.05
54H40DM	Dual 4-input buffer	3.50	2.80	2.35
54H50DM	Dual 2-wide 2-input AND/OR invert gate expandable	3.05	2.45	2.05
54H51DM	Dual 2-wide 2-input AND/OR invert gate	3.05	2.45	2.05
54H54DM	4-wide 2-input inverter	3.05	2.45	2.05
54H61DM	Triple 3-input expander	3.05	2.45	2.05
54H72DM	J-K master-slave flip-flop	4.70	3.80	3.15
54H73DM	Dual J-K master-slave flip-flop	7.80	6.25	5.20
54H74DM	Dual D type flip-flop	6.30	5.05	4.20
54H103DM	J-K edge-triggered flip-flop 50 MHz	7.45	5.95	4.95
54H106DM	Dual J-K edge-triggered flip-flop 50 MHz	7.20	5.75	4.80
74H00DC 74H00PC	Quad 2-input NAND gate	.83 .63	.67 .51	.56 .41
74H01DC 74H01PC	Quad 2-input NAND gate OC	.83 .63	.67 .51	.56 .41
74H04DC 74H04PC	Hex inverter	.92 .73	.73 .56	.61 .48
74H05DC 74H05PC	Hex inverter OC	.92 .73	.73 .56	.61 .48
74H08DC 74H08PC	Quad 2-input AND gate	1.15 .73	.92 .56	.76 .48
74H10DC 74H10PC	Triple 3-input NAND gate	.69 .63	.56 .51	.46 .41
74H11DC 74H11PC	Triple 3-input AND gate	1.07 .73	.85 .56	.71 .48
74H20DC 74H20PC	Dual 4-input NAND gate	.75 .63	.60 .51	.50 .41
74H21DC 74H21PC	Dual 4-input AND gate	.82 .63	.66 .51	.55 .41
74H30DC 74H30PC	8-input NAND gate	.75 .63	.60 .51	.50 .41
74H40DC 74H40PC	Dual 4-input buffer	.75 .63	.60 .51	.50 .41
74H50DC 74H50PC	Dual 2-wide 2-input AND/OR invert gate expandable	.83 .63	.67 .51	.56 .41
74H51DC 74H51PC	Dual 2-wide 2-input AND/OR invert gate	.83 .63	.67 .51	.56 .41
74H52PC	4-wide 2-2-2-3-input AND/OR invert gate	.63	.51	.41
74H53DC 74H53PC	Expandable 4-wide 2-input inverter	.90 .63	.71 .51	.61 .41
74H54DC 74H54PC	2-2-2-3-input AND/OR invert gate	.90 .63	.71 .51	.61 .41
74H74DC 74H74PC	Dual D type flip-flop	1.35 .96	1.10 .84	0.90 .68
74H103DC 74H103PC 74H106DC 74H106PC	Dual J-K edge-triggered flip-flop 50 MHz	1.65 1.40 1.48 1.36	1.20 1.10 1.20 1.10	1.10 .93 1.00 .92
74H108DC 74H108PC	Dual J-K edge-triggered flip-flop 50 MHz	1.58 1.34	1.26 1.07	1.05 .89
93H00DC	4-bit shift register	6.10	5.60	4.85
93H72DC 93H72DM	4-bit shift register	6.10 12.20	5.60 11.20	4.85 9.70

SUPER HIGH SPEED SCHOTTKY TTL/SSI

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
54S00DM 54S00DMQB 54S00FMQB	Quad 2-input NAND gate	$ 5.52 7.38 10.40	$ 4.66 6.25 8.80	$ 3.77 5.04 7.10
54S02DM 54S02DMQB 54S02FMQB	Quad 2-input NOR gate	5.52 7.39 10.40	4.66 6.25 8.80	3.77 5.04 7.10

SUPER HIGH SPEED SCHOTTKY CONTINUED ON NEXT PAGE

PRICES LISTED ARE FOR GUIDANCE ONLY

SUPER HIGH SPEED SCHOTTKY TTL/SSI (CONT.)

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
54S04DMQB	Hex inverter	$ 8.84	$ 7.48	$ 6.03
54S04FMQB		12.31	10.42	8.40
54S05DMQB	Hex inverter OC	8.84	7.48	6.03
54S05FMQB		12.31	10.42	8.40
54S08DM	Quad 2-input AND gate	5.51	4.66	3.76
54S08DMQB		7.38	6.25	5.04
54S08FMQB		10.40	8.80	7.10
54S09DMQB	Quad 2-input AND gate OC	7.38	6.25	5.04
54S09FMQB		10.40	8.80	7.10
54S10DM	Triple 3-input NAND gate	5.51	4.66	3.76
54S10DMQB		7.38	6.25	5.04
54S10FMQB		10.40	8.80	7.10
54S11DM	Triple 3-input AND gate	5.51	4.66	3.76
54S11DMQB		7.38	6.25	5.04
54S11FMQB		10.40	8.80	7.10
54S15DMQB	Triple 3-input AND gate OC	7.38	6.25	5.04
54S20DM	Dual 4-input NAND gate	5.22	4.66	3.77
54S20DMQB		7.38	6.25	5.04
54S22DM	Dual 4-input NAND gate OC	5.51	4.66	3.76
54S22DMQB		7.38	6.25	5.04
54S22FMQB		10.40	8.80	7.10
54S30DM	8-input NAND gate	5.51	4.66	3.76
54S30DMQB		7.38	6.25	5.04
54S30FMQB		10.40	8.80	7.10
54S32DM	Quad 2-input NOR gate	7.63	6.45	5.21
54S32DMQB		9.50	8.04	6.49
54S32FMQB		12.10	10.24	8.26
54S40DM	Dual 4-input buffer	5.22	4.66	3.77
54S40DMQB		7.38	6.25	5.04
54S40FMQB		10.40	8.80	7.10
54S51DM	Dual 2-input AND/OR invert gate	5.51	4.66	3.76
54S51DMQB		7.38	6.25	5.04
54S51FMQB		10.40	8.80	7.10
54S64DM	4-2-2-3-input AND/OR invert gate	5.52	4.66	3.77
54S64DMQB		7.38	6.25	5.04
54S64FMQB		10.40	8.80	7.10
54S74DM	Dual D type flip-flop	10.08	8.53	6.88
54S74DMQB		11.96	10.12	8.16
54S74FMQB		16.64	14.08	11.36
54S86DM	Quad 2-input Exclusive-OR gate	5.52	4.66	3.77
54S86DMQB		7.38	6.25	5.04
54S86FMQB		10.40	8.80	7.10
54S109DM	Dual J-K flip-flop	10.37	8.78	7.08
54S109DMQB		12.25	10.36	8.36
54S109FMQB		18.28	15.47	12.48
54S112DM	Dual J-K flip-flop	10.37	8.78	7.08
54S112DMQB		12.25	10.36	8.36
54S112FMQB		18.28	15.47	12.48
54S113DMQB	Dual J-K flip-flop	12.25	10.36	8.36
54S113FMQB		18.28	15.47	12.48
54S114DMQB	Dual J-K edge-triggered flip-flop	12.25	10.36	8.36
54S114FMQB		18.28	15.47	12.48
54S132DM	Quad 2-input Schmitt trigger	3.85	3.26	2.63
54S132DMQB		5.10	4.31	3.48
54S132FMQB		10.81	9.15	7.38
54S133DM	13-input NAND gate	5.51	4.66	3.76
54S133DMQB		7.38	6.25	5.04
54S133FMQB		10.40	8.80	7.10
54S134DMQB	12-input NAND gate	7.38	6.25	5.04
54S134FMQB		10.40	8.80	7.10
54S135DMQB	Quad Exclusive-OR/NOR gate	10.60	8.97	7.24
54S135FMQB		14.31	12.10	9.77
54S138DM	1-of-8 decoder/demultiplexer	16.26	13.76	11.10
54S138DMQB		18.13	15.34	12.38
54S138FMQB		27.70	23.44	18.91
54S139DM	1-of-4 decoder/demultiplexer	16.26	13.76	11.10
54S139DMQB		18.13	15.34	12.38
54S139FMQB		27.70	23.44	18.91
54S140DM	Dual 4-input NAND driver	5.51	4.66	3.76
54S140DMQB		7.38	6.25	5.04
54S140FMQB		10.40	8.80	7.10
54S151DM	8-input multiplexer	15.35	12.98	10.48
54S151DMQB		17.22	14.57	11.75
54S151FMQB		23.60	19.97	16.11
54S153DM	Dual 4-input multiplexer	15.35	12.98	10.48
54S153DMQB		17.22	14.57	11.75
54S153FMQB		23.60	19.97	16.11
54S157DM	Quad 2-input multiplexer	14.51	12.28	9.91
54S157DMQB		16.41	13.88	11.20
54S157FMQB		22.92	19.39	15.65
54S158DM	Quad 2-input multiplexer	14.51	12.28	9.91
54S158DMQB		16.41	13.88	11.20
54S158FMQB		22.92	19.39	15.65
54S174DM	Hex D type flip-flop	14.80	12.53	10.11
54S174DMQB		16.68	14.11	11.39
54S174FMQB		23.27	19.69	15.89
54S175DM	Quad D type flip-flop	$14.80	$12.53	$10.11
54S175DMQB		16.68	14.11	11.39
54S175FMQB		23.27	19.69	15.89
54S194DM	4-bit shift register	16.81	14.25	11.50
54S194DMQB		18.72	15.84	12.78
54S194FMQB		28.39	24.02	19.38
54S253DM	Dual 4-input multiplexer OC	12.87	10.89	8.78
54S253DMQB		16.20	13.71	11.06
54S253FMQB		22.50	19.04	15.36
54S257DMQB	Quad 4-input multiplexer OC	16.20	13.71	11.06
54S257FMQB		22.92	19.39	15.65
54S258DM	Quad 2-input multiplexer 3-state	15.29	12.93	10.43
54S258DMQB		17.16	14.52	11.71
54S258FMQB		24.23	20.50	16.54
74S00DC	Quad 2-input NAND gate	.85	.72	.59
74S00PC		.57	.47	.40
74S02DC	Quad 2-input NOR gate	.85	.72	.59
74S02PC		.57	.47	.40
74S03DC	Quad 2-input NAND gate OC	.85	.72	.59
74S03PC		.57	.47	.40
74S04DC	Hex inverter	1.04	.88	.71
74S04PC		.67	.56	.48
74S05DC	Hex inverter OC	1.04	.88	.71
74S05PC		.67	.56	.48
74S08DC	Quad 2-input AND gate	.85	.72	.59
74S08PC		.67	.56	.48
74S10DC	Triple 3-input NAND gate	.85	.72	.59
74S10PC		.57	.47	.40
74S11DC	Triple 3-input AND gate	.85	.72	.59
74S11PC		.57	.47	.40
74S15PC	Triple 3-input AND gate OC	.71	.60	.49
74S20DC	Dual 4-input NAND gate	.85	.72	.59
74S20PC		.57	.47	.40
74S30DC	8-input NAND gate	.85	.72	.59
74S30PC		.57	.47	.40
74S32DC	Quad 2-input NOR gate	1.19	1.00	.81
74S32PC		.87	.72	.62
74S40DC	Dual 4-input buffer	.85	.72	.59
74S40PC		.57	.47	.40
74S51DC	Dual 2-input AND/OR invert gate	.85	.72	.59
74S51PC		.57	.47	.40
74S64DC	4-2-2-3-input AND/OR invert gate	.85	.72	.59
74S64PC		.57	.47	.40
74S74DC	Dual D type flip-flop	1.95	1.65	1.34
74S74PC		.99	.82	.70
74S86DC	Quad 2-input Exclusive-OR gate	.85	.72	.59
74S86PC		.71	.60	.49
74S109DC	Dual J-K flip-flop	1.96	1.65	1.33
74S109PC		1.62	1.37	1.10
74S112DC	Dual J-K flip-flop	1.95	1.65	1.34
74S112PC		.97	.80	.69
74S113PC	Dual J-K flip-flop	.97	.80	.69
74S132DC	Quad 2-input Schmitt trigger	2.04	1.72	1.39
74S132PC		1.56	1.32	1.07
74S133DC	13-input NAND gate	.85	.72	.59
74S133PC		.57	.47	.40
74S138DC	1-of-8 decoder/demultiplexer	6.31	5.04	3.90
74S138PC		1.49	1.24	1.06
74S139DC	1-of-4 decoder/demultiplexer	6.31	5.04	3.96
74S139PC		1.49	1.24	1.06
74S140DC	Dual 4-input NAND driver	.85	.72	.59
74S140PC		.71	.60	.49
74S151DC	8-input multiplexer	6.31	5.04	3.90
74S151PC		1.49	1.24	1.06
74S153DC	Dual 4-input multiplexer	5.93	5.02	4.05
74S153PC		1.49	1.24	1.06
74S157DC	Quad 2-input multiplexer	4.24	3.59	2.90
74S157PC		1.49	1.24	1.06
74S158DC	Quad 2-input multiplexer	4.24	3.59	2.90
74S158PC		1.49	1.24	1.06
74S174DC	Hex D type flip-flop	4.58	3.88	3.12
74S174PC		2.36	1.96	1.67
74S175DC	Quad D type flip-flop	4.58	3.88	3.12
74S175PC		2.36	1.96	1.67
74S194DC	4-bit shift register	7.80	6.60	5.33
74S194PC		2.23	1.85	1.58
74S253DC	Dual 4-input multiplexer OC	5.52	4.40	3.42
74S253PC		1.61	1.34	1.14
74S257DC	Dual 2-input multiplexer OC	5.64	4.50	3.48
74S257PC		1.49	1.24	1.06
74S258DC	Quad 2-input multiplexer 3-state	5.93	5.02	4.05
74S258PC		1.49	1.24	1.06

SUPER HIGH SPEED SCHOTTKY CONTINUED ON NEXT PAGE

SUPER HIGH SPEED SCHOTTKY TTL/SSI (CONT.)

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
9S41DC	Quad 2-input AND gate	$ 2.31	$ 1.86	$ 1.47
9S41DM		4.68	3.96	3.19
9S41PC		1.09	.99	.86
9S41DMQB		6.45	5.45	4.40
9S41FMQB		8.42	7.12	5.75
9S42DC	Dual AND/OR gate	2.31	1.86	1.47
9S42DM		4.68	3.96	3.19
9S42PC		1.09	.99	.86
9S42DMQB		6.45	5.45	4.40
9S42FMQB		8.42	7.12	5.75
93S00DC	4-bit universal register	4.89	4.14	3.34
93S00PC		3.54	2.99	2.41
93S10DC	Decade counter	5.62	4.75	3.83
93S10DM		17.05	14.43	11.65
93S10DMQB		18.92	16.00	12.92
93S12DC	8-input multiplexer	5.51	4.66	3.76
93S12DM		16.18	13.70	11.05
93S12PC		4.20	3.55	2.67
93S12DMQB		17.99	15.22	12.28
93S12FMQB		21.95	18.57	14.98
93S16DC	4-bit binary counter	5.62	4.75	3.83
93S16DMQB		18.92	16.01	12.92
93S16FMQB		23.30	19.71	15.90
93S41DC	4-bit arithmetic logic unit	13.72	11.62	9.37
93S41DM		33.70	28.51	23.00
93S41PC		10.61	8.97	7.24
93S41DMQB		37.44	31.68	25.56
93S41FMQB		46.70	39.51	31.88
93S42DC	Carry lookahead	4.78	4.04	3.27
93S42DM		17.99	15.22	12.29
93S42PC		3.74	3.17	2.56
93S42DMQB		19.76	16.72	13.49
93S42FMQB		24.96	21.12	17.04
93S43DC	2's complement multiplier	16.85	14.25	11.50
93S43DM		25.43	21.52	17.37
93S43PC		14.04	11.88	9.59
93S43DMQB		28.39	24.02	19.38
93S43FMQB		31.20	26.40	21.30
93S46DC	6-bit comparator	6.76	5.72	4.61
93S46DM		19.17	16.22	13.09
93S46PC		5.51	4.66	3.76
93S46DMQB		21.46	18.16	14.65
93S46FMQB		25.48	21.56	17.39
93S47DC	6-bit comparator	6.66	5.63	4.54
93S47DM		18.09	15.31	12.35
93S47PC		5.30	4.49	3.62
93S47DMQB		20.07	16.98	13.70
93S47FMQB		24.44	20.68	16.68
93S62DC	9-input parity generator	6.66	5.63	4.54
93S62DM		17.05	14.43	11.64
93S62PC		5.30	4.49	3.62
93S62DMQB		20.07	16.98	13.70
93S62FMQB		24.44	20.68	16.68

FAST SSI/MSI

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
74F00DC	Quad 2-input NAND gate	$0.94	$0.78	$0.67
74F00PC		.79	.66	.56
74F02DC	Quad 2-input NOR gate	.94	.78	.67
74F02PC		.79	.66	.56
74F04DC	Hex inverter	.92	.76	.65
74F08DC	Quad 2-input AND gate	.94	.78	.67
74F08PC		.79	.66	.56
74F10DC	Triple 3-input NAND gate	.94	.78	.67
74F10PC		.79	.66	.56
74F11DC	Triple 3-input AND gate	.94	.78	.67
74F11PC		.79	.66	.56
74F20DC	Dual 4-input NAND gate	.94	.78	.67
74F20PC		.79	.66	.56
74F32DC	Quad 2-input OR gate	.94	.78	.67
74F32PC		.79	.66	.56
74F64DC	AND/OR invert gate	.94	.78	.67
74F64PC		.79	.66	.56
74F74DC	Dual D type flip-flop	1.07	.89	.76
74F74PC		.89	.74	.63
74F86DC	Quad Exclusive-OR gate	1.44	1.19	1.02
74F86PC		1.19	.99	.84
74F109DC	Dual J-K flip-flop	1.19	.99	.84
74F109PC		.99	.82	.70
74F138DC	1-of-8 decoder/demultiplexer	2.13	1.77	1.51
74F138PC		1.79	1.48	1.27
74F139DC	Dual 1-of-4 decoder/demultiplexer	2.13	1.77	1.51
74F139PC		1.79	1.48	1.27
74F151DC	8-input multiplexer	2.13	1.77	1.51
74F151PC		1.79	1.48	1.27
74F153DC	Dual 4-input multiplexer	2.13	1.77	1.51
74F153PC		1.79	1.48	1.27

FAST SSI/MSI (CONT.)

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
74F157DC	Quad 2-input multiplexer	$ 2.13	$ 1.77	$ 1.51
74F157PC		1.79	1.48	1.27
74F158DC		2.13	1.77	1.51
74F158PC		1.79	1.48	1.27
74F175DC	Quad D type flip-flop w/clear	3.32	2.76	2.36
74F175PC		2.78	2.31	1.97
74F181DC	Arithmetic logic unit	12.60	10.46	8.94
74F181PC		5.98	4.96	4.24
74F182DC	Carry look ahead	3.27	2.72	2.32
74F182PC		2.73	2.27	1.94
74F189DC	64-bit RAM 3-state	8.93	7.42	6.34
74F189PC		7.44	6.18	5.28
74F190DC	Up/down decade counter	5.83	4.84	4.14
74F190PC		4.86	4.04	3.45
74F191DC	Up/down binary counter	5.83	4.84	4.14
74F191PC		4.86	4.04	3.45
74F194DC	4-bit shift register	2.41	2.00	1.71
74F240DC	Octal inverting bus driver	5.58	4.64	3.96
74F240PC		3.72	3.09	2.64
74F241DC	Octal bus/line driver	5.58	4.64	3.96
74F241PC		3.72	3.09	2.64
74F243DC	Quad bus transceiver, 3-state	5.58	4.64	3.96
74F243PC		4.34	3.61	3.08
74F244DC	Octal bus/line driver	5.58	4.64	3.96
74F244PC		3.72	3.09	2.64
74F251DC	8-input multiplexer, 3-state	2.33	1.94	1.65
74F251PC		1.93	1.61	1.37
74F253DC	Dual 4-input multiplexer, 3-state	2.33	1.94	1.65
74F253PC		1.93	1.61	1.37
74F257DC	Quad 2-input multiplexer	2.33	1.94	1.65
74F257PC		1.93	1.61	1.37
74F258DC	Quad 2-input multiplexer, 3-state	2.33	1.94	1.65
74F258PC		1.93	1.61	1.37
74F283DC	4-bit binary full adder	4.96	4.12	3.52
74F283PC		4.07	3.38	2.98
74F350DC	4-bit shifter, 3-state	5.21	4.33	3.70
74F350PC		4.34	3.61	3.08
74F352DC	Dual 4-input multiplexer	2.33	1.94	1.65
74F352PC		1.93	1.61	1.37
74F353DC	Inverting octal D latch	2.33	1.94	1.65
74F353PC		1.93	1.61	1.37
74F373DC	Octal D latch	6.82	5.67	4.84
74F373PC		4.84	4.02	3.43
74F374DC	Octal D flip-flop	6.82	5.67	4.84
74F374PC		4.84	4.02	3.43
74F379DC	Quad D flip-flop w/enable	3.32	2.76	2.36
74F379PC		2.78	2.31	1.97
74F399DC	Quad 2-input multiplexer w/storage	3.32	2.76	2.36
74F399PC		2.78	2.31	1.97
74F521DC	8-bit ident. comparator	6.20	5.15	4.40
74F521PC		4.22	3.50	2.99
74F533DC	Inverting octal D latch	6.82	5.67	4.84
74F533PC		4.84	4.02	3.43
74F534DC	Inverting octal D flip-flop	6.82	5.67	4.84
74F534PC		4.84	4.02	3.43

TTL MEMORY

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
93L412DC	256 x 4 RAM OC	$24.95	$21.11	$17.03
93L412PC		14.08	11.36	10.40
93L412DMQB		52.68	41.65	34.30
93L412DMQC		47.30	37.40	30.80
93L412FMQB		109.65	86.70	71.40
93L415DC	1024 x 1 RAM OC	14.08	11.36	10.40
93L415FM		66.56	56.32	45.44
93L415PC		7.92	6.39	5.85
93L415DMQB		40.54	34.30	27.30
93L415FMQB		73.10	57.80	47.60
93L420DC	256 x 1 RAM 3-state	13.39	11.12	9.50
93L420PC		10.17	8.45	7.22
93L421DC	256 x 1 RAM 3-state	12.15	10.09	8.62
93L421FM		22.35	18.03	16.51
93L421PC		8.93	7.42	6.34
93L422DC	256 x 4 RAM 3-state	22.32	18.54	15.84
93L422PC		14.08	11.36	10.40
93L422ADC		16.50	15.50	14.00
93L422APC		16.00	15.00	13.50
93L422DCQC		36.55	28.90	23.80
93L422DMQB		52.68	41.65	34.30
93L422DMQC		47.30	37.40	30.80
93L422FMQB		109.65	86.70	71.40

TTL MEMORY CONTINUED ON NEXT PAGE

TTL MEMORY (CONTINUED)

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
93L425DC	1024 x 1 RAM 3-state	$ 12.40	$10.30	$ 8.80
93L425PC		7.92	6.39	5.85
93L425DMQB		40.54	34.30	27.30
93L425DMQC		38.70	30.60	25.20
93L425FMQB		73.10	57.80	47.60
93412DC	256 x 4 RAM OC	25.98	22.00	17.75
93412PC		14.96	12.07	11.05
93412DMQB		52.68	41.65	34.30
93412DMQC		47.30	37.40	30.80
93412FMQB		109.65	86.70	71.40
93415DC	1024 x 1 RAM OC	11.41	9.48	8.10
93415FM		66.56	56.32	45.44
93415PC		9.92	8.24	7.04
93415ADC		19.36	15.62	14.30
93415APC		11.44	9.23	8.45
93415DMQB		42.62	36.06	28.70
93415DMQC		40.85	32.30	26.60
93415FMQB		73.10	57.80	47.60
93417DC	1024 x 1 RAM OC	4.84	4.02	3.43
93417PC		3.72	3.09	2.64
93417DCQB		13.98	11.05	9.10
93417DCQC		12.66	10.01	8.25
93417DMQB		16.13	12.75	10.50
93417DMQC		15.59	12.33	10.15
93417FMQB		38.38	30.35	24.99
93419DC	1024 x 1 RAM OC	18.60	15.45	13.20
93419PC		17.36	14.42	12.32
93419DMQB		58.05	45.90	37.80
93419DMQC		55.90	44.20	36.40
93419FMQB		118.25	93.50	77.00
93421DC	256 bit RAM OC 3-state	10.91	9.06	7.74
93421FM		17.60	14.20	13.00
93421PC		7.69	6.39	5.46
93421ADC		7.50	6.30	6.00
93421APC		6.50	5.30	5.00
93421DMQB		18.51	15.66	12.64
93421DMQC		17.85	14.11	11.62
93421FMQB		38.70	30.60	25.20
93422DC	256 x 4 RAM 3-state	22.32	18.54	15.84
93422PC		14.96	12.07	11.05
93422ADC		17.00	16.00	14.50
93422APC		16.50	15.50	14.00
93422DMQB		52.68	41.65	34.30
93422DMQC		47.30	37.40	30.80
93422FMQB		109.65	86.70	71.40
93425DC	1024 x 1 RAM 3-state	11.41	9.48	8.10
93425FM		66.56	56.32	45.44
93425PC		9.92	8.24	7.04
93425ADC		13.64	11.33	9.68
93425APC		12.40	10.30	8.80
93425DCQC		19.35	15.30	12.60
93425DMQB		42.62	36.06	28.70
93425DMQC		40.85	32.30	26.60
93425FMQB		73.10	57.80	47.60
93427DC	256 x 4 PROM 3-state	4.84	4.02	3.43
93427PC		3.72	3.09	2.64
93427DMQB		16.13	12.75	10.50
93427DMQC		15.59	12.33	10.15
93427FMQB		38.38	30.35	24.99
93436DC	512 x 4 PROM OC	6.82	5.67	4.84
93436PC		5.70	4.74	4.05
93436DMQB		21.50	17.00	14.00
93436DMQC		20.43	16.15	13.30
93436FMQB		45.15	35.70	29.40
93438DC	512 x 8 PROM OC	14.88	12.36	10.56
93438PC		10.54	8.76	7.48
93438DMQB		41.93	33.15	27.30
93438DMQC		40.85	32.30	26.60
93438FMQB		77.40	61.20	50.40
93446DC	512 x 4 PROM 3-state	6.85	4.95	4.05
93446PC		5.70	4.74	4.05
93446DMQB		21.50	17.00	14.00
93446DMQC		20.43	16.15	13.30
93446FMQB		45.15	35.70	29.40
93448DC	512 x 8 PROM 3-state	11.85	8.55	6.95
93448PC		10.54	8.76	7.84
93448DCQB		37.63	29.75	24.50
93448DMQB		41.93	33.15	27.30
93448DMQC		40.85	32.30	26.60
93448FMQB		77.40	61.20	50.40
93451DC	1024 x 8 PROM 3-state	19.22	15.97	13.64
93451PC		16.74	13.91	11.88
93451DCQC		59.13	46.75	38.50
93451DMQB		86.00	68.00	56.00
93451DMQC		81.70	64.60	53.20
93451FMQB		129.00	102.00	84.00
93453DC	1024 x 4 PROM 3-state	11.16	9.27	7.92
93453PC		9.80	8.14	6.95
93453DCQB		35.48	28.05	23.10
93453DCQC		32.79	25.93	21.35
93453DMQB		39.78	31.45	25.90
93453DMQC		38.70	30.60	25.20
93453FMQB		75.25	59.50	49.00

TTL MEMORY (CONTINUED)

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
93458DC	FPLA OC	$24.80	$20.60	$17.60
93458PC		21.70	18.03	15.40
93458DMQB		53.75	42.50	35.00
93458DMQC		49.45	39.10	32.20
93458FMQB		96.75	76.50	63.00
93459DC	FPLA 3-state	23.56	19.57	16.72
93459PC		20.46	17.00	14.52
93459DMQB		53.75	42.50	35.00
93459DMQC		49.45	39.10	32.20
93459FMQB		96.75	76.50	63.00

ECL BIPOLAR MEMORY

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
10410DC	256 x 1 RAM	$14.88	$12.36	$10.56
10414DC	256 x 1 RAM	15.00	13.50	12.00
10415DC	1024 x 1 RAM	14.88	12.36	10.56
10415ADC	1024 x 1 RAM	24.64	19.88	18.20
10416DC	256 x 4 PROM	24.70	20.50	16.25
10470DC	4096 x 1 RAM	40.00	35.00	30.00
100414DC	256 x 1 RAM	15.00	13.50	12.00
100415DC	1024 x 1 RAM	14.88	12.36	10.56
100416DC	256 x 4 PROM	24.70	20.50	16.25
100470DC	4096 x 1 RAM	50.00	40.00	35.00

TTL/INTERFACE

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
54121DM	One-shot multivibrator	$1.95	$1.65	$1.33
54122DM	Retriggerable one-shot multivibrator	2.10	1.77	1.43
54122DMQB		2.77	2.34	1.89
74122DC	Retriggerable one-shot multivibrator	1.66	1.38	1.18
74122PC		.77	.64	.55
9600DC	Retriggerable one-shot multivibrator	4.40	4.05	3.50
9600DM		8.45	7.75	6.75
9601DC	Retriggerable one-shot multivibrator	4.40	4.05	3.50
9601DM		8.45	7.75	6.75
9601PC		1.65	1.50	1.30
9602DC	Dual retriggerable one-shot multivibrator	.94	.80	.65
9602DM		10.70	9.90	8.60
9602PC		.71	.60	.49
96101DC	Quad 2-input NAND cable driver	1.66	1.40	1.14
96101PC		1.38	1.17	.95
96106PC	Quad 2-input NOR cable receiver	1.39	1.18	.95
96L02DC	Dual retriggerable one-shot multivibrator	1.56	1.32	1.06
96L02DM		2.29	1.94	1.56
96L02PC		1.16	.99	.79
96LS02DC	Dual retriggerable one-shot	1.75	1.48	1.23
96LS02PC		1.46	1.23	.99
96S02DC	Dual retriggerable one-shot multivibrator	2.87	2.43	1.96
96S02PC		2.29	1.94	1.56

DIODE TRANSISTOR LOGIC DTL

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
930DC	Dual 4-input gate/ expander	$ 0.93	$ 0.74	$ 0.62
930DM		3.70	2.95	2.50
930PC		.78	.62	.52
932DC	Dual 4-input buffer	1.04	.84	.70
932DM		4.05	3.20	2.75
932PC		.97	.78	.65
933PC	Dual 4-input extender	.78	.62	.52
935DC	Hex inverter/expander	1.09	.88	.73
935DM		4.05	3.20	2.70
935PC		1.04	.83	.69
936DC	Hex inverter	1.09	.88	.73
936DM		4.05	3.20	2.70
936PC		1.04	.83	.69
937DC	Hex inverter gate	1.09	.88	.73
937DM		4.05	3.20	2.70
937PC		1.04	.83	.69
944DC	Dual buffer	1.09	.88	.73
944DM		4.05	3.20	2.70
944PC		.97	.78	.65
945DC	R-S clocked flip-flop	1.26	1.01	.84
945DM		4.95	3.95	3.30
945PC		1.21	.97	.81
946DC	Quad 2-input gate	1.03	.82	.69
946DM		3.70	2.95	2.50
946PC		.86	.70	.57

DIODE TRANSISTOR LOGIC CONTINUED ON NEXT PAGE

Digital Integrated Circuits

DIODE TRANSISTOR LOGIC DTL (CONT.)

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
948DC	R-S clocked flip-flop	$ 1.26	$ 1.01	$ 0.84
948DM		4.95	3.95	3.30
948PC		1.21	.97	.81
949DC	Quad 2-input gate	1.03	.82	.69
949DM		3.70	2.95	2.50
949PC		.86	.70	.57
950PC	AC coupled R-S flip-flop	6.50	5.20	4.35
951PC	One-shot multivibrator	6.50	5.20	4.35
962DC	Triple 3-input gate	1.03	.82	.69
962DM		3.70	2.95	2.50
962PC		.86	.70	.57
9093DC	Dual J-K flip-flop	1.79	1.44	1.20
9093DM		7.05	5.65	4.75
9093PC		1.67	1.35	1.13
9094DC	Dual J-K flip-flop	1.79	1.44	1.20
9094DM		7.05	5.65	4.75
9094PC		1.67	1.35	1.13
9097DC	Dual J-K flip-flop	1.79	1.44	1.20
9097DM		7.05	5.65	4.75
9097PC		1.67	1.35	1.13
9099DC	Dual J-K flip-flop	1.79	1.44	1.20
9099DM		7.05	5.65	4.75
9099PC		1.67	1.35	1.13
9109DC	High level hex inverter	5.40	4.30	3.60
9109DM		10.80	8.60	7.20
9112DC	High level hex inverter	5.40	4.30	3.60
9112DM		10.80	8.60	7.20
9158DC	Quad power gate	1.09	.88	.73

CMOS

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
4001BDC	Quad 2-input NOR gate	$ 0.64	$ 0.55	$ 0.44
4001BDM		.94	.79	.64
4001BFM		3.99	3.63	3.30
4001BPC		.39	.33	.27
4001BDMQB		2.18	1.85	1.49
4001BFMQB		9.00	7.82	6.72
4002BDC	Dual 4-input NOR gate	.64	.55	.44
4002BDM		.94	.79	.64
4002BFM		3.99	3.63	3.30
4002BPC		.39	.33	.27
4002BDMQB		2.18	1.85	1.49
4002BFMQB		9.00	7.82	6.72
4006BDC	18-stage shift register	2.50	2.11	1.70
4006BDM		3.24	2.75	2.22
4006BFM		11.02	10.01	9.10
4006BPC		1.06	.92	.74
4006BDMQB		4.39	3.71	3.00
4006BFMQB		20.20	16.67	12.63
4007UBDC	Dual comparator, 1 pair and inverter	.64	.55	.44
4007UBDM		.94	.79	.64
4007UBFM		3.99	3.63	3.30
4007UBPC		.39	.33	.27
4007UBDMQB		2.18	1.85	1.49
4007UBFMQB		9.00	7.82	6.72
4008BDC	4-bit full adder	2.39	2.02	1.63
4008BDM		3.12	2.64	2.13
4008BFM		12.25	10.42	8.93
4008BPC		1.02	.88	71
4008BDMQB		4.26	3.61	2.91
4008BFMQB		21.90	18.07	13.69
4011BDC	Quad 2-input NAND gate	.64	.55	.44
4011BDM		.94	.79	.64
4011BFM		3.99	3.63	3.30
4011BPC		.39	.33	.27
4011BDMQB		2.18	1.85	1.49
4011BFMQB		9.00	7.82	6.72
4012BDC	Dual 4-input NAND gate	.64	.55	.44
4012BDM		.94	.79	.64
4012BFM		3.99	3.63	3.30
4012BPC		.39	.33	.27
4012BDMQB		2.18	1.85	1.49
4012BFMQB		9.00	7.82	6.72
4013BDC	Dual D type flip-flop	1.56	1.32	1.07
4013BDM		1.87	1.58	1.28
4013BFM		5.73	5.16	4.59
4013BPC		.59	.51	.41
4013BDMQB		2.91	2.46	1.99
4013BFMQB		11.90	9.82	7.45
4014BDC	8-stage shift register	2.50	2.11	1.70
4014BDM		3.24	2.75	2.22
4014BFM		11.02	10.01	9.10
4014BPC		1.47	1.27	1.02
4014BDMQB		4.39	3.71	3.00
4014BFMQB		20.20	16.67	12.63
4015BDC	Dual 4-stage shift register	2.50	2.11	1.70
4015BDM		3.24	2.75	2.22
4015BFM		11.02	10.01	9.10
4015BPC		1.18	1.02	.82
4015BDMQB		4.39	3.71	3.00
4015BFMQB		20.20	16.67	12.63

CMOS (CONT.)

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
4016BDC	Quad bilateral switch	$ 1.56	$ 1.32	$ 1.07
4016BDM		1.87	1.58	1.28
4016BFM		6.24	5.62	5.00
4016BPC		.59	.51	.41
4016BDMQB		2.91	2.46	1.99
4016BFMQB		12.60	10.40	7.88
4017BDC	Decade sequence	2.50	2.11	1.70
4017BDM		3.24	2.75	2.22
4017BFM		12.76	10.85	9.38
4017BPC		1.06	.92	.74
4017BDMQB		4.39	3.71	3.00
4017BFMQB		22.60	18.65	14.13
4019BDC	Quad 2-input multiplexer	1.77	1.50	1.21
4019BDM		2.06	1.74	1.41
4019BFM		6.09	5.48	4.93
4019BPC		.86	.74	.60
4019BDMQB		3.22	2.73	2.20
4019BFMQB		12.40	10.23	8.75
4020BDC	14-stage timer	3.12	2.64	2.13
4020BDM		3.74	3.17	2.56
4020BFM		14.50	13.05	11.63
4020BPC		1.43	1.23	.99
4020BDMQB		4.68	3.96	3.20
4020BFMQB		25.00	19.39	15.69
4021BDC	8-stage shift register	2.50	2.11	1.70
4021BDM		3.24	2.75	2.22
4021BFM		11.02	10.01	9.10
4021BPC		1.22	1.06	.85
4021BDMQB		4.39	3.71	3.00
4021BFMQB		20.30	16.67	12.63
4023BDC	Triple 3-input NAND gate	.64	.55	.44
4023BDM		.94	.79	.64
4023BFM		3.99	3.63	3.30
4023BPC		.39	.33	.27
4023BDMQB		2.18	1.85	1.49
4023BFMQB		9.00	7.82	6.72
4024BDC	7-stage binary counter	2.18	1.85	1.49
4024BDM		2.62	2.22	1.79
4024BFM		8.70	7.83	6.98
4024BPC		.92	.79	.64
4024BDMQB		3.64	3.08	2.49
4024BFMQB		16.00	13.20	10.00
4025BDC	Triple 3-input NOR gate	.64	.55	.44
4025BDM		.94	.79	.64
4025BFM		3.99	3.63	3.30
4025BPC		.39	.33	.27
4025BDMQB		2.18	1.85	1.49
4025BFMQB		9.00	7.82	6.72
4027BDC	Dual J-K flip-flop	1.56	1.32	1.07
4027BDM		1.87	1.58	1.28
4027BFM		6.24	5.62	5.00
4027BPC		.69	.60	.48
4027BDMQB		2.91	2.46	1.99
4027BFMQB		12.60	10.40	7.88
4028BDC	1-of-10 decoder	2.39	2.02	1.63
4028BDM		3.00	2.53	2.05
4028BFM		9.56	8.61	7.67
4028BPC		1.25	.92	.74
4028BDMQB		4.14	3.50	2.83
4028BFMQB		18.20	15.02	11.38
4029BDC	4-bit binary/BCD up/down counter	3.12	2.64	2.13
4029BDM		3.74	3.17	2.56
4029BFM		13.84	12.49	11.12
4029BPC		1.43	1.23	.99
4029BDMQB		4.68	3.96	3.20
4029BFMQB		24.12	19.90	15.08
4030BDC	Quad Exclusive-OR gate	1.56	1.32	1.07
4030BDM		1.87	1.58	1.28
4030BFM		4.58	4.08	3.58
4030BPC		.82	.70	.57
4030BDMQB		2.91	2.46	1.99
4030BFMQB		10.32	8.51	6.45
4035BDC	4-bit parallel input/output shift register	2.99	2.55	2.07
4035BDM		3.93	3.33	2.68
4035BFM		8.72	6.90	6.14
4035BPC		1.63	1.41	1.14
4035BDMQB		4.89	4.14	3.34
4035BFMQB		14.56	12.01	9.10
4040BDC	12-stage timer	3.02	2.55	2.06
4040BDM		3.56	3.00	2.43
4040BFM		12.34	10.76	9.89
4040BPC		1.43	1.23	.99
4040BDMQB		4.58	3.87	3.12
4040BFMQB		22.02	18.17	13.76
4042BDC	Quad D latch	2.26	1.92	1.55
4042BDM		2.81	2.38	1.92
4042BFM		7.14	6.72	6.36
4042BPC		1.08	.93	.75
4042BDMQB		3.85	3.26	2.63
4042BFMQB		13.84	11.42	8.65
4043BDC	Quad 3-state R/S latch	4.83	4.10	3.46

CMOS CONTINUED ON NEXT PAGE

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Digital Integrated Circuits

CMOS (CONTINUED)

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
4044BDC	Quad 3-state R/S latch	$ 2.37	$ 2.02	$ 1.64
4044BDM		2.91	2.46	2.00
4044BFM		7.14	6.40	5.77
4044BPC		.92	.79	.64
4044BDMQB		3.85	3.26	2.63
4044BFMQB		13.84	11.42	8.65
4049BDC	Hex inverting buffer	1.56	1.32	1.07
4049BDM		1.87	1.58	1.28
4049BFM		5.73	5.16	4.59
4049BPC		.63	.55	.44
4049BDMQB		2.91	2.46	1.99
4049BFMQB		11.90	9.82	7.45
4050BDC	Hex non-inverting buffer	1.56	1.32	1.07
4050BDM		1.87	1.58	1.28
4050BFM		5.73	5.16	4.59
4050BPC		.63	.55	.44
4050BDMQB		2.91	2.46	1.99
4050BFMQB		11.80	9.82	7.45
4051BDC	8-input analog multiplexer	2.39	2.02	1.63
4051BDM		3.00	2.53	2.04
4051BFM		9.67	8.70	7.75
4051BPC		1.66	1.41	1.14
4051BDMQB		4.14	3.50	2.83
4051BFMQB		18.34	15.13	11.46
4052BDC	Differential 4-input analog multiplexer	2.39	2.02	1.63
4052BDM		3.00	2.53	2.04
4052BFM		9.67	8.70	7.75
4052BPC		1.66	1.41	1.14
4052BDMQB		4.14	3.50	2.83
4052BFMQB		18.34	15.13	11.46
4053BDC	Triple 2-channel analog multiplexer	2.39	2.02	1.63
4053BDM		3.00	2.53	2.04
4053BFM		9.67	8.70	7.75
4053BPC		2.29	1.94	1.56
4053BDMQB		4.14	3.50	2.83
4053BFMQB		18.34	15.13	11.46
4066BDC	Quad bilateral switch	1.56	1.32	1.07
4066BDM		1.87	1.58	1.28
4066BFM		6.24	5.62	5.00
4066BPC		.86	.74	.60
4066BDMQB		2.91	2.46	1.99
4066BFMQB		12.60	10.40	7.88
4069UBDC	Hex inverter	.64	.55	.44
4069UBDM		.94	.79	.46
4069UBFM		3.99	3.63	3.30
4069UBPC		.39	.33	.27
4069UBDMQB		2.18	1.85	1.49
4069UBFMQB		9.00	7.82	6.72
4070BDC	Quad Exclusive-OR gate	.76	.65	.53
4070BDM		1.07	.92	.74
4070BFM		3.99	3.63	3.30
4070BPC		.43	.37	.30
4070BDMQB		2.18	1.85	1.49
4070BFMQB		9.00	7.82	6.72
4071BDC	Quad 2-input OR gate	.76	.65	.53
4071BDM		1.07	.92	.74
4071BFM		3.99	3.63	3.30
4071BPC		.39	.33	.27
4071BDMQB		2.18	1.85	1.49
4071BFMQB		9.00	7.82	6.72
4076BDC	Quad D type 3-stste flip-flop	3.68	3.10	2.50
4076BDM		3.61	3.08	2.50
4076BFM		6.77	6.09	5.43
4076BPC		1.33	1.14	.92
4076BDMQB		4.94	4.22	3.43
4076BFMQB		9.68	8.71	7.76
4081BDC	Quad 2-input AND gate	.76	.65	.53
4081BDM		1.07	.92	.74
4081BFM		3.99	3.63	3.30
4081BPC		.39	.33	.27
4081BDMQB		2.18	1.85	1.49
4081BFMQB		9.00	7.82	6.72
4082BFMQB	Dual 4-input AND gate	9.00	7.82	6.72
4086BDC	Expandable 4-wide 2-input AND/OR invert gate	1.56	1.32	1.07
4086BDM		1.87	1.58	1.28
4086BFM		7.94	7.18	6.12
4086BPC		1.13	.92	.76
4086BDMQB		2.91	2.46	1.99
4086BFMQB		11.91	10.77	9.18
4104BDC	Level converter	5.76	4.88	3.93
4104BDM		6.93	5.86	4.73
4104BFM		13.05	11.76	10.48
4104BPC		3.85	3.26	2.63
4104BDMQB		8.22	6.95	6.51
4104BFMQB		18.27	16.46	14.67
4510BDC	BCD up/down counter	3.12	2.64	2.13
4510BDM		3.74	3.17	2.56
4510BFM		12.98	11.70	10.42
4510BPC		1.53	1.32	1.07
4510BDMQB		4.68	3.96	3.20
4510BFMQB		21.02	18.57	14.00
4511BDC	BCD-to-7-segment driver	2.52	2.13	1.87
4511BDM		4.58	3.87	3.12
4511BFM		15.26	13.76	12.26
4511BPC		1.33	1.14	.92
4511BDMQB		5.61	4.74	3.83
4511BFMQB		21.36	19.26	17.16

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
4512BDC	8-input multiplexer	$ 2.39	$ 2.02	$ 1.63
4512BDM		3.00	2.53	2.05
4512BFM		9.13	8.23	7.33
4512BPC		1.12	.97	.78
4512BDMQB		4.14	3.50	2.83
4512BFMQB		12.78	11.52	10.26
4516BDC	Binary up/down counter	3.12	2.64	2.13
4516BDM		3.74	3.17	2.56
4516BFM		12.98	11.70	10.42
4516BPC		1.43	1.23	.99
4516BDMQB		4.68	3.96	3.20
4516BFMQB		21.02	18.57	14.00
4518BDC	Dual 4-bit decade counter	3.12	2.64	2.13
4518BDM		3.74	3.17	2.56
4518BFM		12.98	11.70	10.42
4518BPC		1.43	1.23	.99
4518BDMQB		4.68	3.96	3.20
4518BFMQB		21.02	18.57	14.10
4520BDC	Dual 4-bit binary counter	3.12	2.64	2.13
4520BDM		3.74	3.17	2.56
4520BFM		12.98	11.70	10.42
4520BPC		1.43	1.23	.99
4520BDMQB		4.68	3.96	3.20
4520BFMQB		21.02	18.57	14.10
4528BDC	Daul one-shot multivibrator	2.50	2.11	1.70
4528BDM		3.24	2.75	2.22
4528BFM		14.50	13.05	11.63
4528BPC		1.12	.97	.78
4528BDMQB		4.39	3.71	3.00
4528BFMQB		25.00	19.39	15.69
4539BDC	Dual 4-input multiplexer	2.39	2.02	1.63
4539BDM		3.00	2.53	2.04
4539BFM		9.13	8.23	7.33
4539BPC		1.12	.97	.78
4539BDMQB		4.14	3.50	2.83
4539BFMQB		12.78	11.52	10.26
4555BDC	Dual 1-of-4 decoder (high)	1.56	1.32	1.07
4555BDM		1.87	1.58	1.28
4555BFM		6.09	5.48	4.93
4555BPC		.86	.74	.60
4555BDMQB		2.91	2.46	1.99
4555BFMQB		12.40	10.23	8.75
4556BDC	Dual 1-of-4 decoder (low)	1.56	1.32	1.07
4556BDM		1.87	1.58	1.28
4556BFM		6.09	5.48	4.93
4556BPC		.86	.74	.60
4556BDMQB		2.91	2.46	1.99
4556BFMQB		12.40	10.23	8.75
4702BDC	Bit rate generator	14.25	12.45	9.80
4702BDM		31.50	25.50	21.00
4702BFM		78.78	66.66	53.76
4702BPC		10.70	9.35	7.35
4702BDMQB		35.71	28.90	23.80
4702BFMQB		89.28	75.54	60.92
4703BDC	16 x 4 first-in/first-out	16.88	14.10	11.84
4703BDM		32.01	25.91	21.34
4703BPC		14.20	12.00	9.76
4703BDMQB		36.30	29.38	24.19
4720BDC	256-bit RAM	16.12	13.64	11.00
4720BDM		20.18	16.34	13.45
4720BFM		57.26	51.60	45.94
4720BPC		11.96	10.12	8.17
4720BDMQB		22.68	18.36	15.12
4720BFMQB		64.36	57.99	51.63
4723BDC	Dual 4-bit address latch	3.54	2.99	2.42
4723BDM		4.16	3.52	2.86
4723BFM		12.98	11.70	10.44
4723BPC		2.29	1.94	1.51
4723BDMQB		5.10	4.31	3.48
4723BFMQB		21.02	18.57	14.10
4724BDC	8-bit addressable latch	3.54	2.99	2.41
4724BDM		4.16	3.52	2.86
4724BFM		12.98	11.70	10.28
4724BPC		2.29	1.94	1.54
4724BDMQB		5.10	4.31	3.44
4724BFMQB		21.02	18.57	14.10
4725BDC	16-by-4 RAM	8.42	7.13	5.78
4725BDM		11.78	9.95	8.06
4725BFM		24.85	22.39	19.94
4725BPC		6.99	5.91	4.77
4725BDMQB		13.03	11.02	8.91
4725BFMQB		41.12	37.05	32.99
4731BDC	Quad 64-bit shift register	28.83	24.41	19.70
4731BDM		34.86	29.49	23.80
4731BFM		137.07	123.53	109.97
4731BPC		21.38	18.10	14.59
4731BDMQB		41.14	34.81	28.09
4731BFMQB		164.48	148.22	131.98
40014BDC	Dual Schmitt trigger	1.56	1.32	1.07
40014BDM		1.87	1.58	1.28
40014BFM		7.94	7.18	6.12
40014BPC		.71	.62	.50
40014BDMQB		2.91	2.46	1.99
40014BFMQB		11.91	10.77	9.18

CMOS CONTINUED ON NEXT PAGE

CMOS (CONTINUED)

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
40085BDC	4-bit magnitude comparator	$2.29	$ 1.94	$ 1.56
40085BDM		2.81	2.38	1.92
40085BFM		11.02	9.93	8.85
40085BPC		1.56	1.32	1.07
40085BDMQB		3.85	3.26	2.63
40085BFMQB		15.43	13.90	12.39
40097BDC	Hex 3-state non-inverting buffer	1.77	1.50	1.21
40097BDM		2.06	1.74	1.41
40097BFM		7.33	6.60	5.88
40097BPC		1.24	1.00	.83
40097BDMQB		3.22	2.73	2.20
40097BFMQB		10.26	9.24	8.23
40098BDC	Hex 3-state inverting buffer	1.77	1.50	1.21
40098BDM		2.06	1.74	1.41
40098BFM		7.33	6.60	5.88
40098BPC		1.24	1.00	.83
40098BDMQB		3.22	2.73	2.20
40098BFMQB		10.36	9.24	8.23
40161BDC	4-bit binary asynchronous reset counter	3.12	2.64	2.13
40161BDM		3.74	3.17	2.56
40161BFM		12.98	11.70	10.42
40161BPC		1.53	1.32	1.07
40161BDMQB		4.68	3.96	3.20
40161BFMQB		21.02	18.57	14.10
40163BDC	4-bit binary synchronous reset counter	$ 3.12	$ 2.64	$ 2.13
40163BDM		3.74	3.17	2.56
40163BFM		12.98	11.70	10.42
40163BPC		1.53	1.32	1.07
40163BDMQB		4.68	3.96	3.20
40163BFMQB		21.02	18.57	14.10
40174BDC	Hex D type flip-flop	2.50	2.11	1.70
40174BDM		3.24	2.75	2.22
40174BFM		7.40	6.67	5.94
40174BPC		1.12	.97	.78
40174BDMQB		4.39	3.71	3.00
40174BFMQB		10.36	9.34	8.32
40175BDC	Quad flip-flop	2.50	2.11	1.70
40175BDM		3.24	2.75	2.23
40175BFM		7.40	6.67	5.94
40175BPC		1.47	1.27	1.02
40175BDMQB		4.39	3.71	3.00
40175BFMQB		10.36	9.34	8.32
40193BDC	4-bit up/down synchronous binary counter	3.12	2.64	2.13
40193BDM		3.74	3.17	2.56
40193BFM		10.44	9.41	8.38
40193BPC		2.80	1.76	1.42
40193BDMQB		4.68	3.96	3.20
40193BFMQB		17.50	14.11	11.47

COMPLEMENTARY TRANSISTOR MICROLOGIC (CTμL)

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-Up
956DC	Dual 2-input buffer	$1.90	$1.50	$1.25
967DC	J-K flip-flop	3.00	2.40	2.00

COUNTING MICROLOGIC® (CμL)

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100 Up
958DC	Decade counter	$11.20	$ 9.00	$ 7.50
960DC	Decoder/driver	15.70	12.55	10.50

MOS MEMORY

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
21L02FDC	1K Power down static RAM	$ 5.10	$ 4.05	$ 3.75
21L02FPC		2.80	2.25	2.05
21L02HDC		5.45	4.35	4.05
21L02HPC		3.00	2.45	2.25
21L021DC		4.75	3.80	3.50
2102FDC	1K static RAM	4.75	3.80	3.50
2102FDL		9.50	7.70	7.15
2102FDM		11.95	9.65	8.95
2102FPC		2.40	1.95	1.80
2102HDC		5.10	4.05	3.75
2102HDL		11.05	8.90	8.30
2102HDM		13.75	11.10	10.35
2102HPC		2.75	2.20	2.00
21021DC		4.40	3.50	3.25
21021DL		8.20	6.60	6.15
21021DM		10.25	8.25	7.70
21021PC		2.25	1.80	1.65
21022DC	1K static RAM	3.95	3.15	2.95
21022DL		6.75	5.45	5.05
21022DM		8.10	6.55	6.10
21022PC		2.00	1.65	1.50
2102LFDC	1K low power static RAM	4.90	3.90	3.65
2102LFPC		2.70	2.15	1.95
2102LHDC		5.25	4.20	3.90
2102LHDL		12.15	9.85	9.10
2102LHDM		15.10	12.20	11.35
2102LHPC		2.90	2.35	2.15
2102L1DC		4.55	3.65	3.40
2102L1DL		9.00	7.25	6.75
2102L1DM		11.25	9.10	8.45
2102L1PC		2.35	1.90	1.75
2102L2DC		4.00	3.20	3.00
2102L2DL		7.45	6.05	5.60
2102L2DM		8.90	7.20	6.70
2114DC	1024 x 4 static RAM	$6.85	$5.45	$5.10
2114PC		5.70	4.55	4.25
2114LDC		7.00	5.60	5.20
2114LPC		5.85	4.70	4.35
21142DC		9.50	7.65	7.10
21142PC		8.40	6.75	6.25
21143DC		7.10	5.70	5.25
21143PC		5.95	4.75	4.40
2114L2DC		10.05	8.05	7.05
2114L2PC		8.90	7.15	6.65
2114L3DC		7.25	5.80	5.40
2114L3PC		6.15	4.90	4.55
2708DC	1K x 8 PROM	10.50	8.50	7.80
3341DC	4 x 64 FIFO memory	6.15	5.00	4.55
3341DL		8.90	7.20	6.65
3341DM		9.65	7.75	7.20
3341PC		5.35	4.30	3.95
3341ADC		7.60	6.15	5.65
3341APC		6.50	5.35	4.85
3342DC	Quad 64 static shift register	6.80	5.50	5.05
3342PC		5.95	4.80	4.45
3348DC	Hex 32-bit static shift register	9.25	7.45	6.85
3349DC		5.95	4.80	4.45
3349PC		5.15	4.20	3.85
33511DC	40 x 9 FIFO memory	24.00	20.00	18.00
33512DC		12.00	10.00	9.00
33512DL		27.90	22.45	20.95
33512DM		33.35	28.50	26.50
33571DC	Quad 80-bit static shift register	7.00	5.65	5.20
33572DC		6.50	5.35	4.85

WRITE US FOR INFORMATION AND PRICING ON ALL NEW OR

UNLISTED ITEMS. NO SPECIAL ORDER NUMBERS NECESSARY,

JUST USE THE MANUFACTURER'S MODEL NUMBERS.

PRICES LISTED ARE FOR GUIDANCE ONLY

Linear Integrated Circuits

VOLTAGE REGULATORS

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
FIXED POSITIVE				
µA109KM	5 V, 1 A, TO-3	$ 6.65	$ 6.13	$ 5.25
µA309KC	5 V, 1 A, TO-3	2.09	1.93	1.65
µA7805UC	5 V, 1 A, TO-220	1.10	.92	.79
µA7806UC	6 V, 1 A, TO-220	1.10	.92	.79
µA7808UC	8 V, 1 A, TO-220	1.10	.92	.79
µA7885UC	8.5 V, 1 A, TO-220	1.90	1.50	1.26
µA7812UC	12 V, 1 A, TO-220	1.10	.92	.79
µA7815UC	15 V, 1 A, TO-220	1.10	.92	.79
µA7818UC	18 V, 1 A, TO-220	1.10	.92	.79
µA7824UC	24 V, 1 A, TO-220	1.10	.92	.79
µA78M05UC	5 V, 0.5 A, TO-220	1.00	.83	.71
µA78M06UC	6 V, 0.5 A, TO-220	1.00	.83	.71
µA78M08UC	8 V, 0.5 A, TO-220	1.00	.83	.71
µA78M12UC	12 V, 0.5 A, TO-220	1.00	.83	.71
µA78M15UC	15 V, 0.5 A, TO-220	1.00	.83	.71
µA78M24UC	24 V, 0.5 A, TO-220	1.50	1.25	1.00
µA78L05AWC	5 V, 5%, TO-92	.38	.32	.27
µA78L09AWC	9 V, 0.1 A, TO-92	.38	.32	.27
µA78L12AWC	12 V, 5%, TO-92	.38	.32	.27
µA78L15AWC	15 V, 5%, TO-92	.38	.32	.27
µA78L62AWC	6.2 V, 5%, TO-92	.38	.32	.27
µA78L82AWC	8.2 V, 5%, TO-92	.38	.32	.27
µA78H05SC	5 V, 5 A	6.11	5.55	5.05
µA78H05SM		34.94	31.77	28.88
µA78H05SMQB		43.51	39.56	35.96
µA78H05ASC		6.47	5.89	5.35
µA78H05ASM		36.61	33.28	30.25
µA78H12SC	12 V, 5 A	6.57	6.01	5.51
µA78H12SM		34.94	31.77	28.88
µA78H12SMQB		43.51	39.56	35.96
µA78P05SC	5 V, 10 A	11.36	10.33	9.39
SH0323SC	5 V, 3 A	6.21	5.65	5.14
SH0323SV		26.19	22.77	19.80
FIXED NEGATIVE				
µA7905UC	5 V, 1 A, TO-220	$1.10	$0.92	$0.79
µA7908UC	8 V, 1 A, TO-220	1.10	.92	.79
µA7912UC	12 V, 1 A, TO-220	1.10	.92	.79
µA7915UC	15 V, 1 A, TO-220	1.10	.92	.79
µA79M05AUC	5 V, 3-terminal	1.00	.83	.71
µA79M08AUC	8 V, 3-terminal	1.00	.83	.71
µA79M12AUC	12 V, 3-terminal	1.00	.83	.71
µA79M15AUC	15 V, 3-terminal	1.00	.83	.71
ADJUSTABLE POSITIVE				
µA78GKC	1 A	$2.20	$1.83	$1.57
µA78MGUIC	0.5 A	1.00	.83	.71
µA78HGASC	5 A	7.87	7.15	6.50
µA78HGASM		42.10	38.34	34.79
µA78HGASMQB		60.39	54.90	49.91
µA305HC	Adjustable	.90	.72	.60
µA317UC	1.5 A, TO-220	2.47	2.20	1.79
µA376TC	Adjustable	.43	.34	.28
ADJUSTABLE NEGATIVE				
µA79MGUIC	0.5 A	$ 1.00	$ 0.83	$ 0.71
µA79GKC	1 A	2.20	1.83	1.57
µA79HGASC	5 A	12.84	11.67	10.61
µA79HGASM		41.59	37.82	34.38
µA79HGASMQB		63.62	57.48	52.25
SWITCHING TYPE				
µA1605	Switching	$11.11	$10.97	$10.77
SH1605	5 A	11.95	10.87	9.88
µA494PC	Pulse width modulated	3.61	3.33	2.85
µA78S40PC	Universal	2.94	2.46	2.10
FIXED POSITIVE REGULATOR AND DIODE BRIDGE				
µA1705	5 V, 5 A	$7.56	$6.88	$6.66

COMPARATORS AND TIMERS

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
µA710HC	High speed comparator	$1.35	$1.08	$0.90
µA311TC	Voltage comparator	.48	.44	.38
µA711HM	Dual comparator	2.00	1.67	1.43
µA3302PC	Quad voltage comparator	.51	.47	.41
µA339PC	Quad voltage comparator	.75	.60	.50
µA760HC	High speed comparator	2.50	2.08	1.79
µA2240PC	Programmable timer/counter	1.22	1.12	.96
µA555TC	Single timer	.38	.35	.30
µA556PC	Dual timer	.76	.70	.60

TRANSISTOR AND DIODE ARRAYS

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
µA726HC	Temp. controlled diff. pair	$11.55	$9.24	$7.70
µA3086DC	Differential pair	.76	.70	.60

OPERATIONAL AMPLIFIERS

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
GENERAL PURPOSE				
µA709HC	High performance	$1.00	$0.83	$0.71
µA741TC	Frequency compensated	.38	.35	.30
µA748HC	High performance	1.05	.84	.70
µA776HC	Multipurpose programmable	1.80	1.50	1.29
µA101HM	General purpose	1.70	1.42	1.21
µA101AHM	General purpose	2.20	1.83	1.57
µA739PC	Dual low noise preamplifier	2.45	1.95	1.65
µA747PC	Dual frequency compensated	.76	.70	.60
µA749PC	Dual general purpose	2.45	1.85	1.65
µA1458TC	Dual monolithic	.82	.70	.57
µA324PC	Low power quad	.68	.63	.54
µA348PC	Quad 741	1.47	1.18	.98
µA3403PC	Quad	1.10	1.02	.87
µA4136PC	High gain quad	1.47	1.18	.98
FET INPUT				
µA740EHC	Precision	$6.00	$5.00	$4.29
µAF771TC	Single quadrafet	.72	.61	.52
µAF772TC	Dual quadrafet	1.25	1.06	.90
PRECISION				
µA725HM	Instrumentation	$ 3.50	$ 2.92	$ 2.50
µA727HM	Temp/controlled differential	71.63	57.30	47.75
µA108AHM	Super beta	5.00	4.17	3.57
µA108HM	Super beta	2.40	2.00	1.71
µA308TC	Super beta	.57	.53	.45
µA798TC	Quad single-supply	.76	.70	.60
µA714HC	Low noise	3.30	2.75	2.35
HIGH SPEED AND POWER				
µA715HC	High speed	$2.80	$2.33	$2.00
µA318HC	High speed	3.24	2.59	2.16
µA759HC	Power	2.80	2.35	2.00
µA791KC	Power	23.10	14.95	12.50
µA759U1C	Power	2.20	1.83	1.57

MOS DRIVERS/SENSE AMPLIFIERS

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
9643TC	Dual TTL-MOS and driver	$3.00	$2.50	$2.14

PERIPHERAL DRIVERS

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
75451ATC	Dual 30 V	$0.47	$0.40	$0.31
75452ATC	Dual 30 V	.47	.40	.31
75453ATC	Dual 30 V	.47	.40	.31
75461TC	Dual 40 V	.81	.65	.54
75462TC	Dual 40 V	.81	.65	.54
75471TC	Dual 80 V	.96	.77	.64
75472TC	Dual 80 V	.96	.77	.64

INTERFACE CIRCUITS

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
9614PC	Dual differential driver	$1.31	$1.21	$1.04
9615PC	Dual differential receiver	.97	.89	.77
9616PC	Triple driver/RS-232C/MIL-188C	3.16	2.64	2.26
9622PC	Dual receiver	5.25	4.80	4.15
9627PC	Dual receiver/RS-232C/MIL-188C	3.66	3.06	2.62
9636ATC	Dual single-ended driver/RS-422	2.68	2.15	1.79
9637ATC	Dual diff. receiver/RS-422/423	2.68	2.15	1.79
9638TC	Dual high speed differential driver/RS-422	2.83	2.36	2.02
9640PC	Quad bus transceiver	3.00	2.50	2.38
75107APC	Dual receiver	1.65	1.32	1.10
75110PC	Dual receiver	1.65	1.32	1.10
75150PC	Dual receiver/RS-232C	1.80	1.44	1.20
75154PC	Quad receiver/RS-232C	1.97	1.57	1.31
µA1488PC	Quad line driver/RS-232C	1.08	.86	.72
µA1489APC	Quad line driver/RS-232C	1.08	.86	.72

COMMUNICATIONS CIRCUITS

Fairchild Type	Function	Net Each, Lots of 1-24	25-99	100-999
µA757DC	AGC IF amplifier	$3.40	$2.90	$2.40
µA796PC	Double bal. mod/demod	1.40	1.10	.95

FAIRCHILD SEMICONDUCTOR

Silicon Diodes And Rectifiers

FAST SWITCHING DIODES

Fairchild Type	Function	Net Each, Lots of 1-99	100-999	1000 Up
JAN1N251	40 V gen. pur.	$0.39	$0.30	$0.21
1N456A	30 V low leakage	.36	.26	.18
1N914	DO-35 pkg. only	.255	.187	.127
1N914A	100 V 4 ns computer	.255	.187	.127
1N914B	100 V 4 ns computer	.255	.187	.127
JAN1N914	DO-7 pkg.	.33	.24	.17
JTX1N914	DO-7 only	.75	.56	...
1N916	100 V 4 ns computer	.27	.202	.14
1N916A	100 V 4 ns computer	.27	.202	.14
1N916B	100 V 4 ns computer	.27	.202	.14
1N3064	75 V 4 ns computer	.255	.187	.127
JAN1N3064	75 V 4 ns computer	.65	.48	.33
JTX1N3064	75 V 4 ns computer	4.35	3.19	2.17
1N3600	75 V 3 ns computer	.255	.187	.127
JAN1N3600	75 V 3 ns computer	.81	.60	.41
JANTXV1N3600	75 V 4 ns computer	7.05	5.17	3.52
JTX1N3600	75 V 3 ns computer	4.35	3.19	2.17
1N3604	75 V 4 ns computer	.255	.187	.127
1N4009	35 V 4 ns computer	.20	.14	.10
1N4148	100 V 4 ns computer	.255	.187	.127
JAN1N4148	100 V 5 ns computer	.33	.24	.165
JANTXV1N4148	100 V 4 ns computer	3.62	1.81	1.21
JAN1N4148-1	100 V 4 ns computer	.40	.29	.20
JANTX1N4148-1	100 V 4 ns computer	.83	.60	.47
JANTXV1N4148-1	100 V 4 ns computer	3.62	1.81	1.21
JTX1N4148	100 V 5 ns computer	.83	.60	.47
1N4149	100 V 4 ns computer	.27	.202	.14
1N4150	75 V 4 ns computer	.255	.187	.127
1N4151	75 V 4 ns computer	.578	.431	.30
1N4152	40 V 2 ns computer	.578	.431	.30
1N4153	75 V 2 ns computer	.578	.431	.30
1N4154	35 V 4 ns computer	.263	.193	.131
1N4305	75 V 4 ns computer	.27	.202	.14
1N4376	20 V 0.75 ns computer	2.25	1.68	1.17
JAN1N4376	20 V 0.75 ns computer	2.75	2.00	1.30
JANTX1N4376	20 V 0.75 ns computer	7.50	3.75	2.50
1N4446	100 V 4 ns computer	.255	.187	.127
1N4447	100 V 4 ns computer	.27	.201	.14
1N4448	100 V 4 ns computer	.27	.201	.14
1N4450	40 V 4 ns computer	.255	.187	.127
1N4454	75 V 4 ns computer	.255	.187	.127
JAN1N4454	75 V 4 ns computer	.33	.24	.16
JANTXV1N4454	75 V 4 ns computer	3.62	1.81	1.21
JAN1N4454-1	75 V 4 ns computer	.33	.24	.165
JANTX1N4454-1	75 V 4 ns computer	.83	.60	.47
JANTXV1N4454-1	75 V 4 ns computer	3.62	1.81	1.21
JTX1N4454	75 V 4 ns computer	.83	.60	.47
1N5282	80 V 2 ns computer	.27	.202	.14
FD600	75 V 4 ns computer	2.10	1.57	1.09
FD700	30 V 0.7 ns computer	2.63	1.96	1.36
FD777	15 V 0.75 ns computer	1.88	1.40	.975
FD6666	40 V 4 ns computer	.90	.67	.20
FDH600	75 V 4 ns computer	.21	.16	.11
FDH666	40 V 4 ns computer	.165	.125	.085
FDH900	45 V 4 ns computer	.21	.15	.11
FDH999	35 V 4 ns computer	.20	.14	.10

GLASS RECTIFIERS

Fairchild Type	Function	Net Each, Lots of 1-99	100-999	1000 Up
1N4001	50 V, 1 amp rectifier	$0.24	$0.165	$0.09
1N4002	100 V, 1 amp rectifier	.25	.175	.10
1N4003	200 V, 1 amp rectifier	.26	.19	.11
1N4004	400 V, 1 amp rectifier	.29	.215	.14
1N4005	600 V, 1 amp rectifier	.33	.25	.17
1N4933	50 V, 1 amp 200 ns rectifier	.37	.29	.25
1N4934	100 V, 1 amp 200 ns rectifier	.42	.33	.285
1N4935	200 V, 1 amp 200 ns rectifier	.51	.38	.33
1N4936	400 V, 1 amp 200 ns rectifier	.67	.52	.39
1N4937	600 V, 1 amp 200 ns rectifier	.79	.61	.46

GENERAL PURPOSE DIODES

Fairchild Type	Function	Net Each, Lots of 1-99	100-999	1000 Up
1N456	30 V low leakage	$0.36	$0.26	$0.18
1N457	70 V low leakage	.37	.27	.185
1N457A	70 V low leakage	.37	.27	.185
JAN1N457	70 V low leakage	.765	.561	.383
1N458	150 V low leakage	.38	.26	.19
1N458A	150 V low leakage	.38	.26	.19
JAN1N458	150 V low leakage	.80	.60	.40
1N459	200 V low leakage	.39	.29	.195
1N459A	200 V low leakage	.39	.29	.195
JAN1N459	200 V low leakage	.85	.64	.42
1N461A	30 V general purpose	.36	.26	.18
1N462	70 V general purpose	.37	.27	.185
1N462A	70 V low leakage	.37	.27	.185
1N463	200 V general purpose	.39	.29	.195
1N463A	200 V low leakage	.39	.29	.195
1N482B	40 V general purpose	.36	.26	.18
1N483B	80 V general purpose	.38	.28	.19
JAN1N483B	80 V low leakage	.70	.50	.38
JANTX1N483B	80 V low leakage	3.00	2.31	2.07
1N484B	150 V general purpose	.38	.28	.19
1N485B	200 V general purpose	.39	.29	.195
JAN1N485B	200 V low leakage	.82	.58	.42
JANTX1N485B	200 V low leakage	3.13	2.36	1.85
1N486B	250 V low leakage	.39	.29	.195
JAN1N486B	250 V low leakage	3.73	2.51	1.77
JANTX1N486B	250 V low leakage	8.14	4.07	2.71
1N625	30 V switch	.36	.26	.18
1N626	50 V switch	.36	.26	.18
1N627	100 V switch	.38	.28	.19
1N628	150 V sw.tch	.38	.28	.19
1N629	200 V switch	.39	.29	.195
1N643	200 V switch	.39	.29	.195
1N658	120 V switch	.38	.28	.19
1N659	60 V low leakage	.37	.27	.185
1N660	120 V switch	.38	.28	.19
1N661	240 V general purpose	.39	.39	.195
1N662	100 V switch	.38	.28	.19
1N662A	100 V low leakage	.38	.28	.19
1N663	100 V switch	.38	.28	.19
1N816	General purpose	.36	.26	.18
1N842	General purpose	.39	.29	.195
1N3070	General purpose	.39	.29	.195
1N3595	150 V low leakage	2.28	1.68	.96
JAN1N3595	150 V low leakage	3.02	2.20	1.43
1N4306	Matched dual 4 ns sw.	24.50	20.00	....
JAN1N4306	Matched dual 4 ns sw.	37.50	30.00	....
JANTX1N4306	Matched dual 4 ns sw.	76.30	61.00	....
1N4307	Matched quad 4 ns sw.	27.00	22.00	....
JAN1N4307	Matched quad 4 ns sw.	40.00	32.00	....
JANTX1N4307	Matched quad 4 ns sw.	90.00	72.00	....
FD300	150 V low leakage	3.01	2.24	1.56
FD333	150 V low leakage	2.41	1.79	1.25
FDH300	150 V low leakage	.75	.56	.39
FDH333	150 V low leakage	.375	.28	.195
FDH400	200 V low leakage	.30	.225	.155
FDH444	150 V low leakage	.285	.215	.145

DIODE ARRAYS

Fairchild Type	Function	Net Each, Lots of 1-99	100-999	1000 Up
FSA1410M	8 common anode	$36.00	$31.88	$29.00
FSA1411M	8 common cathode	36.00	31.88	29.00
FSA2002M	8 common cathode	4.25	3.76	3.43
FSA2003M	8 common anode	4.25	3.76	3.43
FSA2500M	16 diode core driver	4.25	3.76	3.43
FSA2501M	16 diode core driver	3.71	3.31	3.04
FSA2501P	16 diode core driver	3.08	2.56	2.14
FSA2502M	8 diode core driver	8.64	7.65	6.98
FSA2503M	Dual 8 diode core driver	4.06	3.62	3.33
FSA2503P	Dual 8 diode core driver	3.65	3.05	2.54
FSA2504M	Dual 8 diode core driver	4.55	4.06	3.73
FSA2508M	Quad 4 core driver	4.19	3.73	3.44
FSA2508P	Quad 4 core driver	3.78	3.15	2.62
FSA2509M	Dual 8 core driver	3.83	3.41	3.14
FSA2509P	16 diode core driver	3.46	2.88	2.40
FSA2510M	16 diode core driver	3.50	3.12	2.87
FSA2563M	8 common cathode	3.50	3.12	2.87
FSA2564M	8 common anode	3.50	3.12	2.87
FSA2565M	16 common cathode	4.20	3.74	3.44
FSA2566M	16 common anode	4.20	3.74	3.44
FSA2619M	8 diode memory stack	4.08	3.64	3.34
FSA2620M	7 diode memory stack	3.71	3.31	3.04
FSA2621M	7 diode memory stack	4.25	3.76	3.43
FSA2702M	Bridge	35.00	32.50	30.00
FSA2703M	Bridge	35.00	32.50	30.00
FSA2704M	Bridge	35.00	32.50	30.00
FSA2705M	Bridge	35.00	32.50	30.00
FSA2719M	8 diode memory stack	3.67	3.27	3.00
FSA2720M	7 diode memory stack	3.33	2.97	2.73
FSA2721M	7 diode memory stack	3.82	3.38	3.08
JAN1N5768	8 common cathode	16.50	11.35	....
JANTX1N5768	8 common cathode	21.50	15.85	....
JAN1N5770	8 common anode	16.50	11.35	....
JANTX1N5770	8 common anode	21.50	15.85	....
JAN1N5772	8 diode core driver	18.30	16.00	....
JANTX1N5772	8 diode core driver	28.00	22.00	....
JAN1N5774	Dual 8 core driver	18.30	16.00	....
JANTX1N5774	Dual 8 core driver	28.00	22.00	....
JAN1N6100	7 straight-through	18.30	16.00	....
JANTX1N6100	7 straight-through	28.00	22.00	....

PRICES LISTED ARE FOR GUIDANCE ONLY

FAIRCHILD SEMICONDUCTOR

Zener Diodes

400 mW ZENER DIODES

Fairchild Type	Function	Net Each, Lots of 1-99	100-999	1000 Up
1N751A	5.1 V, 5% tolerance	$ .35	$ .20	$ .15
1N752A	5.6 V, 5% tolerance	.35	.20	.15
1N753A	6.2 V, 5% tolerance	.35	.20	.15
JAN1N753A	6.2 V, Mil	1.06	.80	.53
1N753AJTX	6.2 V, Mil	2.98	2.20	1.45
1N753ATXV	6.2 V, Mil	3.50	2.60	1.70
1N754A	6.8 V, 5% tolerance	.35	.20	.15
JAN1N754A	6.8 V, Mil	1.06	.80	.53
1N754AJTX	6.8 V, Mil	2.98	2.20	1.45
1N754ATXV	6.8 V, Mil	3.50	2.60	1.70
1N755A	7.5 V, 5% tolerance	.35	.20	.15
JAN1N755A	7.5 V, Mil	1.06	.80	.53
1N755AJTX	7.5 V, Mil	2.98	2.20	1.45
1N755ATXV	7.5 V, Mil	3.50	2.60	1.70
1N756A	8.2 V, 5% tolerance	.35	.20	.15
JAN1N756A	8.2 V, Mil	1.06	.80	.53
1N756AJTX	8.2 V, Mil	2.98	2.20	1.45
1N756ATXV	8.2 V, Mil	3.50	2.60	1.70
1N757A	9.1 V, 5% tolerance	.35	.20	.15
JAN1N757A	9.1 V, Mil	1.06	.80	.53
1N757AJTX	9.1 V, Mil	2.98	2.20	1.45
1N757ATXV	9.1 V, Mil	3.50	2.60	1.70
1N758A	10.0 V, 5% tolerance	.35	.20	.15
JAN1N758A	10.0 V, Mil	1.06	.80	.53
1N758AJTX	10.0 V, Mil	2.98	2.20	1.45
1N758ATXV	10.0 V, Mil	3.50	2.60	1.70
1N759A	12.0 V, 5% tolerance	.35	.20	.15
JAN1N759A	12.0 V, Mil	1.06	.80	.53
1N759AJTX	12.0 V, Mil	2.98	2.20	1.45
1N759ATXV	12.0 V, Mil	3.50	2.60	1.70
1N957B	6.8 V, 5% tolerance	.35	.20	.15
1N958B	7.5 V, 5% tolerance	.35	.20	.15
1N959B	8.2 V, 5% tolerance	.35	.20	.15
1N960B	9.1 V, 5% tolerance	.35	.20	.15
1N961B	10 V, 5% tolerance	.35	.20	.15
1N963B	12 V, 5% tolerance	.35	.20	.15
1N971B	27 V, 5% tolerance	.35	.20	.15

500 mW ZENER DIODES

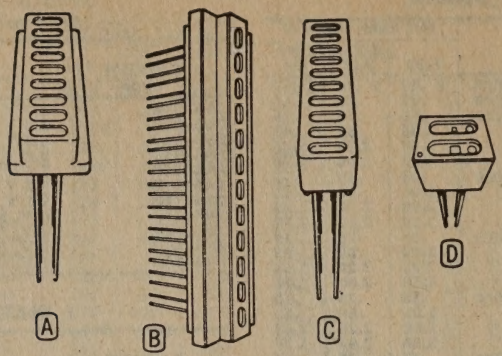
Fairchild Type	Function	Net Each, Lots of 1-99	100-999	1000 Up
1N5231B	5.0 V, 5% tolerance	$.35	$.20	$.15
1N5232B	5.6 V, 5% tolerance	.35	.20	.15
1N5234B	6.2 V, 5% tolerance	.35	.20	.15
1N5235B	6.8 V, 5% tolerance	.35	.20	.15
1N5236B	7.5 V, 5% tolerance	.35	.20	.15
1N5237B	8.2 V, 5% tolerance	.35	.20	.15
1N5239B	9.1 V, 5% tolerance	.35	.20	.15
1N5240B	10 V, 5% tolerance	.35	.20	.15
1N5242B	12 V, 5% tolerance	.35	.20	.15
1N5245B	15 V, 5% tolerance	.35	.20	.15
1N5254B	27 V, 5% tolerance	.35	.20	.15

1 WATT ZENER DIODES

Fairchild Type	Function	Net Each, Lots of 1-99	100-999	1000 Up
1N4735A	6.2 V, 5% tolerance	$.50	$.30	$.20
1N4736A	6.8 V, 5% tolerance	.50	.30	.20
1N4738A	8.2 V, 5% tolerance	.50	.30	.20
1N4740A	10 V, 5% tolerance	.50	.30	.20
1N4742A	12 V, 5% tolerance	.50	.30	.20
1N4744A	15 V, 5% tolerance	.50	.30	.20
1N4746A	18 V, 5% tolerance	.50	.30	.20
1N4747A	20 V, 5% tolerance	.50	.30	.20
1N4750A	27 V, 5% tolerance	.50	.30	.20
1N4752A	33 V, 5% tolerance	.50	.30	.20

Pioneer-Standard

Optoelectronic Devices



OPTICALLY COUPLED ISOLATORS

Fairchild Type	Fig.	Description	Net Each, Lots of 1-99	Net Each, Lots of 100-999
TRANSISTOR OUTPUT				
FCD820	B	1500 V AC isolation	$0.98	$0.78
FCD820A	B	1500 V isolation	1.10	.88
FCD820B	B	2500 V isolation	1.10	.88
FCD820C	B	5000 V isolation	1.20	.96
FCD825	B	1500 V AC isolation	1.10	.88
FCD825A	B	1500 V isolation	1.20	.96
FCD825B	B	2500 V isolation	1.20	.96
FCD825C	B	5000 V isolation	1.32	1.06
FCD830	B	1500 V AC isolation	1.32	1.06
FCD830C	B	5000 V isolation	1.44	1.23
FCD880	A	2500 V dual isolator	2.45	2.04
FCD885	A	2500 V dual isolator	1.85	1.40
4N25	B	1500 V isolation	.97	.72
4N26	B	1500 V isolation	.97	.72
4N27	B	1500 V isolation	.90	.72
4N28	B	500 V isolation	.90	.72
4N35	B	3500 V isolation	1.50	1.30
4N36	B	2500 V isolation	1.40	1.00
4N37	B	1500 V isolation	1.25	.95
ILD74	A	1500 V dual isolator	1.90	1.30
H11A1	B	2500 V isolation	1.00	.85
H11A2	B	1500 V isolation	.90	.75
H11A3	B	2500 V isolation	1.00	.85
H11A4	B	1500 V isolation	1.00	.85
H11D1	B	2500 V, 20% CTR	1.80	1.44
H11D2	B	1500 V, 20% CTR	1.47	1.18
H11D3	B	1500 V, 20% CTR	1.35	1.08
H11D4	B	1500 V, 10% CTR	1.20	.96
MCT2	B	1500 V isolation	.99	.75
MCT2E	B	2500 V isolation	1.10	.79
MCT6	A	1500 V dual isolator	1.90	1.45
MCT26	B	1500 V isolation	.90	.63
MCT66	A	1500 V dual isolator	1.85	1.40
TIL111	B	1500 V isolation	.90	.80
TIL112	B	1500 V isolation	.90	.80
TIL114	B	2500 V isolation	.90	.80
TIL115	B	2500 V isolation	.90	.80
TIL116	B	2500 V isolation	.90	.80
TIL117	B	2500 V isolation	.90	.80
TIL118	B	1500 V isolation	.90	.80
MCT210	E	4000 V isolation	1.95	1.55
DARLINGTON OUTPUT				
FCD850	E	1500 V AC isolation	$1.54	$1.23
FCD850C	E	5000 V isolation	1.64	1.31
FCD850D	E	6000 V isolation	1.92	1.54
FCD855	E	1500 V AC isolation	1.76	1.41
FCD855C	E	5000 V isolation	1.86	1.49
FCD855D	E	6000 V isolation	2.18	1.74
FCD860	E	1500 V AC isolation	1.76	1.41
FCD860C	E	5000 V isolation	1.86	1.49

OPTICALLY COUPLED ISOLATORS (CONTINUED)

Fairchild Type	Fig.	Description	Net Each, Lots of 1-99	Net Each, Lots of 100-999
DARLINGTON OUTPUT (CONT'D.)				
FD865	E	1500 V AC isolation	$2.08	$1.66
FCD865C	E	5000 V isolation	2.20	1.76
FCD890	F	2500 V dual isolator	2.82	2.35
H11B1	E	2500 V isolation	1.90	1.60
H11B2	E	1500 V isolation	1.60	1.35
MCA230	E	1500 V isolation	1.20	.90
MCA231	E	1500 V isolation	1.50	1.30
MCA255	E	1500 V isolation	1.50	1.10
TIL113	E	1500 V isolation	1.20	1.00
TIL119	E	1500 V isolation	1.10	.90
4N29	E	2500 V isolation	1.40	1.05
4N30	E	1500 V isolation	1.20	1.00
4N31	E	1500 V isolation	1.10	.95
4N32	E	2500 V isolation	1.40	1.15
4N33	E	1500 V isolation	1.40	1.10

SOURCE/SENSOR ARRAYS

Fairchild Type	Fig.	Function	Net Ea. Lots of 1-24
FPA100	A	9 element source and sensor arr	$44.00
FPA101	B	IR 12 element source and sensor arr	56.00†
FPA102	C	IR 10 element source and sensor arr	56.00†
FPA720	C	10 element sensor arr	30.00

†Lots of 1–99.

EMITTER/SENSOR ARRAYS

Fairchild Type	Fig.	Function	Net Each, Lots of 1-24	25-99	100-999
FPA103	D	Light reflect. transducer	$ 5.70	$4.85	$4.00
FPA104	D	Same except 3:1 match	8.90	7.55	6.25
FPA105	D	Same except 2:1 match	10.00	8.50	7.00
FPA106	D	FPA103 w/infrared filter	6.20	5.30	4.35
FPA107	D	FPA104 w/infrared filter	9.80	8.35	6.85
FPA108	D	FPA105 w/infrared filter	11.00	9.35	7.70

MULTIPLE CHARACTER DISPLAYS

Fairchild Type	Fig.	Description	Net Ea., Lots of 1-99	100-999
FNA012	..	12 elem. bar graph, red	3.50	3.00

OUR STOCKS ARE FULLY UP TO DATE WITH ALL THE LATEST PRODUCTS.
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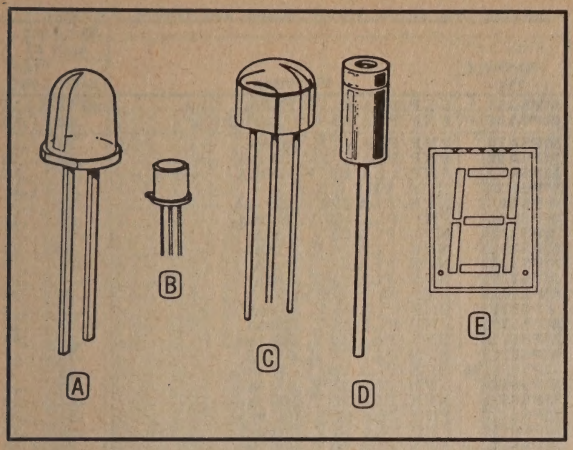

VISIBLE LAMPS

Fairchild Type	Fig.	Description	Net Each, Lots of 1-99	100-999	1000 Up
FLV102	A	Red diffused	1.00	.85	.70
FLV104	A	Clear narrow beam	2.00	1.50	1.30
FLV104A	..	Red narrow beam	2.00	1.50	1.30
FLV110	A	Red diffused	.30	.25	.20
FLV111	A	Clear point source	.30	.25	.20
FLV117	A	Red diffused	.25	.20	.17
FLV140	A	Red diffused	.30	.25	.20
FLV150	A	Red diffused	.30	.25	.20
FLV160	A	Red diffused	.30	.25	.20
FLV310	A	Green diffused	.60	.50	.40
FLV340	A	Green diffused	.60	.50	.40
FLV350	A	Green diffused	.60	.50	.40
FLV360	A	Green diffused	.60	.50	.40
FLV410	A	Yellow diffused	.60	.50	.40
FLV440	A	Yellow diffused	.60	.50	.40
FLV460	A	Yellow diffused	.60	.50	.40
FLV510	A	Red diffused	.60	.50	.40
FLV540	A	Red diffused	.60	.50	.40
FLV550	A	Red diffused	.60	.50	.40
FLV560	A	Red diffused	.60	.50	.40
HLMP1300	B	High efficiency red	.40	.33	...
HLMP1301	B	High efficiency red	.54	.42	...
HLMP1302	B	High efficiency red	.70	.62	...
HLMP1400	B	Yellow	.40	.33	...
HLMP1401	B	Yellow	.54	.42	...
HLMP1402	B	Yellow	.70	.62	...
HLMP1500	B	Green	.40	.33	...
HLMP1501	B	Green	.54	.42	...
HLMP1502	B	Green	.70	.62	...
5082-4480	B	Red diffused	.30	.23	...
5082-4483	B	Clear diffused	.65	.50	...
5082-4486	B	Clear transparent	.65	.50	...
MP52	..	Plastic mtg. clip, MV Ser.	.06	.05	.....
MV5050	A	Clear point source	.35	.28	....
MV5051	A	Clear diffused	.35	.28	....
MV5052	A	Red point source	.35	.28	....
MV5053	A	Red diffused	.25	.20	....
MV5054-1	A	Red semidiffused	.28	.22	....
MV5054-2	A	Red semidiffused	.30	.24	....
MV5054-3	A	Red semidiffused	.95	.78	....
MV5055	A	Red wide angle	.25	.20	....
MV5056	A	Red wide angle	.41	.31	....
MV5152	A	Amber point source	.55	.45	....
MV5153	A	Amber backlighting	.55	.45	....
MV5154	A	Amber diffused	.55	.45	....
MV5252	A	Green point source	.55	.45	....
MV5253	A	Green backlighting	.55	.45	....
MV5254	A	Green diffused	.55	.45	....
MV5352	A	Yellow point source	.55	.45	....
MV5353	A	Yellow backlighting	.55	.45	....
MV5354	A	Yellow diffused	.55	.45	....
MV5752	A	Red point source	.55	.45	....
MV5753	A	Red diffused	.36	.30	....
MV5754	A	Red semidiffused	.36	.30	....
TIL209A	..	Red diffused	.25*	.20*	.18
FLS010	..	Panel adapter for FLV110	.06	.05	.04

*Lots of 1–24, 25–99, 100–999.

INFRARED EMITTERS

Fairchild Type	Fig.	Description	Net Each, Lots of 1-99	100-999	1000 Up
FPE104	A	Narrow beam	2.00	1.80	1.50
TIL32	A	Plastic, T-1, 940 nm	.53	.50	...
TIL38	A	Plastic, T-1, 940 nm	.55	.45	...
FPE700	A	Plastic, T-1, 940 nm	.48	.45	.42

PHOTO TRANSISTORS

Fairchild Type	Fig.	Description	Net Each, Lots of 1-99	100-999	1000 Up
FPT100	C	Round lens gen pur	$ 1.10	$ 0.95	$ 0.80
FPT100A	C	Round lens 1:3 sen	1.10	.95	.80
FPT100B	C	Round lens 1:2 sen	1.36	1.16	.98
FPT101	D	080″ dia. coax pkg.	10.00	8.50	7.00
FPT110	C	Flat lens gen pur	1.10	.95	.80
FPT110A	C	Flat lens 1:3 sen	1.10	.95	.80
FPT110B	C	Flat lens 1:2 sen	1.36	1.16	.98
FPT120	C	Round lens high sen	1.60	1.35	1.10
FPT120A	C	Round lens 1:3 sen	2.35	2.00	1.65
FPT120B	C	Round lens 1:1.5 sen	2.50	2.15	1.75
FPT130	C	Flat lens high sen	1.60	1.35	1.10
FPT130A	C	Flat lens 1:3 sen	2.35	2.00	1.65
FPT130B	C	Flat lens 1:2 sen	2.50	2.15	1.75
FPT220	C	Round lens 1:2 sen	2.10	1.80	1.50
FPT230	C	Flat lens 1:2 sen	2.10	1.80	1.50
FPT320	C	Round lens 1:3 sen	1.90	1.60	1.35
FPT330	C	Flat lens 1:3 sen	1.90	1.60	1.35
FPT500	B	Round lens	1.60	1.35	1.10
FPT510	B	Flat lens	1.60	1.35	1.10
FPT510A	B	Flat lens 1:3 sen	2.20	1.85	1.55
FPT540A	B	Round lens 1:3 sen	2.40	2.05	1.70
FPT550	B	Flat lens	1.80	1.55	1.25
FPT550A	B	Flat lens 1:3 sen	2.40	1.85	1.55
TIL78	A	Plastic, T-1, sensor	.53	.45	...

SINGLE CHARACTER DISPLAYS

Fairchild Type	Fig.	Description	Net Each, Lots of 1-99	100-999	1000 Up
FND337	F	.357″ green com cath	$3.60	$2.80	$2.45
FND350	E	0.375″ com anode	1.80	1.55	1.25
FND357	E	0.375″ com cath	1.75	1.50	1.25
FND358	E	0.375″ com cath ±1 dec	1.75	1.50	1.25
FND360	E	0.375″ com anode hi brite	2.30	1.95	1.60
FND367	E	0.357″ com cath	2.30	1.95	1.60
FND368	E	0.375″ hi brite	2.30	1.95	1.60
FND500	E	0.500″ com cath	1.75	1.50	1.25
FND501	E	0.500″ com cath ±1 dec	1.75	1.50	1.25
FND507	E	0.500″ com an	1.75	1.50	1.25
FND508	E	0.500″ com an ±1 dec	1.75	1.50	1.25
FND530	E	Green .500″ com cath	5.50	4.65	....
FND531	E	Green ±1 digit c.c.	5.50	4.65	3.80
FND537	E	Green .500″ com anode	5.50	4.65	....
FND538	E	Green ±1 digit c.a.	5.50	4.65	3.80
FND540	..	.500″, yellow, c.c.	5.50	4.65	3.80
FND541	..	.500″, yellow, ± c.c.	5.50	4.65	....
FND547	..	.500″, yellow, c.a.	5.50	4.65	3.80
FND548	..	.500″, yellow, ± c.c.	5.50	4.65	3.80
FND550	E	Amber .500″ com cath	5.50	4.65	3.80
FND551	E	Amber .500″ ±1 digit c.c.	5.50	4.65	3.80
FND557	E	Amber .500″ c.c.	5.50	4.65	3.80
FND558	E	Amber ±1 digit c.a.	5.50	4.65	3.80
FND560	E	.500″ c.c. hi brite	2.30	1.95	1.50
FND561	E	.500″ c.c. hi brite	2.30	1.95	1.50
FND567	E	.500″ c.a. hi brite	2.30	1.95	1.50
FND568	E	.500″ c.a. hi brite	2.30	1.95	1.50
FND800	E	0.800″ com cath rt dec	4.40	3.50	2.70
FND807	E	0.800″ com an rt dec	4.40	3.50	2.70
MAN71A	..	0.300″, left dec. pt. c.a.	1.40	1.19	....
MAN72A	..	0.300″, right dec. pt. c.a.	1.40	1.19	....
MAN73A	..	0.300″, ±, com anode	1.40	1.19	....
MAN74A	..	0.300″, right dec. pt. c.c.	1.40	1.19	....
MAN3610A	F	.3″ orange com anode LDP	2.85	2.25	....
MAN3620A	F	.3″ orange com anode RDP	2.85	2.25	....
MAN3630A	F	.3″ orange com anode ±1	2.85	2.25	....
MAN3640A	F	.3″ orange com cathode RDP	2.85	2.25	....
MAN3910A	F	.3″ HER com anode LDP	2.85	2.25	....
MAN3920A	F	.3″ HER com anode RDP	2.85	2.25	....
MAN3930A	F	.3″ HER com anode ±1	2.85	2.25	....
MAN3940A	F	.3″ HER com cathode RDP	2.85	2.25	....
MAN6610	F	.56″ dual digit orange com anode	4.30	3.25	....
MAN6640	F	.56″ dual digit orange com cathode	4.30	3.25	....
MAN6710	..	.56″ red com anode	3.40	2.90	....
MAN6740	..	.56″ red com cathode	3.40	2.90	....
MAN6910	F	.56″ dual digit HER com anode	4.30	3.25	....
MAN6940	F	.56″ dual digit HER com cathode	4.30	3.25	....
5082-7650	F	.43″ HER com anode LDP	3.10	2.45	....
5082-7651	F	.43″ HER com anode RDP	3.10	2.45	....
5082-7653	F	.43″ HER com cathode red	3.10	2.45	....
5082-7750	F	.43″ red com anode LDP	1.90	1.70	....
5082-7751	F	.43″ red com anode RDP	1.90	1.70	....
5082-7760	F	.43″ red com cathode RDP	1.90	1.70	....

NPN-PNP Silicon Semiconductors

Lead Forming On TO-92 Plastic Transistors: Lead forming to TO-5 or TO-18 outline dimension is available on all standard small signal plastic TO-92 transistors for a price adder of **$0.01** per unit. To order lead formed devices, add a dash five (**-5**) or dash eighteen (**-18**) to the standard device type number: i.e., 2N3906-**5** leads formed to TO-5 outline; 2N3906-**18** leads formed to TO-18 outline.
Military Approved Devices: All Fairchild devices, which indicate military approval are qualified to the current revisions of Military Specification 19500.

GENERAL PURPOSE AMPLIFIERS

Fairchild Type	Function	Net Each, Lots of 1-99	100-999
2N697	NPN/MET 40 V, 150 mA	$0.87	$0.57
2N718	NPN/MET 40 V, 150 mA	.57	.38
2N718A	NPN/MET 50 V, 150 mA	.60	.37
2N930	NPN/MET 45 V, 25 mA lo-NF, hi-beta	.57	.38
2N1132	PNP/MET 50 V, 150 mA	.97	.64
2N1613	NPN/MET 50 V, 150 mA	.90	.60
2N1711	NPN/MET 50 V, 500 mA	.93	.61
2N1893	NPN/MET 60 V, 150 mA	.86	.53
2N2270	NPN/MET 45 V, 500 mA	.82	.55
2N2405	NPN/MET 90 V, 150 mA	1.40	.87
2N2484	NPN/MET 60 V	.55	.33
2N3019	NPN/MET 80 V, 1 A	2.50	1.67
2N3020	NPN/MET 80 V, 1 A	1.62	1.01
2N3053	NPN/MET 40 V, 150 mA	.62	.44
2N3117	NPN/MET 60 V, 25 mA lo-NF, hi-beta	1.20	.80
2N3962	PNP/MET 60 V, 50 mA lo-NF, hi-beta	.91	.57
2N3964	PNP/MET 45 V lo-NF, hi-beta	1.48	.92
2N3965	PNP/MET 60 V lo-NF, hi-beta	1.30	.80
2N4030	PNP/MET 60 V, 1 A	.90	.61
2N4032	PNP/MET 60 V, 1 A	1.05	.70
2N4033	PNP/MET 80 V, 1 A	1.32	.88
2N4036	PNP/MET 65 V, 1 A	1.77	1.10
2N4037	PNP/MET 40 V, 1 A	1.43	.89
2N4410	NPN/PLA 80 V, 25 mA	.90	.56
2N4926	NPN/MET 200 V, 100 mA	2.00	1.24
2N4927	NPN/MET 250 V, 100 mA	2.30	1.42
2N5058	NPN/MET 300 V, 100 mA	2.70	1.66
2N5059	NPN/MET 250 V, 100 mA	3.00	1.86
2N5086	PNP/PLA 50 V, 500 mA	.34	.21
2N5087	PNP/PLA 50 V, 500 mA	.45	.28
2N5088	NPN/PLA 30 V 50 mA lo-NF,	.34	.21
2N5089	NPN/PLA 25V hi-beta	.43	.27
2N5209	NPN/PLA 50 V 50 mA lo-NF,	.34	.21
2N5210	NPN/PLA 50 V hi-beta	.45	.28
2N5223	NPN/PLA 20 V, 100 mA	.21	.13
2N5225	NPN/PLA 25 V, 500 mA	.23	.14
2N5226	PNP/PLA 25 V, 500 mA	.24	.15
2N5227	PNP/PLA 30 V, 100 mA	.24	.15
2N5400	PNP/PLA 120 V, 50 mA	.40	.25
2N5401	PNP/PLA 150 V, 50 mA	.51	.32
2N5550	NPN/PLA 140 V, 50 mA	.51	.32
2N5830	NPN/PLA 100 V, 50 mA	.51	.32
2N5831	NPN/PLA 140 V, 50 mA	.57	.35
2N5832	NPN/PLA 140 V, 50 mA	.68	.42
2N5833	NPN/PLA 180 V, 50 mA	.63	.39
2N5961	NPN/PLA 60 V 50 mA lo-NF,	.34	.21
2N5962	NPN/PLA 45 V hi-beta	.63	.39
SE7055	NPN/MET 220 V, 100 mA	2.80	1.75
MPSA05	NPN/PLA 60 V 350 ma GPA	.34	.21
MPSA06	NPN/PLA 80 V and driver	.37	.23
MPSA10	NPN/PLA 40 V, 5 mA	.23	.14
MPSA18	NPN, 45 V, 50 mA, high beta	.70	.43
MPSA20	NPN/PLA 40 V, 10 mA	.23	.14
MPSA42	NPN/PLA 300 V, 50 mA	.71	.44
MPSA43	NPN/PLA 200 V, 50 mA	.51	.32
MPSA55	PNP/PLA 60 V 350 mA GPA	$0.55	$0.35
MPSA56	PNP/PLA 80 V and driver	.62	.39
MPSA70	PNP/PLA 40 V, 10 mA	.23	.14
MPSA92	PNP/PLA 300 V, 50 mA	.80	.50
MPSA93	PNP/PLA 200 V, 50 mA	.57	.35
MPSH24	NPN, VHF mixer	.51	.35
MPSL01	NPN/PLA 120 V, 50 mA	.43	.27
MPSL51	PNP/PLA 100 V, 50 mA	.43	.27
MPS2924	NPN/PLA 25 V, 2 mA	.34	.21
MPS2925	NPN/PLA 25 V, 2 mA	.38	.24
MPS3392	NPN/PLA 25 V, 2 mA	.31	.19
MPS3393	NPN/PLA 25 V, 2 mA	.31	.19
MPS3638	PNP, 25 V, 500 mW	.26	.16
MPS3702	PNP/PLA 25 V, 50 mA	.29	.18
MPS3703	PNP/PLA 25 V, 50 mA	.29	.18
MPS3704	NPN/PLA 30 V, 100 mA	.34	.25
MPS5172	NPN/PLA 25 V, 10 mA	.17	.11
MPS5551M	NPN/PLA 160 V, 50 mA	.51	.32
MPS6514	NPN/PLA 25 V, 100 mA	.29	.18
MPS6515	NPN/PLA 25 V, 100 mA	.31	.19
MPS6516	PNP/PLA 40 V, 100 mA	.57	.36
MPS6519	PNP/PLA 25 V, 100 mA	.46	.29
MPS6531	NPN/PLA 40 V, 500 mA	.71	.45
MPS6534	NPN, 40 V, 500 mA	.34	.21
MPS6534M	PNP/PLA 40 V	.34	.21
MPS6560	NPN/PLA 25 V, 500 mA	.48	.31
MPS6561	NPN/PLA 20 V, 500 mA	.45	.30
MPS6562	PNP/PLA 25 V, 500 mA	.54	.34
MPS6563	PNP/PLA 20 V, 500 mA	.51	.33
PE4001	NPN, 25 V, 25 mA, high beta	.29	.18
PE4002	NPN, 25 V, 25 mA, high beta	.26	.16
PE4010	NPN, 25 V, 25 mA, high beta	.29	.18
PE6020	NPN/PLA 60 V, 500 mA	.51	.32
PE6021	NPN/PLA 80 V, 500 mA	.55	.35
PE7058	NPN/PLA 220 V, 100 mA	.71	.44
PE7059	NPN/PLA 300 V, 100 mA	.86	.53
PE8050	NPN/PLA 25 V, 500 mA	.52	.35
PE8051	NPN/PLA 35 V, 500 mA	.59	.40
PE8052	NPN, 15 V, 500 mA	.50	.33
PE8550	PNP, 25 V, 500 mA	.54	.36
PE8551	PNP/PLA 35 V, 500 mA	.61	.43
PE8552	PNP, 15 V, 500 mA	.52	.35
PN2222	NPN, 30 V, 500 mA	.26	.16
PN2369A	NPN, 15 V, 100 mA	.29	.18
PN2484	NPN/PLA 60 V, 25 mA low noise	.34	.21
PN2907	PNP, 40 V, 500 mA	.26	.16
PN3565	NPN/PLA 25 V, 25 mA low noise	.23	.14
PN3566	NPN/PLA 30 V, 500 mA hi-gain	.29	.18
PN3568	NPN, 60 V, 1 A	.29	.18
PN3569	NPN, 40 V, 1 A	.29	.18
PN3641	NPN, 30 V, 500 mW	.26	.16
PN4121	PNP, 40 V, 100 mA	.37	.23
PN4122	PNP, 30 V, 100 mA	.40	.25
PN4248	PNP/PLA 40 V, 50 mA low noise	.23	.14
PN4249	PNP/PLA 60 V, 50 mA low noise	.29	.18
PN4250	PNP/PLA 40 V, 50 mA low noise	.34	.21
PN4250A	PNP, 60 V, 50 mA, high beta	.37	.23
PN4258A	PNP, 12 V, 50 mA	.43	.27
PN4274	NPN, 12 V, 100 mA	.26	.16
PN4275	NPN, 15 V, 100 mA	.29	.18
PN4355	PNP/PLA 60 V, 1 A	.40	.25
PN4356	PNP, 80 V, 1 A	.43	.27
PN4888	PNP/PLA 150 V, 50 mA	.52	.32
PN4889	PNP/PLA 150 V, 50 mA	.74	.46
PN5128	NPN, 12 V, 500 mA	.20	.12
PN5133	NPN, 18 V, 50 mA, high beta	.20	.12
PN5134	NPN, 10 V, 100 mA	.23	.14
PN5135	NPN, 25 V, 500 mA	.20	.12
PN5136	NPN, 20 V, 500 mA	.20	.12
PN5138	PNP, 30 V, 50 mA, high beta	.20	.12
PN5142	PNP, 20 V, 500 mA	.20	.12
PN5910	PNP, 20 V, 50 mA	.51	.32
PN6076	PNP, 25 V, 10 mA	.20	.13
SE7056	NPN, 200 V, 100 mA	3.10	1.91

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FAIRCHILD SEMICONDUCTOR NPN-PNP Silicon Semiconductors

GENERAL PURPOSE AMPLIFIERS AND SWITCHES

Fairchild Type	Function	Net Each, Lots of 1-99	100-999
2N2218	NPN/MET 30 V, 500 mA	$0.62	$0.44
2N2218A	NPN/MET 40 V, 500 mA	.90	.60
2N2219	NPN/MET 30 V, 500 mA	.62	.44
2N2219A	NPN/MET 40 V, 500 mA	.90	60
2N2221	NPN/MET 30 V, 500 mA	.53	.36
2N2221A	NPN/MET 40 V, 500 mA	.57	.38
2N2222	NPN/MET 30 V, 500 mA	.53	.35
2N2222A	NPN/MET 40 V, 500 mA	.60	.40
2N2904	PNP/MET 40 V, 500 mA	.64	.46
2N2904A	PNP/MET 60 V, 500 mA	.77	.65
2N2905	PNP/MET 40 V, 500 mA	.64	.46
2N2905A	PNP/MET 60 V, 500 mA	.77	.65
2N2906	PNP/MET 40 V, 500 mA	.55	.38
2N2906A	PNP/MET 60 V, 500 mA	.59	.40
2N2907	PNP/MET 40 V, 500 mA	.55	.38
2N2907A	PNP/MET 60 V, 500 mA	.59	.40
2N3250	PNP/MET 40 V, 100 mA	.69	.47
2N3250A	PNP/MET 60 V, 100 mA	.88	.55
2N3251	PNP/MET 40 V, 100 mA	.69	.57
2N3251A	PNP/MET 60 V, 100 mA	.80	.53
2N3300	NPN/MET 30 V, 500 mA	.86	.53
2N3302	NPN/MET 30 V, 500 mA	.80	.53
2N3502	PNP/MET 45 V, 500 mA	1.20	.80
2N3504	PNP/MET 45 V, 500 mA	.80	.53
2N3505	PNP/MET 60 V, 500 mA	.84	.56
2N3903	NPN/PLA 40 V, 100 mA	.26	.16
2N3905	PNP/PLA 40 V, 100 mA	.26	.16
2N3947	NPN/MET 40 V, 50 mA	.72	.48
2N4123	NPN/PLA 25 V, 100 mA	.32	.21
2N4124	NPN/PLA 25 V, 2 mA	.34	.21
2N4125	PNP/PLA 30 V, 2 mA	.34	.21
2N4126	PNP/PLA 25 V, 2 mA	.34	.21
2N4400	NPN/PLA 40 V, 500 mA	.23	.14
2N4401	NPN/PLA 40 V, 150 mA	.71	.45
2N4402	PNP/PLA 40 V, 150 mA	.23	.14
2N4403	PNP/PLA 40 V, 150 mA	.29	.18
MPS3638A	PNP/PLA 25 V, 500 mA	.31	.19
PN2222A	NPN/PLA, 40 V, 500 mA	.29	.18
PN2907A	PNP/PLA 60 V, 500 mA	.37	.23
PN3251	PNP/PLA 40 V, 100 mA	.37	.23
PN3567	NPN/PLA 40 V, 1A	.26	.16
PN3639	NPN/PLA 40 V, 1A	.26	.16
PN3642	NPN/PLA 45 V, 500 mA	.29	.18
PN3643	NPN/PLA 30 V, 500 mA	.29	.18
PN3644	PNP/PLA 45 V, 500 mA	.29	.18
PN3645	PNP/PLA 60 V, 500 mA	.31	.19
PN3693	NPN/PLA 45 V	.34	.21
PN3694	NPN/PLA 45 V	.37	.23
PN5139	PNP/PLA 20 V, 100 mA	.20	.12
	DUALS		
2N2913	NPN/MET 45 V, 100 mA	$3.47	$2.91
2N2914	NPN/MET 45 V, 50 mA	2.26	1.76
2N2915	NPN/MET 45 V, 50 mA	5.55	5.55
2N2917	NPN/MET 45 V, 50 mA	3.25	2.48
2N2918	NPN/MET 45 V, 50 mA	3.30	2.86
2N2920	NPN/MET 60 V, 50 mA	4.40	3.96
2N2920A	NPN/MET 60 V, 50 mA	9.35	7.70
2N3806	PNP/MET 60 V, 100 mA	3.65	3.20
2N3808	PNP/MET 60 V, 100 mA	5.65	5.25
2N3810	PNP/MET 60 V, 100 mA	5.90	5.40
2N3811	PNP/MET 60 V, 100 mA	5.90	5.40
	QUADS		
FPQ2222	40 V, Quad	$2.03	$1.40
FPQ2907	40 V, Quad	2.23	1.54
FPQ3724	NPN DIP 40 V	2.24	1.54
FPQ3725	NPN DIP 50 V	2.75	2.60
MPQ3725	50 V, Quad core driver	2.24	1.54

HIGH SPEED SWITCHES

Fairchild Type	Function	Net Each, Lots of 1-99	100-999
2N708	NPN/MET 15 V, 100 mA	$0.53	$0.36
2N914	NPN/MET 20 V, 300 mA	.53	.36
2N2369	NPN/MET 15 V, 100 mA	.57	.38
2N2369A	NPN/MET 15 V, 100 mA	.67	.45
2N3009	NPN/MET 15 V, 300 mA	.53	.36
2N3013	NPN/MET 15 V, 300 mA	.53	.36
2N3014	NPN/MET 20 V, 300 mA	1.00	.62
2N4208	PNP/MET 12 V, 50 mA	1.20	.80
2N4209	PNP/MET 15 V, 50 mA	1.40	.93
2N5224	NPN/PLA 12 V, 300 mA	.21	.13
2N5769	NPN/PLA 15 V, 100 mA	.29	.18
2N5771	PNP/PLA 15 V, 50 mA	.43	.27
2N5772	NPN/PLA 15 V, 300 mA	.29	.18
MPS3646	NPN/PLA 15 V, 300 mA	.29	.18
PN2369	NPN/PLA 15 V, 100 mA	.26	.16
PN3639	PNP/PLA 6 V, 50 mA	.26	.16
PN3640	PNP/PLA 12 V, 50 mA	.29	.18
PN4258	PNP/PLA 12 V, 50 mA	.37	.23
PN4916	PNP/PLA 30 V, 100 mA	.32	.20
PN4917	PNP/PLA 30 V, 100 mA	.34	.21
	NPN DARLINGTONS		
MPSA12	TO-92 20 V, 100 mA	.52	.33
MPSA13	TO-92 30 V, 100 mA	.43	.27
MPSA14	TO-92 30 V, 100 mA	.47	.29
	CORE DRIVERS		
2N3253	NPN/MET 40 V, 1 A	$1.04	$0.69
2N3724	NPN/MET 30 V, 1 A	.87	.57
2N3725	NPN/MET 50 V, 1 A	.94	.58
2N4047	NPN/MET 50 V, 1 A	1.16	.78

NPN RF/IF—METAL AND PLASTIC

Plastic except as otherwise noted.

Fairchild Type	Function	Net Each, Lots of 1-99	100-999
2N918*	15 V, 200 MHz amp and osc	$2.14	$1.19
2N5770	12 V, 200 MHz RF amp and osc	.28	.18
PN918†	15 V, 200 MHz amp and osc	.43	.27
PN3563†	12 V, 500 MHz amp and osc	.29	.18

*Metal. †TO-92 package.

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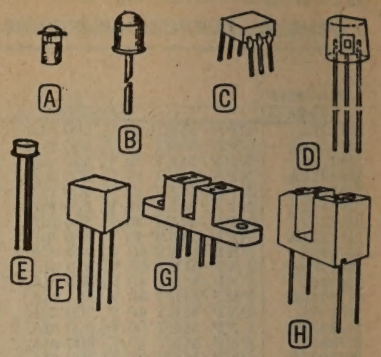
INFRARED EMITTERS

GE Type	Min. Power Output*	Max. Forward Voltage*	Peak Wavelength Nanometers	Typical t_{on} µSec.	Typical t_{off} µSec.	Max. Power Diss. mW	Max. Forward Current Cont. mA	Pkg. Outline
LED55B	3.5 mW	1.7	940	1.0	1.0	1300	100	A
LED55BF	3.5 mW	1.7	940	1.0	1.0	1300	100	B
LED55C	5.4 mW	1.7	940	1.0	1.0	1300	100	A
LED55CF	5.4 mW	1.7	940	1.0	1.0	1300	100	B
LED56	1.5 mW	1.7	940	1.0	1.0	1300	100	A
LED56F	1.5 mW	1.7	940	1.0	1.0	1300	100	B
IN6264	6.0 mW	1.7	940	1.0	1.0	1300	100	A
IN6265	6.0 mW	1.7	940	1.0	1.0	1300	100	B
IN6266	25 mW	1.7	940	1.0	1.0	1300	100	A
CQX14	5.4 mW	1.7	940	1.0	1.0	1300	100	A
CQX15	5.4 mW	1.7	940	1.0	1.0	1300	100	B
CQX16	1.5 mW	1.7	940	1.0	1.0	1300	100	A
CQX17	1.5 mW	1.7	940	1.0	1.0	1300	100	B
F5D1	12.0 mW	1.7	880	1.5	1.5	1300	100	A
F5D2	9.0 mW	1.7	880	1.5	1.5	1300	100	A
F5D3	10.5 mW	1.7	880	1.5	1.5	1300	100	A
F5E1	12.0 mW	1.7	880	1.5	1.5	1300	100	B
F5E2	9.0 mW	1.7	880	1.5	1.5	1300	100	B
F5E3	10.5 mW	1.7	880	1.5	1.5	1300	100	B

*At I_F = 100 mA.



DETECTORS

PHOTO TRANSISTORS

GE Type	Fig.	Minimum Sensitivity mA/mW/cm²	BV_{CEO} Volts	I_D Max. nA	Typical t_r µsec	Typical t_f µsec	Size, Inches Dia. x Lgth.
BPW36	E	.6	45	100	5	5	.232 x .260
BPW37	E	.3	45	100	5	5	.232 x .260
L14H1	D	.05	60	100	5	5	.170 x .210
L14H2	D	.2	30	100	5	5	.170 x .210
L14H3	D	.2	60	100	5	5	.170 x .210
L14H4	D	.05	30	100	5	5	.170 x .210
L14G1	E	.6	45	100	5	5	.230 x .255
L14G2	E	.3	45	100	5	5	.230 x .255
L14G3	E	1.2	45	100	5	5	.230 x .255

PHOTO DARLINGTON

2N5777	D	.25	25	100	75	50	.170 x .210
2N5778	D	.25	40	100	75	50	.170 x .210
2N5779	D	1.0	25	100	75	50	.170 x .210
2N5780	D	1.0	40	100	75	50	.170 x .210
BPW38	E	15	25	100	75	50	.232 x .260
L14F1	E	15	25	100	75	50	.230 x .255
L14F2	E	5	25	100	75	50	.230 x .255

PHOTON COUPLED INTERRUPTER MODULES

GE Type	Fig.	Output Current* µA	I_D nA	BV_{CEO} Volts	Typical t_{on} µsec	Typical t_{off} µsec	Size, Ins. ‡ x Lgth.
CNY28	G	200	100	30	5	5	.235 x .984
H21A1	G	1000	100	30	8	50	.295 x .972
H21A2	G	2000	100	30	8	50	.295 x .972
H21A3	G	4000	100	30	8	50	.295 x .972
H21A4	G	1000	100	55	8	50	.295 x .972
H21A5	G	2000	100	55	8	50	.295 x .972
H21A6	G	4000	100	55	8	50	.295 x .972
H21B1	G	7500†	100	30	45	250	.295 x .972
H21B2	G	14000†	100	30	45	250	.295 x .972
H21B3	G	25000†	100	30	45	250	.295 x .972
H21B4	G	7500†	100	55	45	250	.295 x .972
H21B5	G	14000†	100	55	45	250	.295 x .972
H21B6	G	25000†	100	55	45	250	.295 x .972
H22A1	H	1000	100	30	8	50	.295 x .472
H22A2	H	2000	100	30	8	50	.295 x .472
H22A3	H	4000	100	30	8	50	.295 x .472
H22A4	H	1000	100	55	8	50	.295 x .472
H22A5	H	2000	100	55	8	50	.295 x .472
H22A6	H	4000	100	55	8	50	.295 x .472

FIBER OPTIC DEVICES

DETECTORS

GE Type	Responsivity µA/µW	BV_{CEO} Volts	I_D nA
PHOTO TRANSISTORS			
GF0D1A1	70	30	100
GF0D1A2	30	30	100
PHOTO DARLINGTONS			
GF0D1B1	1000	30	100
GF0D1B2	500	30	100

EMITTERS

GE Type	Output µW	V_R Volts	V_F* Volts	Wavelength nm
GF0E1A1	100	6	1.7	940
GF0E1A2	60	6	1.7	940

*At IF = 50 mA.

COUPLERS

GE Type	Fig.	Isolation Volts	Min. Current Transfer Ratio	I_D nA	BV_{CEO} Volts	Typical t_r µsec	Typical t_f µsec	Size, Inches W. x Lgth.
PHOTO TRANSISTOR OUTPUT								
H11A1	C	2500	50%	50	30	2	2	.340 x .350
H11A2	C	1500	20%	50	30	2	2	.340 x .350
H11A3	C	2500	20%	50	30	2	2	.340 x .350
H11A4	C	1500	10%	50	30	2	2	.340 x .350
H11A5	C	1500	30%	100	30	2	2	.340 x .350
H24A1	F	6000	100%	100	30	5	150	.250 x .375
H24A2	F	6000	20%	100	30	5	150	.250 x .375
H11A520	C	5656	20%	50	30	2	2	.340 x .350
H11A550	C	5656	50%	50	30	2	2	.340 x .350
H11A5100	C	5656	100%	50	30	2	2	.340 x .350
4N25	C	2500	20%	50	30	3	3	.340 x .350
4N25A	C	1775‡	20%	50	30	3	3	.340 x .350
4N26	C	1500	20%	50	30	3	3	.340 x .350
4N27	C	1500	10%	50	30	3	3	.340 x .350
4N28	C	500	10%	50	30	3	3	.340 x .350
4N35	C	2500‡	100%	50	30	3	3	340 x .350
4N36	C	1750‡	100%	50	30	5	5	.340 x .350
4N37	C	1050‡	100%	50	30	5	5	.340 x .350
H74A1	C	1500	.....	100	15	.....		.340 x .350
CNY17 I	C	4000	40-80	50	70	2	2	.....
CNY17 II	C	4000	63-125	50	70	2	2	.....
CNY17 III	C	4000	100-200	50	70	2	2	.....
CNY17 IV	C	4000	160-320	50	70	2	2	.....
CNY32	F	4000	20%	100	30	3	3	.....
CNY47	C	2800	20-60	100	30	2	2	.....
CNY47A	C	2800	40-	100	30	2	2	.....
CNY51	C	5656	100-	50	70	2	2	.....
GEPS2001	..	2500	30%	100	30	5	5	.....
GFH600 I	F	2800	63-125	50	70	5	5	.....
GFH600 II	F	2800	100-200	50	70	5	5	.....
GFH600 III	F	2800	160-320	50	70	5	5	.....
H11AV1	F	4000	100%	50	70	5	5	.....
H11AV2	F	4000	50%	50	70	5	5	.....
H11AV3	F	4000	20%	50	70	5	5	.....
MCT 2	C	1500	20%	50	30	5	5	.....
MCT 2E	C	3500	20%	50	30	5	5	.....
MCT 26	C	1500	6%	50	30	5	5	.....
MCT 210	C	2500	150%	50	30	5	5	.....
PHOTO DARLINGTON OUTPUT								
H11B1	C	2500	500%	100	25	125	100	.340 x .350
H11B2	C	1500	200%	100	25	125	100	.340 x .350
H11B3	C	1500	100%	100	25	125	100	.340 x .350
H11B225	C	1500	100%	100	25	125	100	.340 x .350
4N29	C	2500	100%	100	30	5	40	.340 x .350
4N29A	C	1775‡	100%	100	30	5	40	.340 x .350
4N30	C	1500	100%	100	30	5	40	.340 x .350
4N31	C	1500	50%	100	30	5	40	.340 x .350
4N32	C	2500	500%	100	30	5	100	.340 x .350
4N32A	C	1775‡	500%	100	30	5	100	.340 x .350
4N33	C	1500	500%	100	30	5	100	.340 x .350
CNY31	F	4000	400%	100	30	125	100	.....
CNY48	C	2120	600%	100	30	125	100	.....
MCA 230	..	3550	100%	100	30	5	100	.....
MCA 231	..	3550	200%	100	30	5	100	.....
MCA 255	..	3550	100%	100	55	5	100	.....
HIGH VOLTAGE PHOTO TRANSISTOR OUTPUT								
H11D1	C	2500	20%	100	300	5	5	.....
H11D2	C	1500	20%	100	300	5	5	.....
H11D3	C	1500	20%	100	200	5	5	.....
H11D4	C	1500	10%	100	200	5	5	.....
4N38	C	1500	10%	50	80	5	5	.....
4N38A	C	1775	10%	50	80	5	5	.....
CNY33	C	2500	20%	100	300	5	5	.....
HIGH VOLTAGE PHOTO DARLINGTON OUTPUT								
H11G1	C	2500	1000%	100	100	5	100	.....
H11G2	C	2500	1000%	100	80	5	100	.....
H11G3	C	1500	200%	100	55	5	100	.....

‡RMS value.

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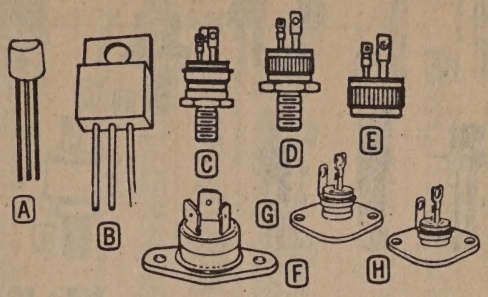
Triacs and Triac Triggers

PLASTIC AND METAL CAN TRIACS

Triac is a silicon AC switch which may be gate triggered from an OFF-state to an ON-state for either polarity of applied voltage. Triac is also an AC phase controller, that performs in a single device the function of two SCR's connected back to back to control heat, light and motor speed. Plastic triacs feature low cost and reliability, **Power Glas**™ passivated junctions, rugged and industry proven packaging and are available in various types of (TO-5, TO-66, etc.) formed leads. Metal can triacs feature **Power Glas** passivated junctions, glass to metal seal, high performance and reliability, transient voltage immunity and comprehensive specifications. Triacs are used in control circuitry in various electrical and mechanical equipments.



TRIACS IN TO-92 PACKAGE (FIG. A)

GE Type*	rms On-State Current Amps	V_{DRM} Off-State Volts	I_{gt} DC Trigger Current† mA	V_{gt} DC Trigger Volts§	I_{TSM}‡ Amps
SC92F	0.8	50	10	2.0	6.0
SC92A	0.8	100	10	2.0	6.0
SC92B	0.8	200	10	2.0	6.0
SC92D	0.8	400	10	2.0	6.0

rms On-State Current Amps	V_{DRM} Off-State Volts	I_{gt} DC Trigger Current† mA	V_{gt} DC Trigger Volts§	I_{TSM}‡ Amps	Stud Case Fig. D	Isolated Stud Case Fig. C	TO-3 Flange Fig. H	Isolated TO-3 Flange Fig. G	Press Fit Case Fig. E
6	200	50	2.5	80	SC240B	SC240B2, 3	SC240B4	SC240B5	SC241B
6	400	50	2.5	80	SC240D	SC240D2, 3	SC240D4	SC240D5	SC241D
6	500	50	2.5	80	SC240E	SC240E2, 3	SC240E4	SC240E5	SC241E
6	600	50	2.5	80	SC240M	SC240M2, 3	SC240M4	SC240M5	SC241M
10	200	50	2.5	100	SC245B	SC245B2, 3	SC245B4	SC245B5	SC246B
10	400	50	2.5	100	SC245D	SC245D2, 3	SC245D4	SC245D5	SC246D
10	500	50	2.5	100	SC245E	SC245E2, 3	SC245E4	SC245E5	SC246E
10	600	50	2.5	100	SC245M	SC245M2, 3	SC245M4	SC245M5	SC246M
15	200	50	2.5	100	SC250B	SC250B2, 3	SC250B4	SC250B5	SC251B
15	400	50	2.5	100	SC250D	SC250D2, 3	SC250D4	SC250D5	SC251D
15	500	50	2.5	100	SC250E	SC250E2, 3	SC250E4	SC250E5	SC251E
15	600	50	2.5	100	SC250M	SC250M2, 3	SC250M4	SC250M5	SC251M
25	200	50	2.5	250	SC260B	SC260B2, 3	SC260B4	SC260B5	SC261B
25	400	50	2.5	250	SC260D	SC260D2, 3	SC260D4	SC260D5	SC261D
25	500	50	2.5	250	SC260E	SC260E2, 3	SC260E4	SC260E5	SC261E
25	600	50	2.5	250	SC260M	SC260M2, 3	SC260M4	SC260M5	SC261M
40	200	80	2.5	300	SC265B	SC265B2, 3	SC265B4	SC265B5	SC266B
40	400	80	2.5	300	SC265D	SC265D2, 3	SC265D4	SC265D5	SC266D
40	500	80	2.5	300	SC265E	SC265E2, 3	SC265E4	SC265E5	SC266E
40	600	80	2.5	300	SC265M	SC265M2, 3	SC265M4	SC265M5	SC266M

TRIACS IN PLASTIC POWER PAC CASE (FIG. B)

GE Type*	rms On-State Current Amps	V_{DRM} Off-State Volts	I_{gt} DC Trigger Current† mA	V_{gt} DC Trigger Volts§	I_{TSM}‡ Amps
SC141B	6	200	50	2.5	80
SC141D	6	400	50	2.5	80
SC141E	6	500	50	2.5	80
SC141M	6	600	50	2.5	80
SC143B	8	200	50	2.5	120
SC143D	8	400	50	2.5	120
SC143E	8	500	50	2.5	120
SC143M	8	600	50	2.5	120
SC146B	10	200	50	2.5	120
SC146D	10	400	50	2.5	120
SC146E	10	500	50	2.5	120
SC146M	10	600	50	2.5	120
SC149B	12	200	50	2.5	120
SC149D	12	400	50	2.5	120
SC149E	12	500	50	2.5	120
SC149M	12	600	50	2.5	120
SC148B	12	200	50	2.5	120
SC148D	12	400	50	2.5	120
SC148E	12	500	50	2.5	120
SC148M	12	600	50	2.5	120
SC150B	15	200	50	2.5	120
SC150D	15	400	50	2.5	120
SC150E	15	500	50	2.5	120
SC150M	15	600	50	2.5	120
SC151B	15	200	50	2.5	120
SC151D	15	400	50	2.5	120
SC151E	15	500	50	2.5	120
SC151M	15	600	50	2.5	120

TRIACS IN ISOLATED POWER PAC CASE (FIG. B)

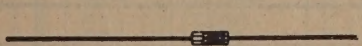
GE Type*	rms On-State Current Amps	V_{DRM} Off-State Volts	I_{gt} DC Trigger Current† mA	V_{gt} DC Trigger Volts§	I_{TSM}‡ Amps
SC140B	6.5	200	50	2.5	80
SC140D	6.5	400	50	2.5	80
SC140E	6.5	500	50	2.5	80
SC140M	6.5	600	50	2.5	80
SC142B	8	200	50	2.5	110
SC142D	8	400	50	2.5	110
SC142E	8	500	50	2.5	110
SC142M	8	600	50	2 5	110
SC147B	10	200	50	2.5	110
SC147D	10	400	50	2.5	110
SC147E	10	500	50	2.5	110
SC147M	10	600	50	2.5	110

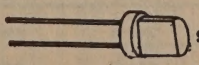
TRIACS IN ISOLATFD TO-3 FLANGE (FIG. F)

SC160B	25	200	50	2.5	250
SC160D	25	400	50	2.5	250
SC160E	25	500	50	2.5	250
SC160M	25	600	50	2.5	250

†At 12 volts, 25° C. ‡Surge current at 60 Hz, one cycle non-repetitive. §MT2+G+, MT2−G−, MT2+G−.

TRIAC TRIGGERS





ST2 (diac) is a silicon bi-directional diode which may be used for triggering triacs or SCR's. It has three layer structure with negative resistance switching characteristics in both directions. ST4 is an asymmetrical AC trigger integrated circuit for use in triac phase control applications. This device reduces the snap-on effects that are present in conventional trigger circuits by eliminating control circuit hysteresis. This performance is possible with a single RC time constant where as a symmetrical circuit of comparable performance would require at least three more passive components.

GE Type	V_{S2} Switching Volts Min.	V_{S2} Switching Volts Max.	V_{S1} Switching Volts Min.	V_{S1} Switching Volts Max.	Max. Switching Current μA	Min. Pulse Output Volts
ST2	28*	36*	28*	36*	200	3.0
ST4	7	9	14	18	80	3.5

*For ST2, $V_{S2} = V_{S1} \pm 10\%$.

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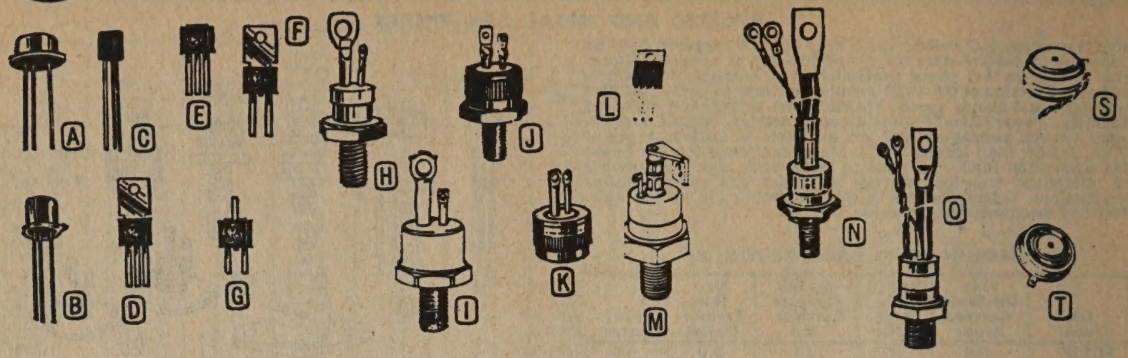

SCR's FOR PHASE CONTROL

"Phase Control" is a term used to describe silicon controlled rectifiers having slow turn-off time. Primary application for a device with relatively slow turn-off time is AC phase control—hence the name "phase control". This type of device is also used for zero voltage switching and selected pulse applications.

15 VOLTS TO 500 VOLTS

rms Amps	Fig.	GE Type For Repetitive Peak Forward and Blocking Voltage of (Volts) 15	25	30	50	100	150	200	250	300	400	500	600
0.5	B	.....	.....	2N877	2N878*	2N879	2N880	2N881	.....	.....	.....	.....	.....
0.8	C	C103Q	.....	C103Y	C103YY*	C103A	.....	C103B	.....	.....	.....	.....	.....
0.8	C	C203Q	.....	C203Y	C203YY*	C203A	.....	C203B	.....	C203C	C203D	.....	.....
0.8	C	.....	.....	2N5060	2N5061	2N5062	2N5063	2N5064	.....	.....	.....	.....	.....
1.2	C	.....	.....	C205Y	.....	C205A	.....	C205B	.....	C205C	C205D	.....	.....
1.6	A	.....	2N2344	.....	2N2345	2N2346	2N2347	2N2348	.....	.....	.....	.....	.....
1.6	A	.....	2N2322	.....	2N2323	2N2324	2N2325	2N2326	2N2327	2N2328	2N2329	.....	.....
1.6	A	.....	.....	.....	2N1595	2N1596	.....	2N1597	.....	2N1598	2N1599	.....	.....
4.0	†	C106Q	.....	C106Y	C106F	C106A	.....	C106B	.....	C106C	C106D	C106E	C106M
4.0	†	C107Q	.....	C107Y	C107F	C107A	.....	C107B	.....	C107C	C107D	C107E	C107M
5.0	†	C108Q	.....	C108Y	C108F	C108A	.....	C108B	.....	C108C	C108D	C108E	C108M
7.4	H	.....	2N1770A	.....	2N1771A‡	2N1772A‡	2N1773A	2N1774A‡	2N1775A	2N1776A‡	2N1777A‡	.....	.....
7.4	H	.....	2N1770	.....	2N1771	2N1772	2N1773	2N1774	2N1775	2N1776	2N1777	2N1778	2N2619
7.4	J	.....	.....	.....	C220F	C220A	.....	C220B	.....	C220C	C220D	C220E	C220M
7.4	K	.....	.....	.....	C222F	C222A	.....	C222B	.....	C222C	C222D	C222E	C222M
8.0	H	.....	C15U	.....	C15F	C15A	C15G	C15B	.....	C15C	C15D	C15E	C15M
8.0	†	.....	.....	.....	C118F	C118A	.....	C118B	.....	C118C	C118D	C118E	C118M
8.0	L	.....	.....	.....	C122F	C122A	.....	C122B	.....	C122C	C122D	C122E	C122M
12.0	K	.....	.....	.....	C126F	C126A	.....	C126B	.....	C126C	C126D	C126E	C126M
12.0	L	.....	.....	.....	2N6394	2N6395	.....	2N6396	.....	.....	2N6397	.....	2N6398
16.0	H	.....	2N1842	.....	2N1843	2N1844	2N1845	2N1846	2N1848	2N1849	2N2849	2N1850	.....
16.0	L	.....	.....	.....	.....	.....	.....	.....	.....	C127C	.....	C127E	.....
16.0	L	.....	.....	.....	2N6400	2N6401	.....	2N6402	.....	.....	2N6403	.....	2N6404
20.0	K	.....	.....	.....	2N5164	.....	.....	2N5165	.....	.....	2N5166	.....	2N5167
20.0	J	.....	.....	.....	2N5168	.....	.....	2N5169	.....	.....	2N5170	.....	2N5171
25.0	J	.....	.....	.....	C230F	C230A	.....	C230B	.....	C230C	C230D	C230E	C230M
25.0	J	.....	.....	.....	C231F	C231A	.....	C231B	.....	C231C	C231D	C231E	C231M
25.0	K	.....	.....	.....	C232F	C232A	.....	C232B	.....	C232C	C232D	C232E	C232M
25.0	K	.....	.....	.....	C233F	C233A	.....	C233B	.....	C233C	C233D	C233E	C233M
25.0	H	.....	C37U	.....	C37F	3C7A	.....	C37B	.....	C37C	C37D	C37E	C37M
25.0	H	.....	2N681	.....	2N682‡	2N683‡	2N684	2N685‡	2N686‡	2N687‡	2N688‡	2N689‡	2N690
35.0	H	.....	C35U	.....	C35F	C35A	C35G	C35B	C35H	C35C	C35D	C35E	C35M
35.0	H	.....	C38U	.....	C38F	C38A	C38G	C38B	C38H	C38C	C38D	C38E	.....
35.0	H	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C137E	C137M
35.0	J	.....	.....	.....	C228F	C228A	.....	C228B	.....	C228C	C228D	C228E	C228M
35.0	K	.....	.....	.....	C229F	C229A	.....	C229B	.....	C229C	C229D	C229E	C229M
35.0	K	.....	.....	.....	.....	2N3870	.....	2N3871	.....	.....	2N3872	.....	2N3873
35.0	J	.....	.....	.....	.....	2N3896	.....	2N3897	.....	.....	2N3898	.....	2N3899
63.0	I	.....	.....	.....	.....	C147A	.....	C147B	.....	C147C	C147D	C147E	C147M
80.0	M	.....	.....	.....	.....	.....	.....	C45B	C45H	C45C	C45D	C45E	C45M
80.0	N	.....	.....	.....	.....	.....	.....	C46B	C46H	C46C	C46D	C46E	C46M
110.0	N	.....	2N1909	.....	2N1910	2N1911	2N1912	2N1913	2N1914	2N1915	2N1916	C50E	C50M
110.0	M	.....	.....	.....	2N1792	2N1793	2N1794	2N1795	2N1796	2N1797	2N1798	C52E	C52M
110.0	N	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C150E	C150M
110.0	M	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C152E	C152M
110.0	N	.....	2N2023	.....	2N2024	2N2025	022N26	2N2027	2N2028	2N2029	2N2030	C60E	.....
110.0	M	.....	C62U	.....	C62F	CC62A	62G	C62B	C62H	C62C	C62D	C62E	.....

*60 volts. †Figs. D, E, F or G. ‡Also available in JAN and JANTX versions.

600 VOLTS TO 1300 VOLTS

rms Current Amps	Fig.	GE Type For Repetitive Peak Forward and Blocking Voltage of (Volts) 700	800	900	1000	1100	1200	1300
25.0	H	C37S	.....	.....	.....	.....	.....	.....
25.0	H	2N691	2N692	.....	.....	.....	.....	.....
35.0	H	C35S	.....	.....	.....	.....	.....	.....
35.0	H	C137S	C137N	C137T	C137P	.....	C137PB	.....
35.0	H	.....	2N5205	.....	2N5206	.....	2N5207	.....
80.0	M	C45S	C45N	C45T	C45P	C45PA	C45PB	.....
80.0	N	C46S	C46N	C46T	C46P	C46PA	C46PB	.....
63.0	I	C147S	C147N	C147T	C147P	C147PA	C147PB	.....
110.0	N	C50S	C50N	C50T	C50P	C50PA	C50PB	.....
110.0	M	C52S	C52N	C52T	C52P	C52PA	C52PB	.....
110.0	N	C150S	C150N	C150T	C150P	C150PA	C150PB	C150PC
110.0	M	C152S	C152N	C152T	C152P	C152PA	C152PB	C152PC

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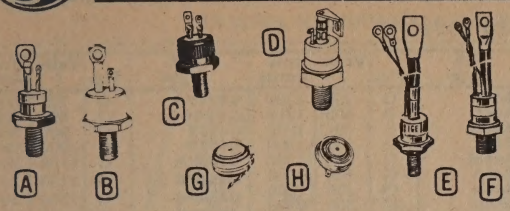

SCR's FOR INVERTERS

These SCR's are optimized for turn-off time (commutation speed), capability and other dynamic characteristics. Ideal for AC/DC inverters, choppers and other pulse applications requiring high speed capability. Types with CA prefix are a new-geometry inverter thyristor called asymmetric thyristors, featuring extremely fast turn-off times and very low V_{TM}.

GE Type	Fig.	Volts ‡	rms Amps
C234F	C	50	25
C234A	C	100	25
C234B	C	200	25
C234C	C	300	25
C234D	C	400	25
C234E	C	500	25
C234M	C	600	25
C138E	A	500	35
C138M	A	600	35
C138S	A	700	35
C138N	A	800	35
C139E	A	500	35
C139M	A	600	35
C139S	A	700	35
C139N	A	800	35
C144E	A	500	35
C144M	A	600	35
C144S	A	700	35
C144N	A	800	53
C148M30	B	600	63
C148S30	B	700	63
C148N30	B	800	63
C148T30	B	900	63
C148P30	B	1000	63
C148PA30	B	1100	63
C148PB30	B	1200	63
C148M40	B	600	63
C148S40	B	700	63
C148N40	B	800	63
C148T40	B	900	63
C148P40	B	1000	63
C148PA40	B	1100	63
C148PB40	B	1200	63
C149A10	B	100	63
C149B10	B	200	63
C149C10	B	300	63
C149D10	B	400	63
C149E10	B	500	63
C149M10	B	600	63
C149A20	B	100	63
C149B20	B	200	63
C149C20	B	300	63
C149D20	B	400	63
C149E20	B	500	63
C149M20	B	600	63
C164A2	D	100	110
C164B2	D	200	110
C164C2	D	300	110
C164D2	D	400	110
C164E2	D	500	110
C164M2	D	600	110
C165A2	D	100	110
C165B2	D	200	110
C165C2	D	300	110
C165D2	D	400	110
C165E2	D	500	110
C165M2	D	600	110
C165S2	D	700	110
C165N2	D	800	110
C154A	E	100	110
C154B	E	200	110
C154C	E	300	110
C154D	E	400	110
C154E	E	500	110
C156A	D	100	110
C156B	D	200	110
C156C	D	300	110
C156D	D	400	110
C156E	D	500	110
C155A	E	100	110
C155B	E	200	110
C155C	E	300	110
C155D	E	400	110
C155E	E	500	110
C155M	E	600	110
C157A	D	100	110
C157B	D	200	110
C157C	D	300	110
C157D	D	400	110
C157E	D	500	110
C157M	D	600	110
C158E	E	500	110
C158M	E	600	110
C158S	E	700	110
C158N	E	800	110
C158T	E	900	110
C158P	E	1000	110
C158PA	E	1100	110
C158PB	E	1200	110
C159E	D	500	110
C159M	D	600	110
C159S	D	700	110
C159N	D	800	110
C159T	D	900	110
C159P	D	1000	110
C159PA	D	1100	110
C159PB	D	1200	110
C164A	E	100	110
C164B	E	200	110
C164C	E	300	110
C164D	E	400	110
C164E	E	500	110
C164M	E	600	110
C165A	E	100	110
C165B	E	200	110
C165C	E	300	110
C165D	E	400	110
C165E	E	500	110
C165M	E	600	110
C165S	E	700	110
C165N	E	800	110
C384A	H	100	400
C384B	H	200	400
C384C	H	300	400
C384D	H	400	400
C384E	H	500	400
C384M	H	600	400
C392A	G	100	500
C392B	G	200	500
C392C	G	300	500
C392D	G	400	500
C392E	G	500	500
C392M	G	600	500
C393A	G	100	500
C393B	G	200	500
C393C	G	300	500
C393D	G	400	500
C393E	G	500	500
C393M	G	600	500
C387E	H	500	550
C387M	G	600	550
C387S	G	700	550
C387N	G	800	550
C387T	G	900	550
C387P	G	1000	550
C387PA	G	1100	550
C387PB	G	1200	550
C388E	G	500	550
C388M	G	600	550
C388S	G	700	550
C388N	G	800	550
C388T	G	900	550
C388P	G	1000	550
C388PA	G	1100	550
C388PB	G	1200	550
C376E	G	500	600
C376M	G	600	600
C376S	G	700	600
C376N	G	800	600
C376T	G	900	600
C376P	G	1000	600
C376PA	G	1100	600
C376PB	G	1200	600
C376PC	G	1300	600
C376PD	G	1400	600
CA398N	G	800	600
CA398T	G	900	600
CA398P	G	1000	600
CA398PA	G	1100	600
CA398PB	G	1200	600
CA398PC	G	1300	600
CA398PD	G	1400	600
CA398PE	G	1500	600
C434A	H	100	625
C434B	H	200	625
C434C	H	300	625
C434D	H	400	625
C434E	H	500	625
C434M	H	600	625
C434S	H	700	625
C378E	G	500	650
C378M	G	600	650
C378S	G	700	650
C378N	G	800	650
C378T	G	900	650
C378P	G	1000	650
C378PA	G	1100	650
C378PB	G	1200	650
C378PC	G	1300	640
C378PD	G	1400	650
C436E	H	500	650
C436M	H	600	650
C436S	H	700	650
C436N	H	800	650
C436T	H	900	650
C436P	H	1000	650
C436PA	H	1100	650
C436PB	H	1200	650
CA383PA	H	1100	400
CA383PB	H	1200	400
CA383PC	H	1300	400
CA383PD	H	1400	400
CA383PE	H	1500	400
C385A	H	100	400
C385B	H	200	400
C385C	H	300	400
C385D	H	400	400
C385E	H	500	400
C385M	H	600	400
C385S	H	700	400
C385N	H	800	400
C184A	F	100	300
C148B	F	200	300
C184C	F	300	300
C184D	F	400	300
C184E	F	500	300
C184M	F	600	300
C185S	F	700	300
C185N	F	800	300
C384A	H	100	400
C384B	H	200	400
C384C	H	300	400
C384D	H	400	400
C384E	H	500	400
C384M	H	600	400
C392A	G	100	500
C392B	G	200	500
C392C	G	300	500
C392D	G	400	500
C392E	G	500	500
C392M	G	600	500
C393A	G	100	500
C393B	G	200	500
C393C	G	300	500
C393D	G	400	500
C393E	G	500	500
C393M	G	600	500
C387E	H	500	550
C387M	G	600	550
C387S	G	700	550
C387N	G	800	550
C387T	G	900	550
C387P	G	1000	550
C387PA	G	1100	550
C387PB	G	1200	550
C388E	G	500	550
C388M	G	600	550
C388S	G	700	550
C388N	G	800	550
C388T	G	900	550
C388P	G	1000	550
C388PA	G	1100	550
C388PB	G	1200	550
C376E	G	500	600
C376M	G	600	600
C376S	G	700	600
C376N	G	800	600
C376T	G	900	600
C376P	G	1000	600
C376PA	G	1100	600
C376PB	G	1200	600
C376PC	G	1300	600
C376PD	G	1400	600
CA398N	G	800	600
CA398T	G	900	600
CA398P	G	1000	600
CA398PA	G	1100	600
CA398PB	G	1200	600
CA398PC	G	1300	600
CA398PD	G	1400	600
CA398PE	G	1500	600
C434A	H	100	625
C434B	H	200	625
C434C	H	300	625
C434D	H	400	625
C434E	H	500	625
C434M	H	600	625
C434S	H	700	625
C378E	G	500	650
C378M	G	600	650
C378S	G	700	650
C378N	G	800	650
C378T	G	900	650
C378P	G	1000	650
C378PA	G	1100	650
C378PB	G	1200	650
C378PC	G	1300	640
C378PD	G	1400	650
C436E	H	500	650
C436M	H	600	650
C436S	H	700	650
C436N	H	800	650
C436T	H	900	650
C436P	H	1000	650
C436PA	H	1100	650
C436PB	H	1200	650
C437E	H	500	650
C437M	H	600	650
C437S	H	700	650
C437M	H	800	650
C437T	H	900	650
C437P	H	1000	650
C437PA	H	1100	650
C437PB	H	1200	650
C438E	H	500	650
C438M	H	600	650
C438S	H	700	650
C438N	H	800	650
C438T	H	900	650
C438P	H	1000	650
C438PA	H	1100	650
C438PB	H	1200	650
C377E	G	500	700
C377M	G	600	700
C377S	G	700	700
C377N	G	800	700
C377T	G	900	700
C388P	G	1000	700
C377PA	G	1100	700
C377PB	G	1200	700
C377PC	G	1300	700
C377PD	G	1500	700
C435A	H	100	700
C435B	H	200	700
C435C	H	300	700
C435D	H	400	700
C435E	H	500	700
C435M	H	600	700
C435S	H	700	700
C397E	G	500	700
C397M	G	600	700
C397S	G	700	700
C397N	G	800	700
C397T	G	900	700
C397P	G	1000	700
C397PA	G	1100	700
C397PB	G	1200	700
C398E	G	500	700
C398M	G	600	700
CA438N	H	800	700
CA438T	H	900	700
CA438P	H	1000	700
CA438PA	H	1100	700
CA438PB	H	1200	700
CA438PC	H	1300	700
CA438PD	H	1400	700
CA438PE	H	1500	700
C398S	G	700	700
C398N	G	800	700
C398T	G	900	700
C398P	G	1000	700
C398PA	G	1100	700
C398PB	G	1200	700
C394A	G	100	700
C394B	G	200	700
C394C	G	300	700
C394D	G	400	700
C394E	G	500	700
C394M	G	600	700
C395A	G	100	700
C395B	G	200	700
C395C	G	300	700
C395D	G	400	700
C395E	G	500	700
C395M	G	600	700
C612PE	G	1500	700
C612PM	G	1600	700
C612PS	G	1700	700
C612PN	G	1800	700
C476E	H	500	800
C476M	H	600	800
C476S	H	700	800
C476N	H	800	800
C476T	H	900	800
C476P	H	1000	800
C476PA	H	1100	800
C476PB	H	1200	800
C476PC	H	1300	800
C476PD	H	1400	800
C613PE	G	1500	800
C613PM	G	1600	800
C613PS	G	1700	800
C613PN	G	1800	800
C613PT	G	1900	800
C613L	G	2000	800
C478E	H	500	840
C478M	H	600	840
C478S	H	700	840
C478N	H	800	840
C478T	H	900	840
C478P	H	1000	840
C478PA	H	1100	840
C478PB	H	1200	840
C478PC	H	1300	840

‡Repetitive peak forward and reverse voltage.

CONTINUED ON FOLLOWING PAGE

Silicon Controlled Rectifiers

SCR's FOR INVERTERS (CONT'D)

GE Type	Fig.	Volts ‡	rms Amps	GE Type	Fig.	Volts ‡	rms Amps
C478PD	H	1400	840	C447N	G	800	1000
C477E	H	500	895	C447T	G	900	1000
C477M	H	600	895	C447P	G	1000	1000
C477S	H	700	895	C447PA	G	1100	1000
C477N	H	800	895	C447PB	G	1200	1000
C477T	H	900	895	C448S	G	700	1000
C477P	H	1000	895	C448N	G	800	1000
C477PA	H	1100	895	C448T	G	900	1000
C477PB	H	1200	895	C448P	G	1000	1000
C477PC	H	1300	895	C448PA	G	1100	1000
C477PD	H	1400	895	C448PB	G	1200	1000
C448E	G	500	900	C648E	G	500	1150
C448M	G	600	900	C648M	G	600	1150
C448S	G	700	900	C648S	G	700	1150
C448N	G	800	900	C648N	G	800	1150
C448T	G	900	900	C648T	G	900	1150
C448T	G	1000	900	C648P	G	1000	1150
C448PA	G	1100	900	C648PA	G	1100	1150
C448PB	G	1200	900	C648PB	G	1200	1150
C447S	G	700	1000	C444A	G	100	1200

GE Type	Fig.	Volts ‡	rms Amps	GE Type	Fig.	Volts ‡	rms Amps
C444B	G	200	1200	C458S	G	700	2000
C444C	G	300	1200	C458N	G	800	2000
C444D	G	400	1200	C458T	G	900	2000
C444E	G	500	1200	C458P	G	1000	2000
C444M	G	600	1200	C458PA	G	1100	2000
C445A	G	100	1200	C458PB	G	1200	2000
C445B	G	200	1200	C458PC	G	1300	2000
C445C	G	300	1200	C458PD	G	1400	2000
C445D	G	400	1200	C457E	G	500	2000
C445E	G	500	1200	C457M	G	600	2000
C445M	G	600	1200	C457S	G	700	2000
C712PE	G	1500	1500	C457N	G	800	2000
C712PM	G	1600	1500	C457T	G	900	2000
C712PS	G	1700	1500	C457P	G	1000	2000
C712PN	G	1800	1500	C457PA	G	1100	2000
C712PT	G	1900	1500	C457PB	G	1200	2000
C712L	G	2000	1500	C457PC	G	1300	2000
C458E	G	500	2000	C457PD	G	1400	2000
C458M	G	600	2000				

*Also available as 2N3649, 50, 51, 52 and 53. †Also availableas 2N3654, 55, 56, 57 and 58. ‡Repetitive peak forward and reverse voltage.

HIGH CURRENT SCR's FOR PHASE CONTROL

See previous page for illustrations.

GE Type	Fig.	Volts *	rms Amps	GE Type	Fig.	Volts *	rms Amps
C50AX500	E	100	110	C380NX555	H	800	450
C50BX500	E	200	110	C380TX555	H	900	450
C50CX500	E	300	110	C380PX555	H	1000	450
C50DX500	E	400	110	C380PAX555	H	1100	450
C50EX500	E	500	110	C380PBX555	H	1200	450
C50MX500	E	600	110	C380AX500	H	100	500
C52AX500	D	100	110	C380BX500	H	200	500
C52BX500	D	200	110	C380CX500	H	300	500
C52CX500	D	300	110	C380DX500	H	400	500
C52DX500	D	400	110	C380EX500	H	500	500
C52EX500	D	500	110	C380MX500	H	600	500
C52MX500	D	600	110	C390E	G	500	850
C350A	H	100	190	C390M	G	600	850
C350B	H	200	190	C390S	G	700	850
C350C	H	300	190	C390N	G	800	850
C350D	H	400	190	C390T	G	900	850
C350E	H	500	190	C390P	G	1000	850
C350M	H	600	190	C390PA	G	1100	850
C350S	H	700	190	C390PB	G	1200	850
C350N	H	800	190	C390PC	G	1300	850
C350T	H	900	190	C391PC	G	1300	850
C350P	H	1000	190	C391PD	G	1400	850
C350PA	H	1100	190	C391PE	G	1500	850
C350PB	H	1200	190	C391PM	G	1600	850
C350PC	H	1300	190	C391PS	G	1700	850
C180A	F	100	235	C391PN	G	1800	850
C180B	F	200	235	C501PC	G	1300	850
C180C	F	300	235	C501PD	G	1400	850
C180D	F	400	235	C501PE	G	1500	850
C180E	F	500	235	C501PM	G	1600	850
C180M	F	600	235	C501PS	G	1700	850
C180S	F	700	235	C502PT	G	1900	850
C180N	F	800	235	C502L	G	2000	850
C180P	F	1000	235	C502LA	G	2100	850
C180PA	F	1100	235	C390EX555	G	500	850
C180PB	F	1200	235	C390MX555	G	600	850
C180PC	F	1300	235	C390SX555	G	700	850
C180AX500	F	100	300	C390NX555	G	800	850
C180BX500	F	200	300	C390TX555	G	900	850
C180CX500	F	300	300	C390PX555	G	1000	850
C180DX500	F	400	300	C390PAX555	G	1100	850
C180EX500	F	500	300	C390PBX555	G	1200	850
C180MX500	F	600	300	C431E	H	500	1000
C380A	H	100	380	C431M	H	600	1000
C380B	H	200	380	C431S	H	700	1000
C380C	H	300	380	C431N	H	800	1000
C380D	H	400	380	C431T	H	900	1000
C380E	H	500	380	C431P	H	1000	1000
C380M	H	600	380	C431PA	H	1100	1000
C380S	H	700	380	C431PB	H	1200	1000
C380N	H	800	380	C431PC	H	1300	1000
C380T	H	900	380	C431PD	H	1400	1000
C380P	H	1000	380	C431PE	H	1500	1000
C380PA	H	1100	380	C431PM	H	1600	1000
C380PB	H	1200	380	C431PS	H	1700	1000
C380PC	H	1300	380	C431PN	H	1800	1000
C380EX555	H	500	450	C390AX500	G	100	1350
C380MX555	H	600	450	C390BX500	G	200	1350
C380SX555	H	700	450	C390CX500	G	300	1350

GE Type	Fig.	Volts *	rms Amps	GE Type	Fig.	Volts *	rms Amps
C390DX500	G	400	1350	C451T2	G	900	2100
C390EX500	G	500	1350	C451P2	G	1000	2100
C390MX500	G	600	1350	C451PA2	G	1100	2100
C602PS	G	1700	940	C451PB2	G	1200	2100
C602PN	G	1800	940	C451PC2	G	1300	2100
C602PT	G	1900	940	C451PD2	G	1400	2100
C602L	G	2000	940	C451PE2	G	1500	2100
C602LA	G	2100	940	C451PM2	G	1600	2100
C602LB	G	2200	940	C451PS2	G	1700	2100
C602LC	G	2300	940	C451PN2	G	1800	2100
C602LD	G	2400	940	C702L	G	2000	1950
C602LE	G	2500	940	C702LA	G	2100	1950
C602LM	G	2600	940	C702LB	G	2200	1950
C390AX550	G	100	980	C702LC	G	2300	1950
C390BX550	G	200	980	C702LD	G	2400	1950
C390CX550	G	300	980	C450E2	G	500	2400
C390DX550	G	400	980	C450M2	G	600	2400
C430E	H	500	1000	C450S2	G	700	2400
C430M	H	600	1000	C450N2	G	800	2400
C430S	H	700	1000	C450T2	G	900	2400
C430N	H	800	1000	C450P2	G	1000	2400
C430T	H	900	1000	C450PA2	G	1100	2400
C430P	H	1000	1000	C450PB2	G	1200	2400
C430PA	H	1100	1000	C450PC2	G	1300	2400
C430PB	H	1200	1000	C451E1	G	500	2100
C430EX555	H	500	1000	C451M1	G	600	2100
C430MX555	H	600	1000	C451S1	G	700	2100
C430SX555	H	700	1000	C451N1	G	800	2100
C430NX555	H	800	1000	C451T1	G	900	2100
C430TX555	H	900	1000	C451P1	G	1000	2100
C430PX555	H	1000	1000	C451PA1	G	1100	2100
C430PAX555	H	1100	1000	C451PB1	G	1200	2100
C430PBX555	H	1200	1000	C451PC1	G	1300	2100
C441PB	G	1200	1100	C451PD1	G	1400	2100
C441PC	G	1300	1100	C451PE1	G	1500	2100
C441PD	G	1400	1100	C451PM1	G	1600	2100
C441PE	G	1500	1100	C451PS1	G	1700	2100
C441PM	G	1600	1100	C451PN1	G	1800	2100
C441PS	G	1700	1100	C450E1	G	500	2400
C441PN	G	1800	1100	C450M1	G	600	2400
C430AX500	H	100	1200	C450S1	G	700	2400
C430BX500	H	200	1200	C450N1	G	800	2400
C430CX500	H	300	1200	C450T1	G	900	2400
C430DX500	H	400	1200	C450P1	G	1000	2400
C430EX500	H	500	1200	C450PA1	G	1100	2400
C430MX500	H	600	1200	C450PB1	G	1200	2400
C430AX550	H	100	1250	C450PC1	G	1300	2400
C430BX550	H	200	1250	C782L	..	2000	3000
C430CX550	H	300	1250	C782LA	..	2100	3000
C430DX550	H	400	1250	C782LB	..	2200	3000
C440E	G	500	1400	C782LC	..	2300	3000
C440M	G	600	1400	C782LD	..	2400	3000
C440S	G	700	1400	C782LE	..	2500	3000
C440N	G	800	1400	C782LM	..	2600	3000
C440T	G	900	1400	C783CA	..	3100	3000
C440P	G	1000	1400	C783CB	..	3200	3000
C440PA	G	1100	1400	C783CC	..	3300	3000
C440PB	G	1200	1400	C783CD	..	3400	3000
C440PC	G	1300	1400	C783CE	..	3500	3000
C451E2	G	500	2100	C783CM	..	3600	3000
C451M2	G	600	2100	C783CS	..	3700	3000
C451S2	G	700	2100	C783CN	..	3800	3000
C451N2	G	800	2100				

*Repetitive peak forward and reverse voltage.

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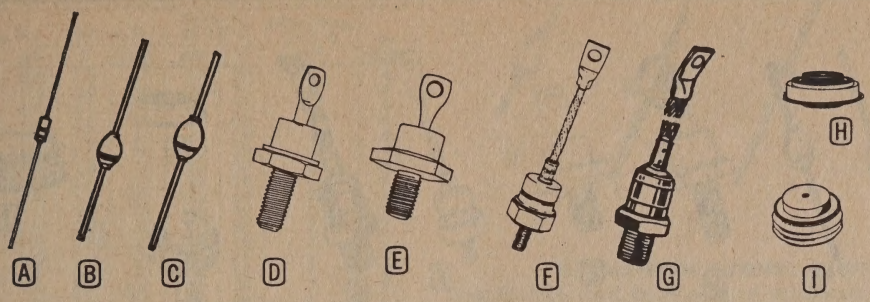
Silicon Rectifiers

SILICON RECTIFIERS—0.25 TO 150 AMPS, 50 TO 1500 VOLTS



GE Type	Fig.	I_F* Amps	I_{Fm}† Amps	Volts‡
DT230F	A	.25	5	50
DT230G	A	.25	5	150
DT230A	A	.25	5	100
DT230B	A	.25	5	200
DT230H	A	.25	5	250
DT230H1	A	.25	5	250
A14F	B	1	50	50
A14A	B	1	50	100
1N5059	B	1	50	200
A14C	B	1	50	300
1N5060	B	1	50	400
A14E	B	1	50	500
1N5061	B	1	50	600
1N5062	B	1	50	800
A14P	B	1	50	1000
1N4245	B	1	25	200
1N4246	B	1	25	400
1N4247	B	1	25	600
1N4248	B	1	25	800
1N4249	B	1	25	1000
A114F§	B	1	40	50
A114A§	B	1	40	100
A114B§	B	1	40	200
A114C§	B	1	40	300
A114D§	B	1	40	400
A114E§	B	1	40	500
A114M§	B	1	40	600
A15F	C	3	125	50
A15A	C	3	125	100
1N5624	C	3	125	200
1N5625	C	3	125	400
1N5626	C	3	125	600
1N5627	C	3	125	800
A115F§	C	3	110	50
A115A§	C	3	110	100
A115B§	C	3	110	200
A115C§	C	3	110	300
A115D§	C	3	110	400
A115E§	C	3	110	500
A115M§	C	3	110	600
1N1612	D	5	150	50
1N1613	D	5	150	100
1N1614	D	5	150	200
1N1615	D	5	150	400
1N1616	D	5	150	600
1N1341A	D	6	150	50
1N1342A	D	6	150	100
1N1343A	D	6	150	150
1N1344A	D	6	150	200
1N1345A	D	6	150	300
1N1346A	D	6	150	400
1N1347A	D	6	150	500
1N1348A	D	6	150	600
1N3988	D	6	150	800
1N3990	D	6	150	1000
1N3879§	D	6	75	50
1N3880§	D	6	75	100
1N3881§	D	6	75	200
1N3882§	D	6	75	300
1N3883§	D	6	75	400
1N248	E	10	350	50
1N249	E	10	350	100
1N250	E	10	350	200
1N1199A	D	12	240	50
1N1200A	D	12	240	100
1N1201A	D	12	240	150
1N1202A	D	12	240	200
1N1203A	D	12	240	300
1N1204A	D	12	240	400
1N1205A	D	12	240	500
1N1206A	D	12	240	600
1N3670A	D	12	240	700
1N3671A	D	12	240	800
1N3672A	D	12	240	900
1N3673A	D	12	240	1000
1N5331	D	12	240	1200
1N3889§	D	12	150	50
1N3890§	D	12	150	100
1N3891§	D	12	150	200
1N3892§	D	12	150	300
1N3893§	D	12	150	400

GE Type	Fig.	I_F* Amps	I_{Fm}† Amps	Volts‡
1N4510	D	12	240	1000
1N4511	D	12	240	1200
A28F§	D	12	240	50
A28A§	D	12	240	100
A28B§	D	12	240	200
A28C§	D	12	240	300
A28D§	D	12	240	400
1N248A	E	20	350	50
1N249A	E	20	350	100
1N250A	E	20	350	200
1N248B	E	20	350	50
1N249B	E	20	350	100
1N250B	E	20	350	200
1N248C	E	20	350	50
1N249C	E	20	350	100
1N250C	E	20	350	200
1N1195A	E	20	350	300
1N1196A	E	20	350	400
1N1197A	E	20	350	500
1N1198A	E	20	350	600
1N3899§	E	20	225	50
1N3900§	E	20	225	100
1N3901§	E	20	225	200
1N3902§	E	20	225	300
1N3903§	E	20	225	400
A139E§	E	25	400	500
A139M§	E	25	400	600
A139N§	E	25	400	800
A139P§	E	25	400	1000
1N2154	E	25	400	50
1N2155	E	25	400	100
1N2156	E	25	400	200
1N2157	E	25	400	300
1N2158	E	25	400	400
1N2159	E	25	400	500
1N2160	E	25	400	600
1N3909§	E	30	300	50
1N3910§	E	30	300	100
1N3911§	E	30	300	200
1N3912§	E	30	300	300
1N3913§	E	30	300	400
1N1183	E	35	500	50
1N1184	E	35	500	100
1N1185	E	35	500	150
1N1186	E	35	500	200
1N1187	E	35	500	300
1N1188	E	35	500	400
1N1189	E	35	500	500
1N1190	E	35	500	600
1N3765	E	35	500	700
1N3766	E	35	500	800
1N3767	E	35	500	900
1N3768	E	35	500	1000
1N5332	E	35	500	1200
1N4529	E	35	500	1000
1N4530	E	35	500	1200
1N3289	F	100	1600	200
1N3290	F	100	1600	300
1N3291	F	100	1600	400
1N3292	F	100	1600	500
1N3293	F	100	1600	600
A70S	F	100	1600	700
1N3294	F	100	1600	800
A70T	F	100	1600	900
1N3295	F	100	1600	1000
A70PA	F	100	1600	1100
1N3296	F	100	1600	1200
A177A§	F	100	2500	100
A177B§	F	100	2500	200
A177C§	F	100	2500	300
A177D§	F	100	2500	400
A177E§	F	100	2500	500
A177M§	F	100	2500	600
A177S§	F	100	2500	700
A177N§	F	100	2500	800
A177T§	F	100	2500	900
A177P§	F	100	2500	1000
A177PA§	F	100	2500	1100
A177PB§	F	100	2500	1200
A177PC§	F	100	2500	1300
A177PD§	F	100	2500	1400

GE Type	Fig.	I_F* Amps	I_{Fm}† Amps	Volts‡
A177PE§	F	100	2500	1500
A170A	F	100	2500	100
A170B	F	100	2500	200
A170C	F	100	2500	300
A170D	F	100	2500	400
A170E	F	100	2500	500
A170M	F	100	2500	600
A170S	F	100	2500	700
A170N	F	100	2500	800
A170T	F	100	2500	900
A170P	F	100	2500	1000
A170PA	F	100	2500	1100
A170PB	F	100	2500	1200
A170PC	F	100	2500	1300
A170PD	F	100	2500	1400
A170PE	F	100	2500	1500
A180A	G	150	3400	100
A180B	G	150	3400	200
A180C	G	150	3400	300
A180D	G	150	3400	400
A180E	G	150	3400	500
A180M	G	150	3400	600
A180S	G	150	3400	700
A180N	G	150	3400	800
A180T	G	150	3400	900
A180P	G	150	3400	1000
A180PA	G	150	3400	1100
A180PB	G	150	3400	1200
A180PC	G	150	3400	1300
A180PD	G	150	3400	1400
A180PE	G	150	3400	1500
A187A§	G	150	2800	100
A187B§	G	150	2800	200
A187C§	G	150	2800	300
A187D§	G	150	2800	400
A187E§	G	150	2800	500
A187M§	G	150	2800	600
A187S§	G	150	2800	700
A187N§	G	150	2800	800
A187T§	G	150	2800	900
A187P§	G	150	2800	1000
A187PA§	G	150	2800	1100
A187PB§	G	150	2800	1200
A187PC§	G	150	2800	1300
A187PD§	G	150	2800	1400
A187PE§	G	150	2800	1500
1N3266	G	160	2000	350
1N3267	G	160	2000	400
1N3268	G	160	2000	500
1N3269	G	160	2000	600
1N3270	G	160	2000	700
1N3271	G	160	2000	800
1N3272	G	160	2000	900
1N3273	G	160	2000	1000
A190A	G	250	6500	100
1N3735	G	250	4500	100
A190B	G	250	6500	200
1N3736	G	250	4500	200
A190C	G	250	6500	300
1N3737	G	250	4500	300
A190D	G	250	6500	400
1N3738	G	250	4500	400
A190E	G	250	6500	500
1N3739	G	250	4500	500
A190M	G	250	6500	600
1N3740	G	250	4500	600
A190S	G	250	6500	700
A190N	G	250	6500	800
1N3741	G	250	4500	800
A190T	G	250	6500	900
A190P	G	250	6500	1000
1N3742	G	250	4500	1000
A190PA	G	250	6500	1100

LISTING CONTINUED ON NEXT PAGE

*Avg. forward current. †Surge current. ‡Maximum repetitive reverse voltage. §Fast recovery types.

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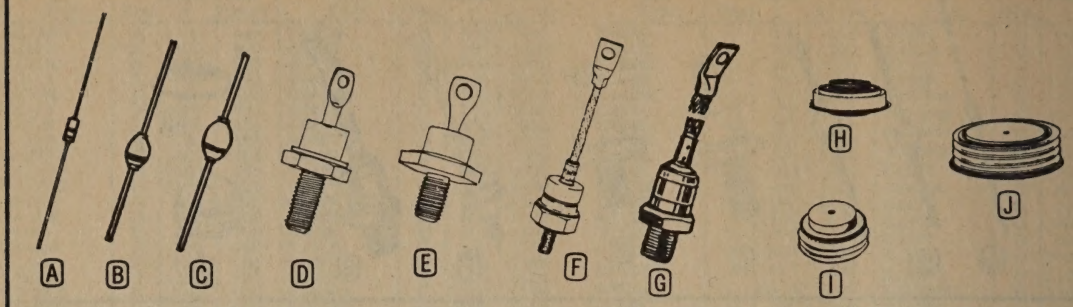

GE Type	Fig.	I_F* Amps	I_{Fm}† Amps	Volts‡
A190PB	G	250	6500	1200
1N3743	G	250	4500	1200
A190PC	G	250	6500	1300
A190PD	G	250	6500	1400
A190PE	G	250	6500	1500
A197A§	G	250	5000	100
A197B§	G	250	5000	200
A197C§	G	250	5000	300
A197D§	G	250	5000	400
A197E§	G	250	5000	500
A197M§	G	250	5000	600
A197S§	G	250	5000	700
A197N§	G	250	5000	800
A197T§	G	250	5000	900
A197P§	G	250	5000	1000
A197PA§	G	250	5000	1100
A197PB§	G	250	5000	1200
A197PC§	G	250	5000	1300
A197PD§	G	250	5000	1400
A197PE§	G	250	5000	1500
1N4044	G	275	5000	50
1N4045	G	275	5000	100
1N4046	G	275	5000	150
1N4047	G	275	5000	200
1N4048	G	275	5000	250
1N4049	G	275	5000	300
1N4050	G	275	5000	400
1N4051	G	275	5000	500
1N4052	G	275	5000	600
1N4053	G	275	5000	700
1N4054	G	275	5000	800
1N4055	G	275	5000	900
1N4056	G	275	5000	1000
A390M	H	400	7000	600
A390S	H	400	7000	700
A390N	H	400	7000	800
A390T	H	400	7000	900
A390P	H	400	7000	1000
A390PA	H	400	7000	1100
A390PB	H	400	7000	1200
A390PC	H	400	7000	1300
A390PD	H	400	7000	1400
A390PE	H	400	7000	1500
A397A§	H	400	5000	100
A397B§	H	400	5000	200
A397C§	H	400	5000	300
A397D§	H	400	5000	400
A397E§	H	400	5000	500
A397M§	H	400	5000	600

GE Type	Fig.	I_F* Amps	I_{Fm}† Amps	Volts‡
A397S§	H	400	5000	700
A397N§	H	400	5000	800
A397T§	H	400	5000	900
A397P§	H	400	5000	1000
A397PA§	H	400	5000	1100
A397PB§	H	400	5000	1200
A397PC§	H	400	5000	1300
A397PD§	H	400	5000	1400
A397PE§	H	400	5000	1500
A500PM	I	740	10000	1600
A500PE	I	740	10000	1500
A500PS	I	740	10000	1700
A500PN	I	740	10000	1800
A500PT	I	740	10000	1900
A500L	I	740	10000	2000
A500LA	I	740	10000	2100
A500LB	I	740	10000	2200
A500LC	I	740	10000	2300
A500LD	I	740	10000	2400
A500LE	I	740	10000	2500
A500LM	I	740	10000	2600
A500LS	I	740	10000	2700
A500LN	I	740	10000	2800
A500LT	I	740	10000	2900
A500LP	I	740	10000	3000
A596N§	I	750	10000	800
A596T§	I	750	10000	900
A596P§	I	750	10000	1000
A596PA§	I	750	10000	1100
A596PB§	I	750	10000	1200
A596PC§	I	750	10000	1300
A596PD§	I	750	10000	1400
A437E§	I	750	10000	500
A437M§	I	750	10000	600
A437S§	I	750	10000	700
A437N§	I	750	10000	800
A437T§	I	750	10000	900
A437P§	I	750	10000	1000
A437PA§	I	750	10000	1100
A437PB§	I	750	10000	1200
A437PC§	I	750	10000	1300
A437PD§	I	750	10000	1400
A437PE§	I	750	10000	1500
A430E	I	1000	10000	500
A430M	I	1000	10000	600
A430S	I	1000	10000	700
A430N	I	1000	10000	800
A430T	I	1000	10000	900
A430P	I	1000	10000	1000

GE Type	Fig.	I_F* Amps	I_{Fm}† Amps	Volts‡
A430PA	I	1000	10000	1100
A430PB	I	1000	10000	1200
A430PC	I	1000	10000	1300
A430PD	I	1000	10000	1400
A430PE	I	1000	10000	1500
A540L	I	1000	12000	2000
A540LA	†	1000	12000	2100
A540LB	I	1000	12000	2200
A540LC	I	1000	12000	2300
A540LD	I	1000	12000	2400
A696PB	I	1000	14000	1200
A696PC	I	1000	14000	1300
A696PD	I	1000	14000	1400
A696PE	I	1000	14000	1500
A696PM	I	1000	14000	1600
A696PS	I	1000	14000	1700
A696PN	I	1000	14000	1800
A696PT	I	1000	14000	1900
A696L	I	1000	14000	2000
A570A	I	1500	18000	100
A570B	I	1500	18000	200
A570C	I	1500	18000	300
A570D	I	1500	18000	400
A570E	I	1500	18000	500
A570M	I	1500	18000	600
A640P	I	1500	16000	1000
A640PA	I	1500	16000	1100
A640PB	I	1500	16000	1200
A640PC	I	1500	16000	1300
A640PD	I	1500	16000	1400
A640PE	I	1500	16000	1500
A640PM	I	1500	16000	1600
A640PS	I	1500	16000	1700
A640PN	I	1500	16000	1800
A640PT	I	1500	16000	1900
A640L	I	1500	16000	2000
A641L	I	1500	17000	2000
A641AL	I	1500	17000	2100
A641LB	I	1500	17000	2200
A641LC	I	1500	17000	2300
A641LD	I	1500	17000	2400
A641LE	I	1500	17000	2500
A641LM	I	1500	17000	2600
A740PD	J	2400	32000	1400
A740PE	J	2400	32000	1500
A740PM	J	2400	32000	1600
A740PS	J	2400	32000	1700
A740PN	J	2400	32000	1800

*Avg. forward current. †Surge current. ‡Maximum repetitive reverse voltage. §Fast recovery types.

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Diodes

SILICON SIGNAL DIODES (FIG. A)

GE Type	Min. B_V V	Min. B_V μA	V_F at I_F V	V_F at I_F mA	Max. I_R at 25° C nA	Max. I_R at 25° C V	Max. Cap. at 0 V pF	t_{rr} nsec
1N914	100	100	1.0	10	25	30	4	4
1N914A	100	100	1.0	20	25	20	4	4
1N914B	100	100	1.0	100	25	20	4	4
1N916	100	100	1.0	10	25	20	2	4
1N916A	100	100	1.0	20	25	20	2	4
1N916B	100	100	1.0	30	25	20	2	4
1N4148*	100	100	1.0	10	25	20	4	4
1N4149	100	100	1.0	10	25	20	2	4
1N4150*	50	100	1.0	200	100	50	2.5	4
1N4151	75	5	1.0	50	50	50	2	2
1N4152	40	100	0.88	20	50	30	2	2
1N4153*	75	100	0.88	20	50	50	2	2
1N4154	35	100	1.0	30	100	25	4	2
1N4305	75	100	0.85	10	100	50	2	2
1N4444	70	100	1.0	100	50	50	2	7
1N4446	100	100	1.0	20	25	20	4	4
1N4447	100	100	1.0	20	25	20	2	4
1N4448	100	100	1.0	100	25	20	4	4
1N4449	100	100	1.0	30	25	20	2	4
1N4450	30	100	1.0	200	50	30	4	4
1N4451	40	100	1.0	300	50	30	6	10
1N4454*	75	100	1.0	10	100	50	2	2
1N4531*	100	100	1.0	10	25	25	4	4#
1N4532	75	100	1.0	10	100	50	2	2#
1N4533	40	100	.88	20	50	30	2	2#
1N4534	75	100	.88	20	50	50	2	2#
1N4536	35	100	1.0	30	100	25	4	2#
1N4606	85	100	1.0	200	100	50	4	4
1N4607	85	100	1.0	400	100	50	4	10
1N4608	85	100	.96	400	100	50	4	10
1N4727	30	100	0.85	10	100	20	4	4
1N4863	70	100	1.2	100	50	50	2	7
1N4864	125	100	1.1	100	100	80	1.3	4
DZ800	2	100	0.8	10	2#	2	.....	.....
DZ805	15	100	0.8	10	2#	12	.....	.....
DZ806	25	100	0.8	10	2#	22	.....	.....
DA1701	100	100	1.0	50	50	50	1	2
DA1702	75	5	1.0	50	50	50	1	2
DA1703	40	5	1.0	50	50	30	2	2
DA1704	25	5	1.1	50	100	20	3	4
DE104	40	100	.89	10	.02	20	4	200
DE110	40	100	.88	10	2.0	30	4	200
DE111	40	100	.88	10	.2	20	4	200
DE112	40	100	1.0	50	.1	20	6	200
DE113	40	100	1.0	50	.25	20	6	200
DE114	40	100	.88	10	1.0	30	4	200
DE115	40	100	.88	10	2.0	50	4	200
DT230A	100	.....	1.1	250	1000	250	5	300
DT230B	200	.....	1.1	250	1000	250	5	300
DT230F	50	.....	1.1	250	1000	250	5	300
DT230G	150	.....	1.1	250	1000	250	5	300
DT230H	250	.....	1.1	200	1000	250	5	300
DT230H1	250	.....	1.1	250	1000	250	5	300

*JAN and JANTX type available. #DO-34 package (Fig. B.).

MULTIPELLET STABISTORS (FIG. A)

Power dissipation = 400 mW. Derate 2.67 mW/° C for T_A above 25° C. Capacitance value at f = 1 MHz.

GE Type	Min. B_V V	Min. B_V μA	Max. V_R V	V_F I_F = 10 mA V	Max. I_R at 25° C nA	Max. I_R at 25° C V	Max. Cap. at 0 V pF
1N4156	30	5	20	1.58	50	20	25
1N4157	30	5	20	2.32	50	20	20
1N4453	30	5	20	0.80	50	20	30
1N4828	30	5	20	.830	100	20	35
1N4829	30	100	20	1.61	100	20	25
1N4830	30	100	20	2.35	100	20	20
1N5179	30	5	20	3.20	50	20	20
MPD200	70	5	30	1.54	30	30	15 typ.
MPD201	50	5	20	1.57	50	20	15
MPD202	50	5	20	1.60	90	20	15
MPD203	50	5	20	1.51	90	20	15
MPD300	100	5	60	2.33	30	30	10 typ.
MPD301	60	5	20	2.32	40	20	10
MPD302	60	5	20	2.32	90	20	10
MPD400	120	5	90	3.07	30	30	7 typ.
MPD401	75	5	20	3.01	50	20	7
MPD402	75	5	20	3.01	90	20	7
STB567	50	5	12	1.61	500	20	15
STB568	60	5	12	2.31	500	20	10
STB569	75	5	20	3.01	500	20	7

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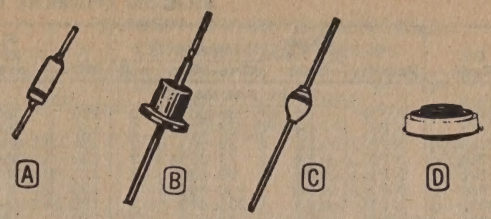

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GENERAL PURPOSE (FIG. B)

Series inductance, 0.5 nH. Typical peak voltage, 65 mV.

GE Type	Peak Point I_P mA	Peak Point I_P ±%	Maximum Valley Point mA	Maximum Cap. pF	Maximum Series Resis. Ohms	*	Typ. f_{no} GHz
1N3712	1.0	10	0.18	10	4.0	8	2.3
1N3713*	1.0	2.5	0.14	5	4.0	8.5±1	3.2
1N3714	2.2	10	0.48	25	3.0	18	2.2
1N3715*	2.2	2.5	0.31	10	3.0	19±3	3.0
1N3716	4.7	10	1.04	50	2.0	40	1.8
1N3717*	4.7	2.5	0.60	25	2.0	41±5	3.4
1N3718	10.0	10	2.20	90	1.5	80	1.6
1N3719*	10.0	2.5	1.40	50	1.5	85±10	2.8
1N3720	22.0	10	4.80	150	1.0	180	1.6
1N3721*	22.0	2.5	3.10	100	1.0	190±30	2.6
TD-9	0.5	10	0.10	5	6.0	4.0	1.3

*Typ. negative conductance -G mhos x 10^{-3}. *JAN type available.

ULTRA-HIGH SPEED SWITCHING DO-18 (FIG. C)

Subminiature epoxy package with series inductance of 1.5 nH.

GE Type	Peak Point mA (±10%)	Maximum Valley Point mA	Maximum Cap. pF	Voltage, mV Peak Point Typ.	Voltage, mV Fwd $I_F = I_P$	Typical Series Resis. Ohms	Typical Rise Time psec
TD-261	2.2	0.31	3.0	70	500–700	5.0	430
TD-261A	2.2	0.31	1.0	80	500–700	7.0	160
TD-262	4.7	0.60	6.0	80	500–700	3.5	320
TD-262A	4.7	0.60	1.0	90	500–700	4.0	74
TD-263	10.0	1.40	9.0	75	500–700	1.7	350
TD-263A	10.0	1.40	5.0	80	520–700	2.0	190
TD-263B	10.0	1.40	2.0	90	550–700	2.5	68
TD-264	22.0	3.80	18.0	90	600 typ.	1.8	185
TD-264A	22.0	3.80	4.0	100	550–700	2.0	64
TD-265	50.0	8.50	25.0	110	625 typ.	1.4	100
TD-265A	50.0	8.50	5.0	130	640 typ.	1.5	35
TD-266	100	17.50	35.0	150	650 typ.	1.1	57
TD-266A	100	17.50	6.0	180	660 typ.	1.2	22

GERMANIUM BACK DIODES

BD-1 thru BD-7 (Fig. B)—Miniature axial package. Series inductance, 1.5 nH. General purpose usage as detectors, mixers and switching circuits.

BD-402 thru BD-407 (Fig. D)—Microwave pill package. Series inductance, 0.15 nH. Suggested usage as high frequency detectors, mixers and switching circuits.

Fig. C GE Type	Fig. C Maximum I_P mA	Fig. C Maximum Total C, pF	Fig. C Min. V_{R1}* mV	Fig. D GE Type	Fig. D Maximum I_P mA	Fig. D Maximum Total C, pF	Fig. D Min. V_{R1}* mV
BD-1	1.0	20	440	BD-402	0.5	3	420
BD-2	0.5	10	420	BD-403	0.2	1	400
BD-3	0.2	10	400	BD-404	0.1	1	380
BD-4	0.1	10	380	BD-405	0.05	1	350
BD-5	0.05	10	350	BD-406	0.02	1	330
BD-6	0.02	10	330	BD-407	0.01	1	330
BD-7	0.01	10	300				
1N4090†	0.2	1.5	430				

*$I_R = I_P$ max. †Low noise mixer.

SEE LAST PAGES OF LISTING FOR OEM SEMICONDUCTOR PRICING

Transistors

SILICON GENERAL PURPOSE SIGNAL AMPLIFIERS

GE Type	Polarity	BV_{CEO} @ 10 mA Volts	h_{FE} @ I_C Min.-Max.	I_C mA	f_T MHz	P_t @ 25° C. mW
TO-98 PACKAGE						
2N2711	NPN	18	30–90	2	120	360
2N2712	NPN	18	75–225	2	120	360
2N2713	NPN	18	30–90	2	120	360
2N2714	NPN	18	75–225	2	120	360
2N2923	NPN	25	90–180	2	120	360
2N2924	NPN	25	150–300	2	120	360
2N2925	NPN	25	235–470	2	120	360
2N2926	NPN	18	35–470	2	120	360
2N3390	NPN	25	400–800	2	120	360
2N3391†	NPN	25	250–500	2	120	360
2N3391A†	NPN	25	250–500	2	120	360
2N3392	NPN	25	150–300	2	120	360
2N3393	NPN	25	90–180	2	120	360
2N3394	NPN	25	55–110	2	120	360
2N3395	NPN	25	150–500	2	120	360
2N3396	NPN	25	90–500	2	120	360
2N3397	NPN	25	55–500	2	120	360
2N3398	NPN	25	55–800	2	120	360
2N3402	NPN	25	75–225	2	150	560
2N3403	NPN	25	180–540	2	150	560
2N3404	NPN	50	75–225	2	150	560
2N3405	NPN	50	180–540	2	150	560
2N3414	NPN	25	75–225	2	150	360
2N3415	NPN	25	180–540	2	150	360
2N3416	NPN	50	75–225	2	150	360
2N3417	NPN	50	180–540	2	150	360
2N3662	NPN	12	20 min.	8	1000	200
2N3663	NPN	12	20 min.	8	1000	200
2N3721	NPN	18	60–660	2	120	360
2N3844†	NPN	30	35–70	2	150	360
2N3844A	NPN	30	35–70	2	150	360
2N3845†	NPN	25	60–120	2	150	360
2N3845A†	NPN	25	60–120	2	150	360
2N3854	NPN	36	35–70	2	200	360
2N3854A	NPN	36	35–70	2	200	360
2N3858	NPN	40	60–120	2	150	360
2N3858A	NPN	60	60–120	2	150	360
2N3859	NPN	40	100–200	2	150	360
2N3859A	NPN	60	100–200	2	150	360
2N3860	NPN	40	150–300	2	150	360
2N3877	NPN	70	20 min.	2	120	360
2N3877A	NPN	85	20 min.	2	120	360
2N3900†	NPN	18	250–500	2	120	360
2N3900A†	NPN	18	250–500	2	120	360
2N3901†	NPN	25	350–700	2	120	360
2N4256	NPN	40	100–500	2	120	360
2N4424	NPN	40	180–540	2	150	360
2N4425	NPN	40	180–540	2	150	360
2N5172	NPN	25	100–500	10	100	360
2N5174	NPN	75	40–600	10	120	360
2N5232†	NPN	50	250–500	2	150	360
2N5232A†	NPN	50	250–500	2	150	360
2N5249†	NPN	50	400–800	2	150	360
2N5249A†	NPN	50	400–800	2	150	360
2N5309†	NPN	50	60–120	10*	150	360
2N5310†	NPN	50	100–300	10*	150	360
2N5311†	NPN	50	250–500	10*	150	360
2N5354	PNP	25	40–120	50	200	360
2N5355	PNP	25	100–300	50	200	360
2N5365	PNP	40	40–120	50	350	360
2N5366	PNP	40	100–300	50	350	360
2N5418	NPN	25	40–120	50	250	400
2N5419	NPN	25	100–300	50	250	400
2N5420	NPN	25	250–500	50	250	400
2N6076	PNP	25	100–500	10	300	360
D29E1	PNP	25	60–200	2	150	500
D29E2	PNP	25	150–500	2	165	500
D29E4	PNP	40	60–120	2	120	500
D29E5	PNP	40	100–200	2	135	500
D29E6	PNP	40	150–300	2	150	500
D29E9	PNP	60	60–120	2	120	500
D29E10	PNP	60	100–200	2	135	500
D33D21	NPN	25	60–200	2	150	625
D33D22	NPN	25	150–500	2	165	625
D33D24	NPN	40	60–120	2	120	625
D33D25	NPN	40	100–200	2	135	625
D33D26	NPN	40	150–300	2	150	625
D33D29	NPN	60	60–120	2	120	625
D33D30	NPN	60	100–200	2	135	625
TO-92 PACKAGE						
2N3903#	NPN	40	50–150	10	300	350
2N3904#	NPN	40	100–300	10	350	350
2N3905#	PNP	40	50–150	10	250	350
2N3906#	PNP	40	100–300	10	300	350
2N4123	NPN	30	50–150	2	300	350
2N4124	NPN	25	120–360	2	350	350
2N4125	PNP	30	50–150	2	250	350
2N4126	PNP	25	120–360	2	300	350
2N4400#	NPN	40	50–150	150	225	350
2N4401#	NPN	40	100–300	150	275	350
2N4402#	PNP	40	50–150	150	300	350
2N4403#	PNP	40	100–300	150	350	350
2N4409	NPN	50	60–400	10	100	625
2N4410	NPN	80	60–400	10	100	625
2N5088	NPN	30	300–900	0.1	75	350
2N5089	NPN	25	400–1200	0.1	75	350
2N5219	NPN	15	35–500	2	200	350

SEE LAST PAGES OF LISTING FOR OEM SEMICONDUCTOR PRICING

GE Type	Polarity	BV_{CEO} @ 10 mA Volts	h_{FE} @ I_C Min.-Max.	I_C mA	f_T MHz	P_t @ 25° C. mW
TO-92 PACKAGE (CONTINUED)						
2N5220	NPN	15	30–600	50	125	350
2N5221	PNP	15	30–600	50	125	350
2N5223	NPN	20	50–800	2	200	350
2N5225	NPN	25	30–600	50	75	350
2N5226	PNP	25	30–600	50	100	350
2N5227	PNP	30	50–700	2	125	350
GES929†	NPN	50	60–120	0.01	100	360
GES930†	NPN	50	100–300	0.01	100	360
GES2221	NPN	30	40–120	150	275	360
GES2221A	NPN	40	40–120	150	275	360
GES2222	NPN	30	100–300	150	275	360
GES2222A	NPN	40	100–300	150	325	360
GES2906#	PNP	40	40–120	150	225	360
GES2907#	PNP	40	100–300	150	225	360
GES3053	NPN	40	50–250	150	100	500
GES3414	NPN	25	75–225	2	150	360
GES3415	NPN	25	180–540	2	150	360
GES3416	NPN	50	75–225	2	150	360
GES3417	NPN	50	180–540	2	150	360
GES3565	NPN	25	150–600	1	125	350
GES3566	NPN	30	80 min.	2	120	500
GES3567	NPN	40	40–120	150	120	500
GES3568	NPN	60	40–120	150	120	500
GES3569	NPN	40	100 min.	150	120	500
GES4121	PNP	40	70–200	10	400	200
GES4122	PNP	40	150–300	..	450	200
GES4248	PNP	40	50 min.	1	100	200
GES5368#	NPN	30	60–200	150	200	360
GES5369#	NPN	30	100–300	150	200	360
GES5370#	NPN	30	200–600	150	200	360
GES5371#	NPN	30	60–600	150	200	360
GES5372#	PNP	30	40–200	150	200	360
GES5373#	PNP	30	100–300	150	200	360
GES5374#	PNP	30	200–400	150	200	360
GES5375#	PNP	30	40–400	150	200	360
GES5400	PNP	120	40–180	10	25	350
GES5401	PNP	150	60–240	10	25	350
GES5447	PNP	25	60–300	50	100	360
GES5448	PNP	30	30–150	50	100	360
GES5449	NPN	30	100–300	50	100	360
GES5450	NPN	30	50–150	50	100	360
GES5451	NPN	20	30–600	50	100	360
GES5550	NPN	140	60–250	10	50	500
GES5551	NPN	160	80–250	10	50	500
GES5810	NPN	25	60–200	2	125	500
GES5811	PNP	25	60–200	2	125	500
GES5812	NPN	25	150–500	2	150	500
GES5813	PNP	25	150–500	2	150	500
GES5814	NPN	40	60–160	2	125	500
GES5815	PNP	40	60–160	2	125	500
GES5816	NPN	40	100–200	2	150	500
GES5817	PNP	40	100–200	2	150	500
GES5818	NPN	40	150–300	2	150	500
GES5819	PNP	40	150–300	2	150	500
GES5820	NPN	60	60–160	2	125	500
GES5821	PNP	60	60–160	2	125	500
GES5822	NPN	60	100–200	2	150	500
GES5823	PNP	60	100–200	2	150	500
GES5824	NPN	40	60–120	2	100	360
GES5825	NPN	40	100–200	2	100	360
GES5826	NPN	40	150–300	2	100	360
GES5827	NPN	40	250–500	2	100	360
GES5828	NPN	40	400–800	2	100	360
GES6000	NPN	25	100–300	10	150	400
GES6001†#	PNP	25	100–300	10	250	400
GES6002#	NPN	25	200–500	10	170	400
GES6003#	PNP	25	200–500	10	250	400
GES6004†#	NPN	40	100–300	10	150	400
GES6005†#	PNP	40	100–300	10	250	400
GES6006#	NPN	40	200–500	10	170	400
GES6007#	PNP	40	200–500	10	250	400
GES6010†#	NPN	40	100–300	10	125	500
GES6011†#	PNP	40	100–300	10	100	500
GES6012†#	NPN	40	200–500	10	150	500
GES6013†#	PNP	40	200–500	10	125	500
GES6014†#	NPN	60	100–300	10	125	500
GES6015†#	PNP	60	100–300	10	100	500
GES6218	NPN	300	20 min.	20	65	500
GES6219	NPN	350	20 min.	20	65	500
GES6220	NPN	200	20 min.	20	65	500
GES6221#	NPN	150	20 min.	20	65	500
GES6222#	NPN	60	75–200	2	100	360
GES6224	NPN	60	150–300	2	100	360
GES6560	NPN	25	50–200	500	60	625
GES6561	NPN	20	50–200	350	60	625
MPSA05	NPN	60	50 min.	100	100	625
MPSA06	NPN	80	50 min.	100	100	625
MPSA09	NPN	50	100–600	0.1	30	350
MPSA20	NPN	40	40–400	5	140	350
MPSA42	NPN	300	40 min.	10	50	500
MPSA43	NPN	200	40 min.	10	50	500
MPSA55	PNP	60	50 min.	100	100	625
MPSA56	PNP	80	50 min.	100	100	625
MPSA70	PNP	40	40–400	5	125	350
MPSA92	PNP	300	40 min.	10	25	625
MPSA93	PNP	200	40 min.	10	25	625
MPSD01	NPN	200	25 min.	10	40	625
MPSD02	NPN	140	25 min.	10	50	500
MPSD03	NPN	100	25 min.	10	50	500
MPSD05	NPN	25	80 min.	100	100	500

*Microamperes. †Low-noise amplifier. #Switching type.

Listing continued on next page.

PRICES LISTED ARE FOR GUIDANCE ONLY

SILICON GENERAL PURPOSE SIGNAL AMPLIFIERS
(CONTINUED FROM PRECEDING PAGE)

GE Type	Polarity	BV_{CEO} @ 10 mA Volts	h_{FE} @ I_C Min.-Max.	I_C mA	f_T MHz	P_t @ 25° C. mW
TO-92 PACKAGE (CONT'D)						
MPSD06	NPN	25	50 min.	10	175	400
MPSD51	PNP	200	25 min.	10	25	625
MPSD52	PNP	140	25 min.	10	25	350
MPSD53	PNP	100	25 min.	10	25	350
MPSD56	PNP	25	50 min.	10	250	400
MPSL01	NPN	120	50–300	10	50	500
MPS2222	NPN	30	100–300	150	250	625
MPS2222A	NPN	40	100–300	150	300	625
MPS2907	PNP	40	100–300	150	200	625
MPS3638#	PNP	25	30 min.	50	125	350
MPS3638A#	PNP	25	100 min.	50	175	350
MPS3693	NPN	45	40–160	10	200	350
MPS3694	NPN	45	100–400	10	200	350
MPS3702	PNP	25	60–300	50	150	360
MPS3703	PNP	30	30–150	50	150	360
MPS3704	NPN	30	100–300	50	100	360
MPS3705	NPN	30	50–150	50	100	360
MPS3709	NPN	30	45–160	1	100	350
MPS3710	NPN	30	90–330	1	100	350
MPS3711	NPN	30	180–660	1	100	350
MPS5172	NPN	25	100–750	10	100	360
MPS6076	PNP	25	100–750	10	100	360
MPS6172	PNP	25	100–750	10	100	360
MPS6512	NPN	30	50–100	2	250	350
MPS6513	NPN	30	90–180	2	250	350
MPS6514	NPN	30	150–300	2	390	350
MPS6515	NPN	30	250–500	2	390	350
MPS3706	NPN	20	30–600	50	100	360
MPS6516	PNP	40	50–100	2	225	350
MPS6517	PNP	40	90–180	2	225	350
MPS6518	PNP	40	150–300	2	350	350
MPS6519	PNP	25	250-500	2	350	350
MPS6530	NPN	40	25 min.	500	250	350
MPS6531	NPN	40	50 min.	500	250	350
MPS6532	NPN	30	30 min.	100	250	350
MPS6533	PNP	40	25 min.	500	350	350
MPS6534	PNP	40	50 min.	500	350	350
MPS6535	PNP	30	30 min.	100	350	350
MPS6565	NPN	45	40–160	10	225	350
MPS6566	NPN	45	100–400	10	225	350
MPS6571	NPN	20	250–1000	0.1	50	350
MPS6573	NPN	35	200–500	10	100	350
MPS6575	NPN	45	200–500	10	100	350
D38H1	NPN	60	55 min.	100	80	500
D38H2	NPN	60	90 min.	100	80	500
D38H3	NPN	60	150 min.	100	80	500
D38H4	NPN	80	55 min.	100	80	500
D38H5	NPN	80	90 min.	100	80	500
D38H6	NPN	80	150 min.	100	80	500
D38H7	NPN	100	55 min.	100	80	500
D38H8	NPN	100	90 min.	100	80	500
D38H9	NPN	100	150 min.	100	80	500
D38S1†	NPN	30	400–800	0.1	200	400
D38S2†	NPN	30	600–1200	0.1	200	400
D38S3†	NPN	30	1000–2000	0.1	200	400
D38S4†	NPN	30	1500–3000	0.1	200	400
D38S5†	NPN	45	400–800	0.1	200	400
D38S6†	NPN	45	600–1200	0.1	200	400
D38S7†	NPN	45	1000–2000	0.1	200	400
D38S8†	NPN	60	250–500	0.1	200	400
D38S9†	NPN	60	400–800	0.1	200	400
D38S10†	NPN	60	600–1200	0.1	200	400
D38W7†	NPN	80	150–300	0.1	75	400
D38W8†	NPN	80	250–500	0.1	75	400
D38W9†	NPN	80	400–800	0.1	75	400
D38W10†	NPN	80	600–1200	0.1	75	400
D39J1	PNP	60	50 min.	0.1	60	500
D39J2	PNP	60	80 min.	0.1	60	500
D39J3	PNP	60	150 min.	0.1	60	500
D39J4	PNP	80	50 min.	0.1	60	500
D39J5	PNP	80	80 min.	0.1	60	500
D39J6	PNP	80	150 m n.	0.1	60	500
D39J7	PNP	100	50 min.	0.1	60	500
D39J8	PNP	100	80 min.	0.1	60	500
D39J9	PNP	100	150 min.	0.1	60	500

†Low-noise amplifier. #Switching type.

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FOR OEM SEMICONDUCTOR PRICING

SILICON SIGNAL TRANSISTORS
COMPLEMENTARY PAIRS

GE Type NPN	GE Type PNP	GE Type NPN	GE Type PNP
TO-98 PACKAGE			
2N5354	2N5418	D33D24J1	D29E4
2N5355	2N5419	D33D25J1	D29E5
2N5172	2N6076	D33D26J1	D29E6
D33D21J1	D29E1	D33D29J1	D29E9
D33D22J1	D29E2	D33D30J1	D29E10
TO-92 PACKAGE			
2N3903	2N3905	MPSA05	MPSA55
2N3904	2N3906	MPSA06	MPSA56
2N4123	2N4125	MPS3702	MPS3704
2N4124	2N4126	MPS3703	MPS3705
2N4400	2N4402	MPS5172	MPS6076
2N4401	2N4403	MPS6512	MPS6516
GES2221	GES2906	MPS6513	MPS6517
GES2222	GES2907	MPS6514	MPS6518
GES5368	GES5372	MPS6515	MPS6519
GES5369	GES5373	MPS6530	MPS6533
GES5370	GES5374	MPS6531	MPS6534
GES5371	GES5375	MPS6532	MPS6535
GES5810	GES5811	D38H1	D39J1
GES5812	GES5813	D38H2	D39J2
GES5814	GES5815	D38H3	D39J3
GES5816	GES5817	D38H4	D39J4
GES5818	GES5819	D38H5	D39J5
GES5820	GES5821	D38H6	D39J6
GES5822	GES5823	D38H7	D39J7
GES6000	GES6001	D38H8	D39J8
GES6002	GES6003	D38H9	D39J9
GES6004	GES6005	D38L1	D39C1
GES6006	GES6007	D38L2	D39C2
GES6010	GES6011	D38L3	D39C3
GES6012	GES6013	D38L4	D39C4
GES6014	GES6015	D38L5	D39C5
GES6016	GES6017	D38L6	D39C6

PLASTIC NPN AND PNP
SWITCHING POWER TRANSISTORS

These devices are designed for use in switching circuits, such as: switching regulators, low and high frequency converters/inverters, solenoid and relay drivers. Features include low saturation voltage and high switching speeds.

GE Type NPN	GE Type PNP	h_{FE} @ I_C Min.-Max.	I_C Amps	$V_{CE(s)}$ Min. Volts	I_C Cont. Amps	f_T MHz	P_t Watts
TO-202AA							
D40D1	D41D1	50–150	0.1	30	1	200	6.25
D40D2	D41D2	120–360	0.1	30	1	200	6.25
D40D3		. . . . .	..	30	1	200	6.25
D40D4	D41D4	50–150	0.1	45	1	200	6.25
D40D5	D41D5	120–360	0.1	45	1	200	6.25
D40D7	D41D7	50–150	0.1	60	1	200	6.25
D40D8	D41D8	120–360	0.1	60	1	200	6.25
D40D10	D41D10	50–150	0.1	75	1	200	6.25
D40D11	D41D11	120–360	0.1	75	1	200	6.25
D40D13	D41D13	50–150	0.1	75	1	200	6.25
D40D14	D41D14	120–360	0.1	75	1	200	6.25
D40E1	D41E1	50 min.	0.1	30	2	230	8.0
D40E5	D41E5	50 min.	0.1	50	2	230	8.0
D40E7	D41E7	50 min.	0.1	80	2	230	8.0
D42C1	D43C1	25 min.	0.2	30	3	50	12.5
D42C2	D43C2	40–120	0.2	30	3	50	12.5
D42C3	D43C3	20 min.	2.0	30	3	50	12.5
D42C4	D43C4	25 min.	0.2	45	3	50	12.5
D42C5	D43C5	40–120	0.2	45	3	50	12.5
D42C6	D43C6	20 min.	2.0	45	3	50	12.5
D42C7	D43C7	25 min.	0.2	60	3	50	12.5
D42C8	D43C8	40–120	0.2	60	3	50	12.5
D42C9	D43C9	20 min.	2.0	60	3	50	12.5
D42C10	D43C10	25 min.	0.2	80	3	50	12.5
D42C11	D43C11	40–120	0.2	80	3	50	12.5
D42C12	D43C12	20 min.	2.0	80	3	50	12.5
TO-220AB							
D44C1	D45C1	25 min.	0.2	30	4	50	30
D44C2	D45C2	40–120	0.2	30	4	50	30
D44C3	D45C3	20 min.	2.0	30	4	50	30
D44C4	D45C4	25 min.	0.2	45	4	50	30
D44C5	D45C5	40–120	0.2	45	4	50	30
D44C6	D45C6	20 min.	2.0	45	4	50	30
D44C7	D45C7	25 min.	0.2	60	4	50	30
D44C8	C45C8	40–120	0.2	60	4	50	30
D44C9	D45C9	20 min.	2.0	60	4	50	30
D44C10	D45C10	25 min.	0.2	80	4	50	30
D44C11	D45C11	40–120	0.2	80	4	50	30
D44C12	D45C12	25 min.	2.0	80	4	50	30
D44H1	D45H1	20 min.	4.0	30	10	50	50
D44H2	D45H2	40 min.	4.0	30	10	50	50
D44H4	D45H4	20 min.	4.0	45	10	50	50
D44H5	D45H5	40 min.	4.0	45	10	50	50
D44H7	D45H7	20 min.	4.0	60	10	50	50
D44H8	D45H8	40 min.	4.0	60	10	50	50
D44H10	D45H10	20 min.	4.0	80	10	50	50
D44H11	D45H11	40 min.	4.0	80	10	50	50

Transistors and Diodes

PLASTIC NPN AND PNP POWER DARLINGTON TRANSISTORS

Typical applications include: solenoid, relay and logic driver; lamp and touch switch driver; or switching regulator. Units feature high gain and fast switching.

GE Type		h_{fe} @	I_C	V_{CEO} Min.	I_C Cont.	P_t	
NPN	PNP	Min.	Amps	Volts	Amps	Watts	Pkg.
D40C1	.....	10K	0.2	30	0.6	6.25	TO-202AA
D40C2	.....	40K	0.2	30	0.5	6.25	TO-202AA
D40C3	.....	90K	0.2	30	0.5	6.25	TO-202AA
D40C4	.....	10K	0.2	40	0.5	6.25	TO-202AA
D40C5	.....	40K	0.2	40	0.5	6.25	TO-202AA
D40C7	.....	10K	0.2	50	0.5	6.25	TO-202AA
D40C8	.....	40K	0.2	50	0.5	6.25	TO-202AA
D40K1	D41K1	10K	0.2	30	2.0	10.0	TO-202AA
D40K2	D41K2	10K	0.2	50	2.0	10.0	TO-202AA
D40K3	D41K3	10K	0.2	30	2.0	10.0	TO-202AA
D40K4	D41K4	10K	0.2	50	2.0	10.0	TO-202AA
D42D1	D43D1	5K	1.0	40	4.0	12.5	TO-202AA
D42D2	D43D2	5K	1.0	40	4.0	12.5	TO-202AA
D42D3	D43D3	5K	1.0	60	4.0	12.5	TO-202AA
D42D4	D43D4	5K	1.0	60	4.0	12.5	TO-202AA
D42D5	D43D5	5K	1.0	80	4.0	12.5	TO-202AA
D42D6	D43D6	5K	1.0	80	4.0	12.5	TO-202AA
D44D1	D45D1	5K	1.0	40	6.0	30.0	TO-220AB
D44D2	D45D2	5K	1.0	40	6.0	30.0	TO-220AB
D44D3	D45D3	5K	1.0	60	6.0	30.0	TO-220AB
D44D4	D45D4	5K	1.0	60	6.0	30.0	TO-220AB
D44D5	D45D5	5K	1.0	80	6.0	30.0	TO-220AB
D44D6	D45D6	5K	1.0	80	6.0	30.0	TO-220AB
D44E1	D45E1	1K	5.0	40	10.0	50.0	TO-220AB
D44E2	D45E2	1K	5.0	60	10.0	50.0	TO-220AB
D44E3	D45E3	1K	5.0	80	10.0	50.0	TO-220AB

PLASTIC NPN HIGH VOLTAGE/HIGH SPEED SWITCHING POWER TRANSISTORS

These devices are designed for use in high voltage switching circuits; off-line switching regulators; high voltage/high frequency inverters; solenoid and relay drivers; and TV video-chroma output stages.

GE Type	h_{fe} Min.-Max.	@ I_C mAmps	V_{CEO} Min. Volts	I_C Cont. Amps	f_t MHz	P_t Watts	Pkg.
D40V1	30–90	20	250	0.1	80	9.0	TO-202AA
D40V2	60–180	20	250	0.1	80	9.0	TO-202AA
D40V3	30–90	20	300	0.1	80	9.0	TO-202AA
D40V4	60–180	20	300	0.1	80	9.0	TO-202AA
D40V5	30–90	20	350	0.1	80	9.0	TO-202AA
D40V6	60–180	20	350	0.1	80	9.0	TO-202AA
D40P1	40 min.	80	120	0.5	50	6.2	TO-202AA
D40P3	40 min.	80	180	0.5	50	6.2	TO-202AA
D40P5	40 min.	80	225	0.5	50	6.2	TO-202AA
D42T1	30–90	500	250	2.0	45	15.0	TO-202AA
D42T2	75–175	500	250	2.0	45	15.0	TO-202AA
D42T3	30–90	500	300	2.0	45	15.0	TO-202AA
D42T4	75–175	500	300	2.0	45	15.0	TO-202AA
D42T5	30 min.	500	250	2.0	45	15.0	TO-202AA
D42T6	30 min.	500	300	2.0	45	15.0	TO-202AA
D42T7	150–300	500	250	2.0	45	15.0	TO-202AA
D42T8	150–300	500	300	2.0	45	15.0	TO-202AA
D44Q1	20 min.	2000	125	4.0	50	31.2	TO-220AB
D44Q3	20 min.	2000	175	4.0	50	31.2	TO-220AB
D44Q5	20 min.	2000	225	4.0	50	31.2	TO-220AB
D44T1	30–90	500	250	2.0	45	31.2	TO-220AB
D44T2	75–175	500	250	2.0	45	31.2	TO-220AB
D44T3	30–90	500	300	2.0	45	31.2	TO-220AB
D44T4	75–175	500	300	2.0	45	31.2	TO-220AB
D44T5	30 min.	500	250	2.0	45	31.2	TO-220AB
D44T6	30 min.	500	300	2.0	45	31.2	TO-220AB
D44T7	150–300	500	250	2.0	45	31.2	TO-220AB
D44T8	150–300	500	300	2.0	45	31.2	TO-220AB
D44TD3	5	....	300	2	..	50	TO-220AB
D44TD4	5	....	350	2	..	50	TO-220AB
D44TD5	5	....	400	2	..	50	TO-220AB
D44TE3	10	....	300	4	..	75	TO-220AB
D44TE4	10	....	350	4	..	75	TO-220AB
D44TE5	10	....	400	4	..	75	TO-220AB
D44VH1	20 min.	....	30	15	..	83	TO-220
D44VH4	20 min.	....	45	15	..	83	TO-220
D44VH7	20 min.	....	60	15	..	83	TO-220
D44VH10	20 min.	....	80	15	..	83	TO-220
D44VM1	40 min.	....	30	8	..	50	TO-220
D44VM4	40 min.	....	45	8	..	50	TO-220
D44VM7	40 min.	....	60	8	..	50	TO-220
D44VM10	40 min.	....	60	8	..	50	TO-220

PROGRAMMABLE UNIJUNCTION—PUT (TO-98)

Passivated PNPN devices with anode, anode gate and cathode terminals. Recommended for SCR trigger, pulse and timing circuits, oscillators, sensing and sweep circuits. Gate-cathode forward voltage and gate-anode reverse voltage=40 V. Anode-cathode voltage= ±40 V.

GE Type	I_{GAO} V_S=40 V nA	Max. Values at V_S=10 V I_P µA	V_T V	I_V µA	$I_{F(CONT)}$ mA	P_T W
2N6028	10	0.15	.2–.6	25	150	300

COMPLEMENTARY UNIJUNCTION (TO-18)

D5K offers the ultimate in unijunction stability and uniformity. Ideal for low frequency oscillators and timers. Same characteristics as standard unijunction except opposite polarity current and voltages are applied to it.

GE Type	R_{BO} kohms	Intrinsic Standoff Ratio	I_V Min. mA	I_P Max. µA	I_{EO} Max. nA	V_O Min. Volts	Freq. Stab.* %
D5K1	5.5–8.2	.58–.62	1	5	10	3.5	1.0
D5K2	5–15	.58–.62	1	15	10	3.5	2.0

*Frequency stability from 25° C, −55° C to +150° C.

SILICON UNIJUNCTION TRANSISTORS

"N" type silicon bar mounted between two ohmic base contacts with a "P" type emitter near base two. Three-terminal package. All TO-5 bar structure unless noted otherwise.

GE Type	R_{BBO} V_{BB} = 3V I_E = 0 kohms	Intrin. Stand-off Ratio†	I_V Min. mA	I_P Max. Emitter µA	I_{EO} Max. µA	I_{EO} Max. V_{B2E}‡
2N489				12	2	60
2N489A*	4.7–6.8	.51–.62	8	12	2	60
2N489B				6	0.2	30
2N490				12	2	60
2N490A*	6.2–9.1	.51–.62	8	12	2	60
2N490B				6	0.2	30
2N490C				2	0.02	30
2N491				12	2	60
2N491A*	4.7–6.8	.56–.68	8	12	2	60
2N491B				6	0.2	30
2N492				12	2	60
2N492A*	6.2–9.1	.56–.68	8	12	2	60
2N492B				6	0.2	30
2N492C				2	0.02	30
2N493				12	2	60
2N493A*	4.7–6.8	.62–.75	8	12	2	60
2N493B				6	0.2	30
2N494				12	2	60
2N494A*	6.2–9.1	.62–.75	8	12	2	60
2N494B				6	0.2	30
2N494C				2	0.02	30
2N1671				25	12	30
2N1671A	4.7–9.1	.47–.62	8	25	12	30
2N1671B				6	0.2	30
2N1671C				2	0.02	30
2N2160	4.0–12.0	.47–.80	8	25	12	30
2N2646**	4.7–9.1	.56–.75	4	5	12	30
2N2647**	4.7–9.1	.68–.82	8	2	0.2	30
2N2840§	4.7–9.1#	.62 typ.	2	10	1	30
2N4870	4.0–9.1	.56–.75	2	5	1	30
2N4871	4.0–9.1	.70–.85	4	5	1	30
D5J-43§	4.7–9.1	.68–.82	6	2	1	30
D5J-44§	4.7–9.1	.68–.82	4	5	12	30
GES4891	4.0–9.1	.55–.82	2	5	.01	30
GES4892	4.0–9.1	.51–.69	4	2	.01	30
GES4893	4.0–9.1	.55–.82	2	2	.01	30
GES4894	4.0–9.1	.74–.86	2	1	.01	30

†V_{BB}=10 V. ‡T_J=25° C. *JAN type available. #At V_{BB}=1.5 V. §TO-18 cube structure. **TO-92 outline.

SILICON UNILATERAL SWITCHES (SUS)

6-10 VOLT PLANAR TRIGGER DIODE

V_{ACR}=30 volts maximum. V_F at 200 mA=1.5 volts.

GE Type	JEDEC Outline	Max. $I_{F(CONT)}$ mA	T_J −55° C to °C	V_S V	Max. I_S µA	I_B at 5 V µA
2N4983	TO-18	175	+125	6–10	500	1.0
2N4984	TO-18	200	+150	7.5–9	150	0.1
2N4985	TO-18	200	+150	7.5–8.2	300	0.01
2N4986	TO-18	175	+125	7–9	200	0.1
2N4987	TO-98	175	+125	6–10	500	1.0
2N4988	TO-98	200	+150	7.5–9	150	0.1
2N4989	TO-98	200	+150	7.5–8.2	300	0.01
2N4990	TO-98	175	+125	7–9	200	0.1

SILICON BILATERAL SWITCHES (SBS)

6-10 VOLT BIDIRECTIONAL PLANAR TRIGGER DIODE

V_F at 200 mA=1.7 volts.

2N4991	TO-98	175	+125	6–10	500	1.0
2N4992	TO-98	200	+150	7.5–9	120	0.1
2N4993	TO-18	200	+150	6–10	500	1.0

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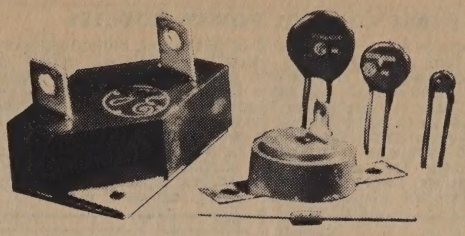
GE-MOV® II Metal Oxide Varistors

GE-MOV Varistors are voltage dependent, symmetrical resistors which perform in a manner similar to back-to-back zener diodes in circuit protective functions and offer advantages in performance and economics. When exposed to high energy voltage transient, varistor impedance changes from a very high standby value to a very low conducting value thus clamping the line voltage to a safe level. Dangerous energy of incoming high voltage pulse is absorbed by the GE-MOV varistor, thus protecting your voltage sensitive circuit components. Eliminates follow-on currents, extends contact life and protects circuit insulation. Applications include component and system voltage transient protection in inductive and transformer switching circuits, regenerative loads, switching magnetic amplifiers; contact arc suppression-reduction of lightning effects. If nonsinusoidal wave input is present, peak voltage input values should be used to select model.



TYPE PA VARISTORS

Power Dissipation: Up to 15 watts at 70° C mounting-tab temperature. **Current:** Up to 6000 A.

GE Type	Max. Cont. rms Volts	Max. Cont. DC Volts	Max. Energy Joules	Max. Clamp Volts
V130PA10A	130	175	30	360
V130PA20A	130	175	50	360
V130PA20B	130	175	50	340
V130PA20C	130	175	50	325
V150PA10A	150	200	30	420
V150PA20A	150	200	50	420
V150PA20B	150	200	50	395
V150PA20C	150	200	50	360
V250PA20A	250	330	50	675
V250PA40A	250	330	90	675
V250PA40B	250	330	90	650
V250PA40C	250	330	90	620
V275PA20A	275	369	50	740
V275PA40A	275	369	90	740
V275PA40B	275	369	90	710
V275PA40C	275	369	90	680
V320PA40A	320	420	100	850
V320PA40B	320	420	100	810
V320PA40C	320	420	100	780
V420PA20A	420	560	80	1160
V420PA40A	420	560	160	1160
V420PA40B	420	560	160	1120
V420PA40C	420	560	160	1020
V460PA20A	460	612	90	1280
V460PA40A	460	612	170	1280
V460PA40B	460	612	170	1240
V460PA40C	460	612	170	1160
V480PA40A	480	640	100	1280
V480PA80A	480	640	180	1280
V480PA80B	480	640	180	1240
V480PA80C	480	640	180	1160
V510PA40A	510	675	100	1410
V510PA80A	510	675	180	1410
V510PA80B	510	675	180	1350
V510PA80C	510	675	180	1280
V550PA40A	550	700	120	1500
V550PA80A	550	700	210	1560
V550PA80B	550	700	210	1500
V550PA80C	550	700	210	1410
V575PA40A	575	730	120	1560
V575PA80A	575	730	210	1560
V575PA80B	575	730	210	1500
V575PA80C	575	730	210	1410
V660PA100A	660	850	250	1820
V660PA100B	660	850	250	1730
V660PA100C	660	850	250	1650

TYPE MA VARISTORS

Current: Up to 100 A.

V33MA1A	18	23	0.13	73
V33MA1B	18	23	0.15	67
V39MA2A	22	28	0.16	86
V39MA2B	25	31	0.18	79
V47MA2A	27	34	0.19	99
V47MA2B	30	38	0.21	90
V56MA2A	32	40	0.23	107

TYPE MA VARISTORS (CONT'D.)

GE Type	Max. Cont. rms Volts	Max. Cont. DC Volts	Max. Energy Joules	Max. Clamp Volts
V56MA2B	35	45	0.25	108
V68MA3A	38	48	0.26	138
V68MA3B	40	56	0.30	127
V82MA3A	45	60	0.33	103
V82MA3B	50	66	0.37	150
V100MA4A	57	72	0.40	200
V100MA4B	60	81	0.45	185
V120MA1A	72	97	0.40	220
V120MA2B	75	101	0.50	205
V150MA1A	88	121	0.50	255
V150MA2B	92	127	0.60	240
V180MA1A	105	144	0.60	310
V180MA3B	110	152	0.70	290
V220MA2A	132	181	0.80	380
V220MA4B	138	191	0.90	360
V270MA2A	163	224	0.90	460
V270MA4B	171	235	1.00	440
V330MA2A	188	257	1.00	570
V330MA5B	200	274	1.10	540
V390MA3A	234	322	1.20	670
V390MA6B	242	334	1.30	640
V430MA3A	264	349	1.50	740
V430MA7B	273	365	1.70	700

TYPE Z VARISTORS

V18ZA1	10	14	0.5	42
V18ZA3	10	14	3.0	39
V22ZA1	14	18	0.6	47
V22ZA3	14	18	3.0	43
V24ZA1	15	20	0.8	52
V24ZA4	15	20	4.0	48
V24ZA50	14	16	50	45
V27ZA1	17	22	0.8	57
V27ZA4	17	22	4.0	53
V27ZA60	17	21	60	50
V33ZA1	20	26	1.0	68
V33ZA5	20	26	5.0	64
V33ZA70	21	27	70	58
V36ZA80	23	31	80	63
V39ZA1	25	31	1.2	79
V39ZA6	25	31	6.0	76
V47ZA1	30	38	1.4	92
V47ZA7	31	38	7.0	89
V56ZA2	35	45	1.7	107
V56ZA8	35	45	8.0	103
V68ZA2	40	56	2.0	127
V68ZA10	40	56	10	123
V82ZA2	50	66	2.5	152
V82ZA12	50	66	12	147
V100ZA3	60	81	3.0	180
V100ZA15	60	81	15	175
V120ZA1	75	102	4.0	205
V120ZA6	75	102	15	210
V150ZA1	95	127	6.0	250
V150ZA8	95	127	20	255
V180ZA1	115	153	7.0	295
V180ZA10	115	153	25	300

TYPE L VARISTORS

GE Type	Max. Cont. rms Volts	Max. Cont. DC Volts	Max. Energy Joules	Max. Clamp Volts
V95AL7A	95	130	20	280
V95LA7B	95	130	20	250
V130LA1	130	175	4	390
V130LA2	120	175	8	340
V130LA10A	130	175	30	340
V130LA20A	130	175	50	340
V130LA20B	130	175	50	325
V150LA1	150	200	4	430
V150LA2	150	200	8	395
V150LA10A	150	200	30	395
V150LA20A	150	200	55	395
V150LA20B	150	200	55	360
V250LA2	250	330	8	730
V250LA4	250	330	15	650
V250LA15A	250	330	30	650
V250LA20A	250	330	55	650
V250LA40A	250	330	90	650
V250LA40B	250	330	90	620
V275LA2	275	369	8	775
V275LA4	275	369	15	710
V275LA15A	275	369	30	710
V275LA20A	275	369	55	710
V275LA40A	275	269	100	700
V275LA40B	275	369	100	680
V300LA2	300	405	8	870
V300LA4	300	405	15	775
V320LA15A	320	420	60	850
V320LA40A	320	420	100	850
V320LA40B	320	420	100	810
V420LA20A	420	560	75	1120
V420LA40A	420	560	160	1120
V420LA40B	420	560	160	1060
V460LA20A	460	615	80	1240
V460LA40A	460	615	170	1240
V460LA40B	460	615	170	1160
V480LA20A	480	640	70	1240
V480LA40A	480	640	90	1240
V480LA80A	480	640	175	1240
V480LA80B	480	640	175	1160
V510LA20A	510	675	70	1350
V510LA40A	510	675	90	1350
V510LA80A	510	675	180	1350
V510LA80B	510	675	180	1280
V550LA20A	550	700	80	1500
V550LA40A	550	700	100	1500
V550LA80A	550	700	210	1500
V550LA80B	550	700	210	1410
V575LA20A	575	730	80	1500
V575LA40A	575	730	100	1500
V575LA80A	575	730	210	1500
V575LA80B	575	730	210	1410
V1000LA80A	1000	1200	180	2700
V1000LA160A	1000	1200	350	2700
V1000LA160B	1000	1200	350	2420

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UNLISTED ITEMS. NO SPECIAL ORDER NUMBERS NECESSARY,

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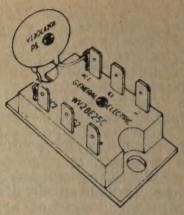
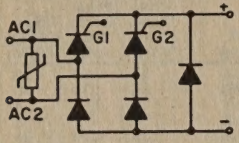
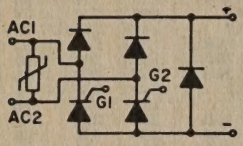
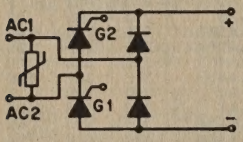
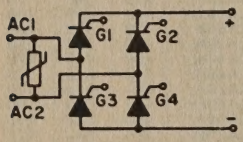
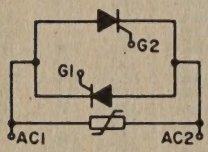
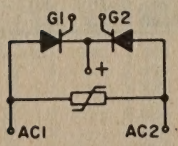
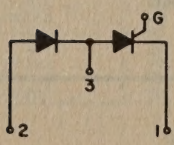
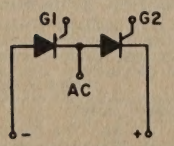
Power Modules

PHASE CONTROL POWER MODULES

These modules are a new concept of packaging individual power semiconductor pellets in an electrically isolated, epoxy encapsulated, package to perform basic phase control circuit functions. Modules are available in 25 and 50 ampere ratings at 85° C case temperature. Modules are available in either 120 or 240 VAC input ratings, as well as with or without GE-MOV® varistor transient voltage protection at the input. Modules are also available with or without the steering diode. Applications include: DC motor power supplies, permanent magnet motor controls, magnetic clutches and brakes, industrial heating, phase controlled power supplies, battery chargers, etc.



Basic Circuits	Description	Max. V/A	Basic Circuit	Without Free-Wheeling Diode	Without Input Varistor	Without Diode or Varistor
	Single-phase, full-wave bridge with free-wheeling diode and varistor; common cathode; semiconverter.	120/25 240/25	WV2BE25C WV2BE25E	WV2BC25C WV2BC25E	W2BE25C W2BE25E	W2BC25C W2BC25E
	Single-phase, full-wave bridge with free-wheeling diode and varistor; common anode; semiconverter.	120/25 240/25	WV2BJ25C WV2BJ25E	WV2BK25C WV2BK25E	W2BJ25C W2BJ25E	W2BK25C W2BK25E
	Single-phase, full-wave bridge.	120/25/ 240/25	WV2BA25C WV2BA25E	....	W2BA25C W2BA25E	....
	Single-phase, full-wave bridge; full converter.	120/25 240/25	WV2BH25C WV2BH25E	....	W2BH25C W2BH25E	....
	Single-phase AC switch.	120/50 240/50	WV2AA50C WV2AA50E	....	W2AA50C W2AA50E	....
	Single-phase, full-wave center-tap bridge.	120/25 240/25	WV2CA25C WV2CA25E	....	W2CA25C W2CA25E	....
	Half-control doubler, basic building block.	120/* 240/*	WV2DA25C WV2DA25E	....	W2DA25C W2DA25E	....
	Full-control doubler, basic building block.	120/* 240/* 400/40 600/40 800/40 1000/40 1200/40 300/55 400/55 600/55 800/55 1000/55 1200/55	WV2DC25C WV2DC25E W4DC40D W4DC40M W4DC40N W4DC40P W4DC40PB W4DC55C W4DC55D W4DC55M W4DC55N W4DC55P W4DC55PB	....	W2DC25C W2DC25E	....

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OEM Semiconductor Pricing

GE Type	Net Ea., Lots of 1-99	100-999
1N248*‡, A*‡, B*‡, C*‡	$ 6.22	$ 5.10
1N249*‡, A*‡, B*‡, C*‡	6.24	5.20
1N250*‡, A*‡, B*‡, C*‡	6.43	5.30
1N914	.35	.23
1N914A	.46	.30
1N914B	.92	.63
1N916	.61	.40
1N916A	.67	.63
1N916B	.61	.40
1N1183*‡	6.11	5.00
1N1184*‡	6.18	5.10
JAN1N1184*‡	6.57	5.40
JANTX1N1184*‡	6.79	5.60
1N1185*‡	6.27	5.20
1N1186	6.35	5.20
JAN1N1186*‡	6.73	5.60
JANTX1N1186*‡	6.94	5.70
1N1187*‡	6.42	5.30
1N1188*‡	7.25	6.00
JAN1N1188*‡	9.51	6.30
JANTX1N1188*‡	11.12	7.40
1N1189*‡	7.36	6.10
1N1190*‡	9.31	6.21
JAN1N1190*‡	11.72	7.80
JANTX1N1190*‡	14.12	9.40
1N1195*‡, A*‡	6.54	5.40
1N1196*‡, A*‡	6.73	5.60
1N1197*‡, A*‡	6.79	5.60
1N1198*‡, A*‡	7.02	5.80
1N1199*‡, A*‡	3.85	3.20
1N1200*‡, A*‡	3.93	3.20
1N1201*‡, A*‡	4.00	3.30
1N1202*‡, A*‡	4.09	3.40
JAN1N1202A*‡	4.38	3.60
JANTX 1N1202A*‡	6.00	4.00
1N1203*‡, A*‡	4.16	3.40
1N1204*‡, A*‡	4.23	3.50
JAN1N1204A*‡	5.89	3.90
JANTX 1N1204A*‡	7.71	5.10
1N1205*‡, A*‡	5.69	3.80
1N1206*‡, A*‡	6.82	4.50
JAN1N1206A*‡	8.83	5.80
JANTX 1N1206A*‡	10.60	7.00
1N1341*‡, A*‡	3.80	3.10
1N1342*‡, A*‡	3.87	3.20
1N1343*‡, A*‡	3.96	3.30
1N1344*‡, A*‡	4.03	3.30
1N1345*‡, A*‡	4.11	3.40
1N1346*‡, A*‡	4.18	3.40
1N1347*‡, A*‡	4.45	3.70
1N1348*‡, A*‡	5.37	4.40
1N1612*‡	4.10	3.40
1N1613*‡	4.17	3.40
1N1614*‡	4.25	3.31
JAN1N1614‡	4.54	3.70
1N1615*‡	4.31	3.60
JAN1N1615‡	4.61	3.80
1N1616*‡	5.94	3.90
JAN1N1616‡	7.66	5.10
1N2154*‡	6.16	5.10
1N2155*‡	6.18	5.10
1N2156*‡	6.40	5.30
1N2157*‡	6.47	5.30
1N2158*‡	7.33	6.10
1N2159*‡	7.37	6.10
1N2160*‡	7.45	6.20

GE Type	Net Ea., Lots of 1-9	10-99
1N3266*	$29.70	$18.15
1N3267*	31.35	18.98
1N3268*	33.55	20.35
1N3269*	36.30	21.73
1N3270*	39.05	23.65
1N3271*	41.25	24.75
1N3272*	45.10	26.95
1N3273*	47.85	28.60
1N3288*	18.10	11.83
1N3289*	19.09	12.43
JAN1N3289	55.06	32.23
1N3290*	20.30	12.43
1N3291*	21.51	13.09
JAN1N3291	59.95	36.03
1N3292*	22.99	13.92
1N3293*	24.20	13.92
JAN1N3293	73.26	43.89

GE Type	Net Ea., Lots of 1-9	10-99
1N3294*	$27.83	$16.67
JAN1N3294	86.52	52.03
1N3295*	30.25	18.15
JAN1N3295	101.64	61.11
1N3296*	32.67	19.58
1N3670*‡, A‡	$ 8.42	$ 5.62
1N3671*‡, A‡	9.38	6.26
JAN1N3671A*‡	13.20	8.80
JANTX 1N3671A*‡	16.09	10.72
1N3672*‡, A‡	10.11	6.74
1N3673*‡, A‡	10.59	7.06
JAN1N3673A*‡	14.64	9.76
JANTX 1N3673A*‡	17.53	11.68
1N3712	10.95	6.68
1N3713	17.40	10.64
JAN1N3713	20.00	12.21
1N3714	10.15	6.20
1N3715	15.96	9.76
JAN1N3715	18.51	11.34
1N3716	7.21	4.42
1N3717	13.63	8.31
JAN1N3717	14.92	9.11
1N3718	8.78	5.35
1N3719	12.71	8.31
JAN1N3719	14.25	8.71
1N3720	11.14	6.81
1N3721	13.05	7.97
JAN1N3721	14.25	8.71

GE Type	Net Ea., Lots of 1-9	10-99
1N3735*, 6*	$33.72	$20.30
1N3737*, 8*	34.82	20.90
1N3739*	37.51	22.72
1N3740*	40.59	24.53
1N3741*	46.64	27.83
1N3742*	52.69	31.46
1N3743*	58.74	35.09
1N3765*‡	$ 9.15	$ 6.10
1N3766*‡	10.43	6.96
JAN1N3766*‡	15.41	10.27
JANTX 1N3766*‡	18.30	12.20
1N3767*‡	11.47	7.65
1N3768*‡	12.43	8.29
JAN1N3768*‡	17.91	11.94
JANTX 1N3768A*‡	20.80	13.87
1N3879*‡	3.99	3.33
1N3880*‡	4.06	3.38
1N3881*‡	4.22	3.51
1N3882*‡	4.44	3.70
1N3883*‡	5.29	4.41
1N3889*‡	4.03	3.36
1N3890*‡	4.11	3.40
JAN1N3890*‡	4.54	3.70
JANTX1N3890*‡	6.90	4.60
1N3891*‡	4.26	3.50
JAN1N3891*‡	6.35	4.20
JANTX1N3891‡	8.11	5.40
1N3892*‡	5.62	3.70
1N3893*‡	6.74	4.40
JAN1N3893*‡	8.83	5.80
JANTX1N3893*‡	10.59	7.00
1N3889*‡	6.49	5.40
1N3900*‡	6.57	5.40
1N3901*‡	6.66	5.50
1N3902*‡	7.20	5.78
1N3903*‡	9.23	6.10
1N3909*‡	6.94	5.70
JAN1N3909*‡	7.85	6.50
JANTX1N3909*‡	8.15	6.70
1N3910*‡	7.02	5.80
JAN1N3910*‡	8.01	6.60
JANTX1N3910*‡	9.06	7.50
1N3911*‡	6.98	5.90
1N3912*‡	8.99	5.90
1N3913*‡	10.84	7.20
1N3988*‡	9.37	6.20
1N3989*‡	10.10	6.70
1N3990*‡	11.56	7.70

GE Type	Net Ea., Lots of 1-9	10-99
1N4044*, 5*	$39.38	$23.60
1N4046*, 7*	39.38	23.60
1N4048*, 9*	39.38	23.60
1N4050*	39.38	23.60
1N4051*	39.93	23.93
1N4052*	42.35	25.41
1N4053*	45.98	27.56
1N4054*	49.06	29.37
1N4055*	52.69	31.46
1N4056*	55.66	33.28
1N4090	♦	♦
1N4148	$ 0.35	$ 0.23
JAN1N4148	.45	.30
JANTX1N4148	2.22	1.49
1N4149	.61	.40
1N4150	.87	.58
JAN1N4150	.87	.58
JANTX1N4150	2.22	1.49
1N4151	.87	.58
1N4152	.69	.46
1N4153	.87	.58
JAN1N4153	.87	.58
JANTX1N4153	2.03	1.46
1N4154	.42	.27
1N4156	.86	.58
1N4157	1.20	.80
1N4245	.40	.30
1N4246	.47	.37
1N4247	.62	.48
1N4248	1.10	.74
1N4249	1.25	.84
1N4305	.69	.46
1N4444	1.92	1.26
1N4446	.42	.28
1N4447	.71	.46
1N4448	.93	.63
1N4449	1.26	.87
1N4450	1.85	1.23
1N4451	1.63	1.08
1N4453	.65	.44
1N4454	.34	.23
JAN1N4454	.34	.23
JANTX1N4454	2.21	1.47
JAN1N4459	12.20	8.13
1N4510*†	12.63	7.97
1N4511*†	15.41	10.27
1N4529*†	14.45	9.63
1N4530*†	18.46	12.31
1N4531	.57	.37
JAN1N4531	.63	.42
JANTXV1N4531	2.53	1.79
1N4532	.81	.53
JAN1N4532	.86	.60
JANTX1N4532	2.36	1.55
JANTXV1N4532	2.64	1.83
1N4533	.57	.37
1N4534	.83	.39
1N4536	.41	.27
1N4606	.34	.23
1N4607	1.60	1.08
1N4608	2.00	1.30
1N4727	.49	.33
1N4828	.57	.37
1N4829	.85	.58
1N4830	1.14	.77
1N4863	1.25	.84
1N4864	.61	.40
1N5059	.38	.29
1N5060	.49	.38
1N5061	.66	.46
1N5062	1.00	.65
1N5179	1.48	.99
1N5331*†	11.24	7.49
1N5332*†	13.48	8.99
1N5624	.79	.53
1N5625	1.05	.70
1N5626	1.61	1.09
1N5627	3.94	2.63
1N6264	2.25	1.80
1N6265	2.25	1.80
1N6266	3.07	2.46
2N489	20.92	13.96
2N489A	21.66	14.45
JAN2N489A	24.56	16.37
JANTX2N489A	37.44	24.97
2N489B	25.89	17.27
2N490	21.84	14.55
2N490A	23.57	15.72
JAN2N490A	25.79	17.19
JANTX2N490A	39.86	26.58
2N490B	26.86	17.90
2N490C	33.44	22.31
2N491	22.98	15.32
2N491A	25.53	17.02
JAN2N491A	25.53	17.02
JANTX2N491A	27.38	18.24
2N491B	29.23	19.51

GE Type	Net Ea., Lots of 1-99	100-999
2N492	$24.10	$16.07
2N492A	28.64	19.11
JAN2N492A	31.49	20.99
JANTX2N492A	54.59	36.39
2N492B	32.32	21.56
2N492C	36.70	24.47
2N493	26.74	17.85
2N493A	31.78	21.19
JAN2N493A	34.18	22.79
JANTX2N493A	41.82	27.88
2N493B	36.99	24.64
2N494	27.60	18.39
2N494A	32.26	21.50
JAN2N494A	34.36	22.97
JANTX2N494A	59.75	39.83
2N494B	36.49	24.33
2N494C	42.16	28.54
2N681‡	2.81	2.00
2N682‡	3.00	2.20
JAN2N682‡	4.88	3.60
JANTX2N682‡	5.82	4.30
2N683‡	3.76	2.70
JAN2N683‡	5.63	4.10
JANTX2N683‡	6.57	4.80
2N684‡	4.31	3.20
2N685‡	5.63	4.10
JAN2N685‡	7.51	5.50
JANTX2N685‡	8.44	6.20
2N686‡	6.17	4.80
JAN2N686‡	7.95	6.20
JANTX2N686‡	8.83	6.90
2N687‡	6.44	5.00
JAN2N687‡	8.21	6.40
JANTX2N687‡	9.10	7.10
2N688‡	7.50	5.90
JAN2N688‡	9.27	7.30
JANTX2N688‡	10.15	8.00
2N689‡	7.95	6.20
JAN2N689‡	9.72	7.60
JANTX2N689‡	10.59	8.30
2N690‡	8.38	6.60
2N691‡	9.23	7.30
2N692‡	11.72	9.30
2N877	3.65	2.43
2N878	4.01	2.68
2N879	6.56	4.38
2N880	7.65	5.11
2N881	9.12	6.08
2N1595	1.95	1.30
2N1596	2.76	1.84
2N1597	5.66	3.78
2N1598	8.85	5.90
2N1599	11.68	7.79
2N1671	8.09	5.39
2N1671A	9.01	5.99
2N1671B	9.93	6.61
2N1671C	19.36	12.91
2N1770‡	2.41	1.60
2N1770A‡	3.05	2.00
2N1771‡	2.73	1.80
2N1771A‡	3.37	2.20
2N1772‡	3.78	2.50
2N1772A‡	4.42	2.90
2N1773‡	5.46	3.60
2N1773A‡	6.10	4.00
2N1774‡	6.74	4.40
2N1774A‡	7.38	4.90
2N1775‡	8.03	5.30
2N1775A‡	8.67	5.70
2N1776‡	8.99	5.90
2N1776A‡	9.63	6.40
2N1777‡	9.95	6.60
2N1777A‡	10.59	7.00
2N1778‡	12.20	8.10

GE Type	Net Ea., Lots of 1-9	10-99
2N1792	$22.41	$13.46
2N1793	24.72	14.85
2N1794	27.49	16.52
2N1795	30.03	17.97
2N1796	33.30	19.81
2N1797	35.57	21.37
2N1798	41.12	24.66

GE Type	Net Ea., Lots of 1-99	100-999
2N1842‡	$ 2.63	$ 2.10
2N1843‡	2.94	2.30
2N1844‡	3.62	2.80
2N1845‡	3.85	3.00
2N1846†	5.22	4.17
2N1848†	5.78	4.62
2N1849†	6.90	5.52
2N1850†	7.79	6.23

*Available in reverse polarity at same price; to order, add suffix **R**, i.e., 1N248**R**, 1N248**RA**, etc. †Prices include mounting hardware. For insulating hardware, add **$0.10** per unit, any quantity. ‡Prices include mounting hardware. For insulating hardware, add **$0.25** per unit, any quantity. ♦Contact factory.

CURRENT PRICES WILL APPLY ON ALL LINES

OEM Semiconductor Pricing

GE Type	Net Ea., Lots of 1-9	10-99
2N1909	$20.21	$12.13
2N1910	22.41	13.46
2N1911	24.72	14.85
2N1912	27.49	16.52
2N1913	29.91	17.97
2N1914	33.03	19.81
2N1915	35.57	21.37
2N1916	41.12	24.66
2N2023	28.49	17.11
2N2024	36.85	22.11
2N2025	41.58	24.97
2N2026	45.10	27.06
2N2027	45.10	27.06
2N2028	46.31	27.78
2N2029	47.52	28.49
2N2030	51.04	30.64

GE Type	Net Ea., Lots of 1-99	100-999
2N2160	$ 6.97	$ 4.64
2N2322	2.31	1.53
2N2323	2.54	1.69
2N2324	4.01	2.68
2N2325	5.90	3.93
2N2326	7.59	5.06
2N2327	8.99	5.99
2N2328	10.95	7.29
2N2329	14.46	9.64
2N2344	4.50	2.99
2N2345	5.08	3.39
2N2346	6.64	4.43
2N2347	12.27	7.95
2N2348	15.64	10.42
2N2619†	13.16	8.77
2N2646	1.07	.72
2N2647	2.02	1.35
2N2711	.35	.22
2N2712	.35	.22
2N2713	.47	.32
2N2714	.41	.26
2N2840	7.14	4.56
2N2923	.30	.21
2N2924	.34	.22
2N2925	.40	.27
2N2926	.28	.19
2N3390	.74	.47
2N3391	.45	.30
2N3391A	.49	.34
2N3392	.30	.21
2N3393	.30	.21
2N3394	.28	.19
2N3395, 6, 7	.42	.28
2N3398	.47	.32
2N3402	.41	.29
2N3403	.44	.32
2N3404	.53	.37
2N3405	.64	.45
2N3414	.36	.24
2N3415	.39	.26
2N3416	.47	.32
2N3417	.59	.40
2N3662	.69	.47
2N3663	.75	.52
2N3721	.32	.24
2N3854	.38	.26
2N3854A	.40	.27
2N3855	.40	.27
2N3855A	.43	.29
2N3856	.43	.29
2N3856A	.46	.30
2N3858	.28	.19
2N3858A	.36	.24
2N3859	.30	.21
2N3859A	.38	.25
2N3860	.34	.22
2N3870	3.77	2.51
2N3871	5.62	3.75
2N3872	8.10	5.40
2N3873	9.15	6.10
2N3877	.47	.32
2N3877A	.55	.37
2N3896‡	4.01	2.68
2N3897‡	5.85	3.91
2N3898‡	8.26	5.51
2N3899‡	9.31	6.21
2N3900	.43	.28
2N3900A	.47	.32
2N3901	.79	.53
2N3903	.49	.32
2N3904	.51	.37
2N3905	.55	.35
2N3906	.56	.39
2N4123	.36	.21
2N4124	.37	.24
2N4125	.37	.23
2N4126	.38	.24
2N4256	.71	.47
2N4400	.60	.39
2N4401	.77	.47

GE Type	Net Ea., Lots of 1-99	100-999
2N4402	$ 0.58	$ 0.39
2N4403	.77	.47
2N4409	.70	.47
2N4410	1.01	.68
2N4424	.45	.30
2N4425	.49	.34
2N4870	.75	.50
2N4871	.68	.45
2N4983	2.09	1.21
2N4984	2.42	1.60
2N4985	4.09	2.72
2N4986	1.98	1.32
2N4987	.84	.56
2N4988	1.35	.90
2N4989	1.82	1.21
2N4990	.94	.63
2N4991	.83	.55
2N4992	1.46	.97
2N4993	3.01	2.00
2N5060	.67	.45
2N5061	.71	.48
2N5062	.80	.54
2N5063	.86	.57
2N5064	.90	.60
2N5088	.53	.38
2N5089	.76	.48
2N5164	5.04	3.36
2N5165	3.05	2.21
2N5166	4.01	2.91
2N5167	5.30	3.85
2N5168	3.15	2.30
2N5169	3.46	2.51
2N5170	4.37	3.17
2N5171	5.65	4.11
2N5172	.25	.17
2N5174	.30	.21
2N5204‡	9.95	7.04
2N5205‡	15.09	8.00
2N5206‡	19.74	10.59
2N5207‡	26.32	13.42
2N5219	.29	.20
2N5220	.29	.20
2N5221	.34	.21
2N5223	.22	.15
2N5225	.29	.18
2N5226	.34	.21
2N5227	.26	.18
2N5232	.36	.24
2N5232A	.40	.27
2N5249	.53	.35
2N5249A	.57	.38
2N5305	.47	.32
2N5306	.45	.30
2N5306A	.53	.35
2N5307	.49	.34
2N5308	.55	.37
2N5308A	.62	.41
2N5309	.59	.40
2N5310	.66	.44
2N5311	.78	.53
2N5354	.38	.25
2N5355	.43	.28
2N5365	.47	.32
2N5366	.53	.35
2N5418	.34	.22
2N5419	.38	.25
2N5777	.60	.50
2N5778	.70	.55
2N5779	1.00	.70
2N5780	1.20	.80
2N6028	1.00	.65
2N6076	.25	.17
2N6394	.96	.71
2N6395	1.04	.76
2N6396	1.13	.83
2N6397	1.58	1.16
2N6398	2.29	1.68
2N6400†	1.80	1.20
2N6401†	1.90	1.26
2N6402†	2.12	1.41
2N6403†	2.75	1.84
2N6404†	4.24	2.82
4N25, A	1.00	.85
4N26	1.00	.85
4N27, 8	.90	.75
4N29, A	1.40	1.20
4N30	1.20	1.05
4N31	1.10	.95
4N32, A	1.40	1.20
4N33	1.40	1.20
4N35	1.50	1.20
4N36	1.41	1.13
4N37	1.25	1.00
4N38, A	1.40	1.20
4N39	1.88	1.50
4N40	1.97	1.57
A14A	.36	.27
A14C	.42	.33
A14E	.60	.46
A14F	.32	.24
A14P	1.16	.82
A15A	.65	.44

GE Type	Net Ea., Lots of 1-99	100-999
A15F	$ 0.60	$ 0.41
A28A‡	5.78	3.85
A28B‡	7.32	4.88
A28C‡	9.15	6.10
A28D‡	10.59	7.06
A28F‡	4.91	3.27

GE Type	Net Ea., Lots of 1-9	10-99
A70PA	$31.46	$18.76
A70S	25.41	15.13
A70T	29.04	17.44

GE Type	Net Ea., Lots of 1-99	100-999
A114A	$ 0.88	$ 0.59
A114B	1.01	.67
A114C	1.07	.68
A114D	1.13	.83
A114E	1.45	.96
A114F	.82	.55
A114M	1.60	1.02
A115A	1.64	.93
A115B	1.98	1.10
A115C	2.32	1.40
A115D	2.68	1.72
A115E	3.12	2.06
A115F	1.58	.90
A115M	3.91	2.39
A139E	13.00	8.67
A139M	14.12	9.42
A139N	16.37	10.91
A139P	18.62	12.41

GE Type	Net Ea., Lots of 1-9	10-99
A170B	$25.30	$15.13
A170C	25.41	15.24
A170D	25.74	15.51
A170E	26.02	15.73
A170M	26.62	15.95
A170N	30.58	18.37
A170P	33.33	19.97
A170PA	34.65	20.79
A170PB	35.97	21.56
A170PC	37.29	22.39
A170PD	38.72	23.21
A170PE	39.93	23.98
A170S	27.94	16.83
A170T	31.90	19.20
A177A	26.62	15.95
A177B	27.06	16.28
A177C	27.61	16.56
A177D	28.05	16.89
A177E	34.87	17.44
A177M	30.03	18.04
A177N	36.96	22.17
A177P	47.85	23.93
A177PA	41.80	25.03
A177PB	43.01	25.80
A177PC	44.88	26.95
A177PD	47.41	28.49
A177PE	48.95	29.43
A177S	35.42	21.23
A177T	38.50	23.10
A180A	25.41	15.24
A180B	25.85	15.57
A180C	26.40	15.84
A180D	26.84	16.17
A180E	27.83	16.72
A180M	29.81	17.88
A180N	34.76	20.85
A180P	37.95	22.77
A180PA	39.82	23.93
A180PB	41.25	24.75
A180PC	42.79	25.69
A180PD	44.00	26.40
A180PE	45.54	27.34
A180S	31.79	19.09
A180T	35.97	21.62
A187A	27.83	16.72
A187B	28.38	17.00
A187C	28.82	17.33
A187D	30.36	18.21
A187E	31.90	19.09
A187M	32.89	19.75
A187N	40.48	24.31
A187P	43.67	26.18
A187PA	45.76	27.50
A187PB	47.41	28.49
A187PC	49.39	29.59
A187PD	52.14	31.30
A187PE	53.79	32.29
A187S	38.94	23.43

GE Type	Net Ea., Lots of 1-9	10-99
A187T	$42.35	$25.41
A190A	33.72	20.30
A190B	33.72	20.30
A190C	34.82	20.90
A190D	34.82	20.90
A190E	37.51	22.72
A190M	40.59	24.53
A190N	46.64	27.83
A190P	52.69	31.46
A190PA	55.66	33.28
A190PB	58.74	35.09
A190PC	61.27	36.74
A190PD	64.35	38.61
A190PE	67.54	40.54
A190S	43.56	26.02
A190T	50.27	30.25
A197A	32.89	19.64
A197B	36.74	22.17
A197C	40.48	24.37
A197D	44.33	26.57
A197E	48.73	29.10
A197M	53.13	31.96
A197N	61.38	36.69
A197P	69.63	41.75
A197PA	71.06	42.63
A197PB	73.92	44.33
A197PC	76.12	45.65
A197PD	78.98	47.36
A197PE	79.97	47.96
A197S	56.98	34.16
A197T	65.12	39.22
A390M	30.25	18.15
A390N	35.75	21.51
A390P	40.59	24.20
A390PA	43.01	25.74
A390PB	45.98	27.56
A390S	32.67	19.69
A390T	38.17	22.99
A390PC	48.84	29.37
A390PD	51.81	31.08
A390PE	54.67	32.78
A397A	34.21	20.52
A397B	34.21	20.52
A397C	34.21	20.52
A397D	36.08	21.51
A397E	39.82	24.04
A397M	42.35	25.30
A397N	49.39	29.76
A397P	56.98	34.16
A397PA	60.17	36.14
A397PB	63.25	37.95
A397PC	66.00	39.60
A397PD	68.86	41.31
A397PE	71.61	42.96
A397S	45.76	27.45
A397T	53.13	31.96
A430E	67.10	40.21
A430M	74.69	44.77
A430N	89.87	53.90
A430P	106.26	63.75
A430S	82.28	49.34
A430T	96.25	58.47
A430PA	113.85	68.31
A430PB	120.23	72.11
A430PC	127.82	76.67
A430PD	134.09	80.47
A430PE	141.68	85.03
A437E	82.50	49.50
A437M	95.04	57.04
A437N	120.12	72.05
A437P	145.97	87.56
A437PA	158.40	95.04
A437PB	171.60	102.96
A430PC	127.82	76.67
A430PD	134.09	80.47
A430PE	141.68	85.03
A437E	82.50	49.50
A437M	95.04	57.04
A437N	120.12	72.05
A437P	145.97	87.56
A437PA	158.40	85.04
A437PB	171.60	102.96
A437PC	180.84	108.52
A437PD	198.00	118.80
A437PE	216.48	129.91
A437S	107.58	64.57
A437T	132.66	79.59
A500L	156.86	94.11
A500LA	159.39	95.65
A500LB	161.92	97.13
A500LC	164.45	98.67
A500LD	166.98	100.21
A500LE	169.51	101.70
A500LM	172.04	103.24
A500LN	177.10	106.26
A500LP	182.16	109.29
A500LS	174.57	104.72
A500LT	179.63	107.80
A500PE	141.68	85.03
A500PM	144.21	86.52
A500PN	149.27	89.54
A500PS	146.74	88.06

*Available in reverse polarity at same price; to order, add suffix **R**, i.e., 1N248**R**, 1N248**RA**, etc. †Prices include mounting hardware. For insulating hardware, add **$0.10** per unit, any quantity. ‡Prices include mounting hardware. For insulating hardware, add **$0.25** per unit, any quantity. ♦Contact factory.

PRICES LISTED ARE FOR GUIDANCE ONLY

OEM Semiconductor Pricing

GE Type	Net Ea., Lots of 1-9	10-99
A500PT	$151.80	$ 91.08
A540L	197.34	118.42
A540LA	207.46	124.47
A540LB	217.58	207.57
A540LC	227.70	136.62
A540LD	237.82	142.67
A540T	126.50	75.90
A570A	146.74	88.06
A570B	151.80	91.08
A570C	156.86	94.11
A570D	161.92	97.13
A570E	166.98	100.21
A570M	172.04	103.24
A596P	187.22	112.31
A596PA	197.34	118.42
A596PB	207.46	124.47
A596PC	222.64	133.60
A596PD	240.35	144.21
A640L	344.08	206.47
A640P	194.81	116.88
A640PA	207.46	124.47
A640PB	220.11	132.06
A640PC	232.76	139.65
A640PD	245.41	147.24
A640PE	260.59	156.37
A640PM	275.77	165.46
A640PN	308.66	185.19
A640PS	290.95	174.57
A640PT	326.37	195.80
A696PB	293.48	176.11
A696PC	301.07	180.62
A696PD	311.19	186.73
A696PE	323.84	194.32
A696PM	339.02	203.39
A696PN	376.97	226.16
A696PS	356.73	214.06
A696PT	399.74	239.86
A696L	425.05	255.04

GE Type	Net Ea., Lots of 1-99	100-999
BD1, 2	$15.05	$ 9.20
BD3	9.60	5.52
BD4	15.05	9.20
BD5, 6, 7	31.92	19.50
BD402, 3, 4, 5, 6, 7	77.61	38.81
BPW36	1.80	1.44
BPW37	1.65	1.32
BPW38	2.20	1.85
C15A‡	2.78	2.19
C15B‡	2.99	2.35
C15C‡	3.80	3.01
C15D‡	4.25	3.36
C15E‡	6.81	5.36
C15F‡	2.55	2.00
C15G‡	2.92	2.30
C15M‡	7.77	6.12
C15U‡	2.47	1.95
C35A‡	5.05	3.67
C35B‡	6.77	4.93
C35C‡	8.09	5.89
C35D‡	8.83	6.42
C35E‡	9.53	6.93
C35F‡	3.96	3.56
C35G‡	5.93	4.31
C35H‡	7.51	5.46
C35M‡	10.42	7.58
C35S‡	11.03	8.03
C35U‡	3.36	3.03
C37A‡	4.67	3.34
C37B‡	6.33	4.54
C37C‡	7.71	5.52
C37D‡	8.82	6.31
C37E‡	9.91	7.09
C37F‡	3.69	3.32
C37M‡	10.87	7.79
C37S‡	11.65	8.35
C37U‡	3.22	2.90
C38A‡	6.81	4.87
C38B‡	8.93	6.40
C38C‡	11.65	8.35
C38D‡	14.57	10.43
C38E‡	17.48	12.52
C38F‡	5.34	4.80
C38G‡	7.96	5.70
C38H‡	10.68	7.65
C38U‡	4.86	4.38

GE Type	Net Ea., Lots of 1-9	10-99
C45B	$26.22	$15.71
C45C	31.19	18.71
C45D	35.46	21.25
C45E	39.96	23.97
C45H	$28.64	$17.21
C45M	44.93	26.97
C45N	52.90	31.76
C45P	62.83	37.72
C45PA	67.34	40.43
C45PB	71.15	42.68
C45S	49.43	29.68
C45T	58.67	35.23
C46B	26.22	15.71
C46C	31.19	18.71
C46D	35.46	21.25
C46E	39.96	23.97
C46H	28.76	17.27
C46M	44.93	26.97
C46N	52.90	31.76
C46P	62.83	37.72
C46PA	67.34	40.43
C46PB	71.15	42.68
C46S	49.43	29.68
C46T	58.67	35.23
C50AX500	27.26	16.40
C50BX500	32.92	19.75
C50CX500	39.15	23.51
C50DX500	45.28	27.21
C50E	46.43	27.84
C50EX500	51.17	30.72
C50M	51.74	31.07
C50MX500	56.94	34.19
C50N	62.37	37.42
C50P	72.30	43.38
C50PA	77.39	46.43
C50PB	83.62	50.19
C50S	57.17	34.30
C50T	67.34	40.43
C52AX500	27.26	16.40
C52BX500	32.92	19.75
C52CX500	39.15	23.51
C52DX500	45.28	27.21
C52E	46.43	27.84
C52EX500	51.17	30.72
C52M	51.74	31.07
C52MX500	56.94	34.19
C52N	62.37	37.42
C52P	72.30	43.38
C52PA	77.39	46.43
C52PB	83.62	50.19
C52S	57.17	34.30
C52T	67.34	40.43
C60E	71.28	42.79
C62A	41.58	24.97
C62B	45.10	27.06
C62C	47.52	28.49
C62D	51.04	30.64
C62E	71.28	42.79
C62F	36.85	22.11
C62G	45.10	27.06
C62H	46.31	27.78
C62U	28.49	17.11

GE Type	Net Ea., Lots of 1-99	100-999
C103A	$ 0.80	$ 0.54
C103B	$ 0.90	$ 0.60
C103Q	.64	.43
C103Y	.67	.45
C103YY	.71	.47
C106A	.42	.37
C106B	.47	.42
C106C	.59	.51
C106D	.68	.60
C106E	.82	.73
C106F	.41	.36
C106M	.95	.85
C106Q	.37	.33
C106Y	.39	.34
C107A	.40	.35
C107B	.44	.37
C107C	.56	.48
C107D	.64	.55
C107E	.80	.68
C107F	.39	.34
C107M	.91	.80
C107Q	.36	.32
C107Y	.37	.33
C108A	1.05	.70
C108B	1.17	.78
C108C	1.44	.96
C108D	1.69	1.12
C108E	1.93	1.28
C108F	1.01	.67
C108M	2.41	1.61
C108Q	.92	.62
C108Y	.96	.64
C118A	.89	.70
C118B	.90	.71
C118C	.94	.76
C118D	1.03	.82
C118E	1.18	.95
C118F	.86	.69

GE Type	Net Ea., Lots of 1-99	100-999
C118M	$ 1.54	$ 1.23
C122A†	.97	.77
C122B†	1.06	.83
C122C†	1.33	1.05
C122D†	1.50	1.19
C122E†	1.77	1.39
C122F†	.89	.70
C122M†	2.20	1.74
C126A†	1.14	.91
C126B†	1.24	.97
C126C†	1.50	1.19
C126D†	1.68	1.33
C126E†	1.95	1.53
C126F†	1.06	.83
C126M†	2.39	1.88
C127C†	2.44	1.63
C127E†	3.50	2.33
C137E‡	10.43	7.51
C137M‡	11.56	8.32
C137N‡	17.33	11.56
C137P‡	22.63	15.09
C137PB‡	28.41	18.94
C137S‡	14.28	9.52
C137T‡	19.74	13.16
C138E10E	25.68	13.27
C138E20E	19.90	13.27
C138M10M	28.73	19.15
C138M20M	21.67	14.45
C138N10M	34.35	22.90
C138N20M	26.16	17.44
C138S10M	30.12	19.58
C138S20M	23.81	15.84
C139E10E	27.45	18.30
C139E20E	22.31	14.87
C139M10M	28.73	19.15
C139M20M	24.88	16.59
C139N10M	37.24	24.82
C139N20M	30.33	20.22
C139S10M	33.71	22.47
C139S20M	28.52	18.30
C144E15E	24.88	16.59
C144E30E	19.10	12.73
C144M15M	27.93	18.62
C144M30M	20.87	13.91
C144N15M	33.54	22.36
C144N30M	25.36	16.91
C144S15M	28.03	20.12
C144S30M	23.11	15.41

GE Type	Net Ea., Lots of 1-9	10-99
C147A	$18.48	$11.11
C147B	19.03	11.44
C147C	19.58	11.77
C147D	21.34	12.82
C147E	23.76	14.25
C147M	27.28	16.39
C147N	36.85	22.11
C147P	46.31	27.78
C147PA	51.04	30.64
C147PB	55.88	33.55
C147S	32.12	19.25
C147T	41.58	24.97
C148M30	41.58	24.97
C148M40	35.64	21.40
C148N30	53.46	32.07
C148N40	45.76	27.45
C148P30	65.34	39.22
C148P40	55.88	33.55
C148PA30	71.28	42.79
C148PA40	60.61	36.36
C148PB30	77.22	46.31
C148PB40	65.34	39.22
C148S30	47.52	28.49
C148S40	40.37	24.20
C148T30	59.40	35.64
C148T40	50.49	30.31
C148A10	24.97	14.96
C149A20	22.00	13.20
C149B10	30.91	18.54
C149B20	26.73	16.06
C149C10	36.30	21.78
C149C20	32.12	19.25
C149D10	42.13	25.30
C149D20	36.85	22.50
C149E10	53.46	32.07
C149E20	45.10	27.06
C149M10	64.79	38.89
C149M20	53.46	32.07
C150E	46.97	28.16
C150M	52.25	31.35
C150N	65.34	39.22
C150P	78.43	47.08
C150PA	83.71	50.22
C150PB	90.31	54.18
C150PC	98.01	58.80
C150S	59.95	35.97
C150T	71.83	43.12
C152E	46.97	28.16
C152M	$52.25	$31.35
C152N	65.34	39.22
C152P	78.43	47.08
C152PA	83.71	50.22
C152PB	90.31	54.18
C152PC	98.01	58.80
C152S	59.95	35.97
C152T	71.83	43.12
C154A	34.43	20.68
C154B	42.13	25.30
C154C	47.52	28.49
C154D	58.19	34.93
C154E	70.62	42.35
C155A	32.12	19.25
C155B	39.16	23.49
C155C	46.31	27.78
C155D	53.46	32.07
C155E	63.58	38.17
C155M	76.01	45.60
C156A	34.43	20.68
C156B	42.13	25.30
C156C	47.52	28.49
C156D	58.19	34.93
C156E	70.62	42.35
C157A	32.12	19.25
C157B	39.16	23.49
C157C	46.31	27.78
C157D	53.46	32.07
C157E	63.58	38.17
C157M	76.01	45.60
C158E	52.91	31.74
C158M	63.47	38.06
C158N	84.37	50.60
C158P	105.16	63.09
C158PA	115.28	69.19
C158PB	125.95	75.57
C158S	73.70	44.22
C158T	94.49	56.71
C159E	52.91	31.74
C159M	63.47	38.06
C159N	84.37	50.60
C159P	105.16	63.09
C159PA	115.28	69.19
C159PB	125.95	75.57
C159S	73.70	44.22
C159T	94.49	56.71
C164A	42.79	25.69
C164A2	42.79	25.69
C164B	52.25	31.35
C164B2	52.25	31.35
C164C	61.60	36.96
C164C2	61.60	36.96
C164D	70.84	42.52
C164D2	70.84	42.52
C164E	75.35	45.21
C164E2	75.35	45.21
C164M	84.59	50.77
C164M2	84.59	50.77
C165A	40.37	24.20
C165A2	40.37	24.20
C165B	49.17	29.48
C165B2	49.17	29.48
C165C	57.20	34.32
C165C2	57.20	34.32
C165D	65.12	39.05
C165D2	65.12	39.05
C165E	68.42	41.03
C165E2	68.42	41.03
C165M	76.34	45.82
C165M2	76.34	45.82
C165N	92.40	55.44
C165S	84.04	50.44
C180A	47.52	28.49
C180AX500	52.36	31.46
C180B	51.04	30.64
C180BX500	56.21	33.77
C180C	55.88	33.55
C180CX500	61.49	36.91
C180D	61.82	37.07
C180DX500	68.09	40.87
C180E	68.86	41.31
C180EX500	75.79	45.49
C180MX500	86.35	51.81
C180M	78.43	47.08
C180N	110.44	66.28
C180P	130.68	78.43
C180PA	147.29	88.39
C180PB	147.29	88.39
C180PC	156.86	94.11
C180S	92.62	55.55
C184A	84.81	50.88
C184B	91.30	54.78
C184C	100.54	60.34
C184D	112.64	67.60
C184E	131.89	79.15
C184M	154.00	92.40
C185A	70.73	42.46
C185B	76.01	45.60
C185C	83.71	50.22
C185D	93.83	56.32
C185E	109.89	65.95
C185M	128.26	76.95

*Available in reverse polarity at same price; to order, add suffix **R**, i.e., 1N248**R**, 1N248**RA**, etc. †Prices include mounting hardware. For insulating hardware, add **$0.10** per unit, any quantity. ‡Prices include mounting hardware. For insulating hardware, add **$0.25** per unit, any quantity. ♦Contact factory.

OEM Semiconductor Pricing

GE Type	Net Ea., Lots of 1-99	100-999
C203A	$ 0.58	$ 0.33
C203B	.63	.34
C203C	.68	.40
C203D	.81	.50
C203Q	.45	.30
C203Y	.55	.31
C203YY	.56	.32
C220A‡	2.19	1.61
C220B‡	2.25	1.63
C220C‡	2.58	1.88
C220D‡	2.80	2.03
C220E‡	3.52	2.56
C220F‡	2.14	1.55
C220M‡	4.18	3.04
C222A	1.98	1.50
C222B	2.03	1.52
C222C	2.41	1.78
C222D	2.57	1.93
C222E	2.93	2.45
C222F	1.93	1.44
C222M	3.85	2.89
C228A‡	3.71	2.92
C228B‡	6.18	4.87
C228C‡	6.62	5.22
C228D‡	7.68	6.06
C228E‡	8.12	6.40
C228F‡	3.53	2.78
C228M‡	8.56	6.75
C229A	3.45	2.72
C229B	5.21	4.11
C229C	6.36	5.01
C229D	7.42	5.84
C229E	7.85	6.20
C229F	3.21	2.57
C229M	8.30	6.54
C230A‡	3.53	2.77
C230B‡	4.73	3.72
C230C‡	5.56	4.39
C230D‡	6.30	4.96
C230E‡	7.04	5.55
C230F‡	3.32	2.56
C230M‡	7.36	5.80
C231A‡	3.80	3.00
C231B‡	5.01	3.95
C231C‡	5.84	4.61
C231D‡	6.58	5.19
C231E‡	7.33	5.78
C231F‡	3.48	2.78
C231M‡	7.64	6.02
C232A	3.24	2.56
C232B	4.45	3.51
C232C	5.29	4.17
C232D	6.02	4.75
C232E	6.76	5.34
C232F	2.60	2.34
C232M	7.08	5.59
C233A	3.53	2.77
C233B	4.72	3.73
C233C	5.56	4.39
C233D	6.30	4.96
C233E	7.04	5.55
C233F	3.32	2.56
C233M	7.36	5.80
C234A‡	4.07	3.20
C234B‡	5.83	4.59
C234C‡	6.98	5.50
C234D‡	8.04	5.80
C234E‡	8.47	6.68
C234F‡	3.85	2.96
C234M‡	8.91	7.03

GE Type	Net Ea., Lots of 1-9	10-99
C350A, B	♦	♦
C350C	$30.25	$18.15
C350D	33.22	19.91
C350E	35.64	21.40
C350M	40.37	24.20
C350N	51.04	30.64
C350P	61.82	37.07
C350PA	66.55	39.93
C350PB	71.28	42.79
C350PC	80.74	48.46
C350S	46.31	27.78
C350T	55.88	33.55
C354A	27.28	16.39
C354B	33.22	19.91
C354C	39.16	23.49
C354D	45.10	27.06
C354E	54.67	32.78
C354M	64.79	38.89
C355A	24.97	14.96
C355B	30.91	18.54
C355C	35.64	21.40
C355D	41.58	24.97
C355E	49.94	29.98
C355M	58.19	34.93
C358E	49.94	29.98
C358M	59.95	35.97

GE Type	Net Ea., Lots of 1-9	10-99
C358N	$78.43	$47.08
C358P	97.46	58.47
C358PA	106.92	64.13
C358PB	115.94	69.58
C358S	70.73	42.46
C358T	87.89	52.75
C364A	43.34	26.02
C364B	49.94	29.98
C364C	56.98	34.21
C364D	63.58	38.17
C364E	71.83	43.12
C364M	79.64	47.80
C365A	37.40	22.44
C365B	39.82	23.87
C365C	45.76	27.45
C365D	49.28	29.59
C365E	56.98	34.21
C365M	63.58	38.17
C365N	77.22	46.31
C365S	70.07	42.02
C376E	201.63	121.00
C376M	230.56	138.33
C376N	293.81	176.28
C376P	357.28	214.39
C376PA	388.96	236.67
C376PB	417.78	250.69
C376PC	451.22	270.71
C376PD	488.40	293.04
C376S	265.10	159.06
C376T	325.60	195.36
C377E	182.93	109.78
C377M	209.11	125.46
C377N	266.53	159.94
C377P	324.06	194.43
C377PA	352.88	211.75
C377PB	378.95	227.37
C377PC	409.31	245.58
C377PD	443.08	265.87
C377S	240.46	144.27
C377T	295.35	177.21
C378E	192.06	115.23
C378M	219.56	131.73
C378N	279.84	167.92
C378P	340.23	204.16
C378PA	370.48	222.31
C378PB	397.87	238.70
C378PC	429.77	257.84
C378PD	465.19	279.13
C378S	252.45	151.47
C378T	310.09	186.07
C380A	38.06	22.83
C380AX500	41.91	25.19
C380B	40.37	24.20
C380BX500	44.44	26.95
C380C	45.10	27.06
C380CX500	49.61	29.81
C380D	52.25	31.35
C380DX500	57.53	34.54
C380E	61.82	37.07
C380EX500	68.09	40.87
C380EX555	68.09	40.87
C380M	71.28	42.79
C380MX500	78.43	47.08
C380MX555	78.43	47.08
C380N	90.31	54.18
C380NX555	99.33	59.62
C380P	109.34	65.62
C380PA	121.22	72.71
C380PB	130.68	78.43
C380PC	140.14	84.10
C380PAX555	133.43	80.08
C380PBX555	143.77	86.30
C380PX555	120.34	72.22
C380S	80.74	48.46
C380SX555	88.88	53.35
C380T	99.77	59.84
C380TX555	109.78	65.89
C384A	68.42	41.03
C384B	74.14	44.50
C384C	79.86	47.91
C384D	91.19	54.73
C384E	108.35	65.01
C384M	125.40	75.24
C385A	56.98	34.21
C385B	61.82	37.07
C385C	66.55	39.93
C385D	76.01	45.60
C385E	90.31	54.18
C385M	104.50	62.70
C385N	138.27	82.94
C385S	120.23	72.16
C387E	135.41	81.24
C387M	152.02	91.19
C387N	194.81	116.88
C387P	235.18	141.13
C387PA	256.63	154.00
C387PB	275.66	165.39
C387S	175.78	105.49
C387T	213.84	128.32
C388E	149.71	89.82
C388M	171.05	102.63
C388N	218.57	131.12

GE Type	Net Ea., Lots of 1-9	10-99
C388P	$266.09	$159.67
C388PA	289.85	173.91
C388PB	308.88	185.35
C388S	197.23	118.36
C388T	242.33	145.42
C390AX500	71.39	42.85
C390AX550	78.54	47.14
C390BX500	79.86	47.96
C390BX550	87.89	52.75
C390CX500	88.33	53.02
C390CX550	97.24	58.36
C390DX500	96.80	58.08
C390DX550	106.48	63.91
C390EX500	105.27	63.20
C390EX555	105.27	63.20
C390M	103.40	62.04
C390MX500	113.74	68.26
C390MX555	113.74	68.26
C390N	129.47	77.66
C390NX555	142.45	85.47
C390P	152.02	91.19
C390PA	162.80	97.68
C390PB	173.47	104.06
C390PC	185.35	111.21
C390PAX555	179.08	107.47
C390PBX555	190.85	114.51
C390PX555	167.31	100.43
C390S	117.59	70.57
C390SX555	129.36	77.66
C390T	137.83	82.72
C290TX555	151.69	91.03
C391PC	185.35	111.21
C391PD	195.47	117.26
C391PE	207.35	124.41
C391PM	218.57	131.12
C391PN	241.12	144.65
C391PS	235.18	141.13
C392A	127.16	76.29
C392B	136.62	81.95
C392C	143.77	86.24
C392D	152.02	91.19
C392E	161.59	96.97
C392M	185.35	111.21
C393A	117.59	70.57
C393B	127.16	76.29
C393C	136.62	81.95
C393D	144.98	87.01
C393E	154.44	92.68
C393M	173.47	104.06
C394A	156.86	94.11
C394B	167.53	100.54
C394C	178.20	106.92
C394D	188.87	113.30
C394E	199.54	119.74
C394M	228.14	136.90
C395A	144.98	87.01
C395B	154.44	92.68
C395C	163.90	98.34
C395D	172.26	103.35
C395E	180.62	108.35
C395M	209.11	125.46
C397E	149.71	89.82
C397M	171.05	102.63
C397N	218.57	131.12
C397P	266.09	159.67
C397PA	289.85	173.91
C397PB	308.88	185.35
C397S	197.23	118.36
C397T	242.33	145.42
C398E	166.32	99.77
C398M	190.08	114.07
C398N	242.33	145.42
C398P	294.58	176.77
C398PA	320.76	192.45
C398PB	344.52	206.69
C398S	218.57	131.12
C398T	268.51	161.10
C430AX500	67.43	40.48
C430AX550	74.25	44.55
C430BX500	75.13	45.10
C430BX550	82.72	49.67
C430CX500	82.94	49.78
C430CX550	91.30	54.78
C430DX500	90.64	54.40
C430DX550	99.77	59.90
C430EX500	98.45	59.07
C430EX555	98.45	59.07
C430MX500	109.78	65.89
C430MX555	109.78	65.89
C430N	138.60	83.16
C430P	148.50	89.10
C430PA	159.17	95.48
C430PAX555	175.12	105.11
C430PBX555	186.89	112.15
C430PB	169.84	101.92
C430PC	181.72	109.01
C430PX555	163.35	98.01
C430S	114.07	68.42
C430SX555	125.51	75.35
C430T	134.20	80.52
C430TX555	147.62	88.61
C431PC	181.72	109.01

GE Type	Net Ea., Lots of 1-9	10-99
C431PD	$191.84	$115.12
C431PE	203.72	122.21
C431PM	215.05	129.03
C431PN	237.60	142.56
C431PS	231.66	138.99
C434A	153.23	91.96
C434B	163.90	98.34
C434C	174.68	104.83
C434D	185.35	111.21
C434E	196.02	117.59
C434M	224.51	134.70
C434S	260.70	156.42
C435A	141.35	84.81
C435B	150.92	90.53
C435C	160.38	96.25
C435D	168.74	101.26
C435E	176.99	106.21
C435M	205.48	123.31
C435S	228.69	137.23
C436E	170.94	102.58
C436N	250.80	150.48
C436M	185.91	117.59
C436P	197.45	184.47
C436PA	333.08	199.87
C436PB	358.05	214.83
C436S	225.83	135.52
C436T	278.19	166.93
C437E	146.08	87.67
C437M	167.53	100.54
C437N	215.05	129.03
C437P	262.57	157.52
C437PA	286.33	171.82
C437PB	305.36	183.21
C437S	193.60	116.16
C437T	238.81	143.28
C438E	162.80	97.68
C438M	186.56	111.93
C438N	238.81	143.28
C438P	292.82	175.67
C438PA	317.24	190.36
C438PB	341.00	204.60
C438S	215.11	129.03
C438T	264.88	158.95
C440M	194.81	116.88
C440N	220.99	132.61
C440P	254.21	152.52
C440PA	275.66	165.39
C440PB	320.76	192.45
C440S	206.69	124.03
C440T	237.60	142.56
C441PB	213.84	128.32
C441PC	225.72	135.41
C441PD	247.50	146.85
C441PE	261.36	156.81
C441PM	282.70	169.62
C441PN	323.18	193.93
C441PS	301.73	181.06
C444A	213.84	128.32
C444B	249.48	149.71
C444C	280.39	168.25
C444D	313.61	188.16
C444E	344.74	206.86
C444M	380.16	228.09
C445A	185.35	111.21
C445B	218.57	131.12
C445C	249.84	149.71
C445D	282.70	169.62
C445E	313.61	188.16
C445M	346.94	208.18
C445S	377.74	226.66
C447N	272.69	163.63
C447P	331.21	198.72
C447PA	361.46	216.87
C447PB	387.75	232.65
C447S	244.42	146.63
C447T	300.96	180.57
C448N	288.64	173.20
C448P	350.68	210.43
C448PA	382.58	229.57
C448PB	410.52	246.29
C448S	258.72	155.21
C448T	318.34	191.02
C457E	249.48	149.71
C457M	277.97	166.76
C457N	342.10	205.26
C457P	403.92	242.33
C457PA	434.83	260.92
C457PB	463.32	277.97
C457PC	496.54	297.94
C457PD	527.45	316.47
C457S	208.88	131.29
C457T	361.13	216.70
C458E	261.91	157.19
C458M	291.83	175.12
C458N	359.15	215.49
C458P	424.16	254.49
C458PA	456.50	273.90
C458PB	486.42	291.83
C458PC	521.29	312.79
C458PD	553.74	332.26
C458S	324.28	194.59
C458T	379.17	227.48

*Available in reverse polarity at same price; to order, add suffix **R**, i.e., 1N248**R**, 1N248**RA**, etc. †Prices include mounting hardware. For insulating hardware, add **$0.10** per unit, any quantity. ‡Prices include mounting hardware. For insulating hardware, add **$0.25** per unit, any quantity. ♦Contact factory.

PRICES LISTED ARE FOR GUIDANCE ONLY

OEM Semiconductor Pricing

GE Type	Net Ea., Lots of 1-9	10-99
C501L	$352.55	$211.53
C501PC	203.94	122.38
C501PD	216.59	129.97
C501PE	231.66	138.99
C501PM	249.37	149.60
C501PS	269.50	161.70
C502L	332.64	199.60
C502LA	344.52	206.69
C502PT	315.81	188.16
C602L	335.06	201.03
C602LA	353.98	212.41
C602LB	365.86	219.51
C602LC	389.62	233.75
C602LD	415.80	249.48
C602LE	444.29	266.59
C602LM	475.20	285.12
C602LN	546.48	327.91
C612PE	384.89	230.95
C612PM	401.50	240.90
C612PN	472.78	283.69
C612PS	444.29	266.59
C702L	510.84	306.52
C702LA	560.78	336.49
C702LB	620.18	372.13
C702LC	686.62	411.95
C712L	831.60	498.96
C712PE	574.97	344.96
C712PM	601.15	360.69
C712PN	672.43	403.48
C712PS	634.37	380.60
C712PT	717.53	430.54

GE Type	Net Ea., Lots of 1-99	100-999
D5J43	$ 1.47	$ 0.97
D5J44	1.35	.91
D5K1	11.42	7.62
D5K2	6.36	4.24
D13T3	.94	.63
D13T4	1.87	1.26
D16P1	.40	.27
D29E1	.55	.37
D29E2	.59	.40
D29E4	.49	.34
D29E5	.55	.37
D29E6	.59	.40
D29E9	.92	.62
D29E10	1.00	.66
D33D21	.49	.34
D33D22	.55	.37
D33D24	.45	.30
D33D25	.49	.34
D33D26	.55	.37
D33D29	.87	.58
D33D30	.92	.62
D33D21-J1	.51	.36
D33D22-J1	.57	.39
D33D24-J1	.47	.33
D33D25-J1	.51	.36
D33D26-J1	.57	.39
D33D29-J1	.89	.60
D33D30-J1	.95	.64
D38H1	.56	.37
D38H2	.63	.42
D38H3	.69	.46
D38H4	.63	.42
D38H5	.76	.50
D38H6	.82	.55
D38L1	.72	.43
D38L2	.85	.51
D38L3	.91	.55
D38L4	.63	.38
D38L5	.76	.45
D38L6	.72	.43
D38S1	.68	.49
D38S2	.76	.55
D38S3	.89	.64
D38S5	.76	.55
D38S6	.82	.57
D38S7	.99	.71
D38S8	.62	.44
D38S9	.79	.57
D38S10	1.09	.79
D38W7	.57	.38
D38W8	.63	.42
D38W9	.79	.53
D38W10	1.03	.68
D39C1	.82	.49
D39C2	.85	.57
D39C3	1.01	.60
D39C4	.71	.47
D39C5	.85	.50
D39C6	.82	.49
D39J1	.62	.41
D39J2	.69	.46
D39J3	.76	.50
D39J4	.69	.46
D39J5	.82	.55
D39J6	.88	.59

GE Type	Net Ea., Lots of 1-99	100-999
D40C1†	$ 0.67	$ 0.44
D40C2†	.93	.62
D40C3†	1.05	.69
D40C4†	.75	.50
D40C5†	1.07	.71
D40C7†	1.07	.71
D40C8†	1.34	.89
D40D1†	.64	.43
D40D2†	.81	.54
D40D3†	.86	.57
D40D4†	.78	.51
D40D5†	.88	.59
D40D7†	.86	.57
D40D8†	.97	.64
D40D10†	1.02	.68
D40D11†	1.07	.71
D40D13†	.86	.57
D40D14†	1.07	.71
D40E1†	.64	.42
D40E5†	.75	.53
D40E7†	1.00	.66
D40K1†	.86	.57
D40K2†	.98	.65
D40K3†	.88	.59
D40K4†	1.00	.66
D40P1†	.85	.57
D40P3†	.97	.64
D40P5†	1.19	.79
D40V1†	.82	.60
D40V2†	.83	.55
D40V3†	.89	.60
D40V4†	.91	.61
D40V5†	1.06	.70
D40V6†	1.09	.72
D41D1†	.69	.46
D41D2†	.91	.61
D41D4†	.83	.56
D41D5†	1.05	.69
D41D7†	.91	.61
D41D8†	1.19	.79
D41D10†	1.09	.74
D41D11†	1.26	.84
D41D13†	.91	.61
D41D14†	1.16	.77
D41E1†	.69	.46
D41E5†	.86	.57
D41E7†	1.10	.74
D41K1†	.93	.63
D41K2†	1.04	.71
D41K3†	.89	.61
D41K4†	.99	.67
D42C1†	.81	.54
D42C2†	.88	.59
D42C3†	.95	.62
D42C4†	.91	.61
D42C5†	1.07	.71
D42C6†	1.16	.77
D42C7†	1.05	.69
D42C8†	1.23	.82
D42C9†	1.26	.84
D42C10†	1.18	.79
D42C11†	1.29	.86
D42C12†	1.39	.92
D42D1†	1.00	.74
D42D2†	1.00	.74
D42D3†	1.11	.90
D42D4†	1.11	.90
D42D5†	1.29	1.03
D42D6†	1.29	1.03
D42T1†	.76	.50
D42T2†	1.10	.74
D42T3†	1.16	.77
D42T4†	1.21	.81
D42T5†	.98	.65
D42T6†	1.09	.72
D42T7†	1.11	.75
D42T8†	1.27	.84
D43C1†	.88	.59
D43C2†	.95	.63
D43C3†	1.01	.67
D43C4†	.99	.66
D43C5†	1.21	.80
D43C6†	1.28	.86
D43C7†	1.10	.74
D43C8†	1.37	.91
D43C9†	1.40	.93
D43C10†	1.28	.86
D43C11†	1.40	.93
D43C12†	1.48	.99
D43D1†	1.06	.79
D43D2†	1.06	.79
D43D3†	1.21	.89
D43D4†	1.21	.89
D43D5†	1.34	1.00
D43D6†	1.34	1.00
D44C1†	.92	.62
D44C2†	1.03	.69
D44C3†	1.03	.69
D44C4†	1.02	.68
D44C5†	1.13	.75
D44C6†	1.14	.76
D44C7†	1.16	.77

GE Type	Net Ea., Lots of 1-99	100-999
D44C8†	$ 1.17	$ 0.78
D44C9†	1.21	.80
D44C10†	1.21	.80
D44C11†	1.29	.86
D44C12†	1.33	.88
D44D1†	1.19	.88
D44D2†	1.27	.92
D44D3†	1.28	.95
D44D4†	1.41	1.13
D44D5†	1.43	1.06
D44D6†	1.64	1.30
D44E1†	1.77	1.20
D44E2†	1.93	1.30
D44E3†	2.08	1.42
D44H1†	1.54	1.03
D44H2†	1.68	1.12
D44H4†	1.68	1.12
D44H5†	1.83	1.21
D44H7†	1.89	1.27
D44H8†	1.96	1.31
D44H10†	2.06	1.38
D44H11†	2.23	1.50
D44Q1†	1.69	1.12
D44Q3†	1.80	1.20
D44Q5†	1.91	1.27
D44T1†	1.45	.97
D44T2†	1.54	1.02
D44T3†	1.58	1.07
D44T4†	1.66	1.10
D44T5†	1.40	.92
D44T6†	1.54	1.02
D44T7†	1.57	1.05
D44T8†	1.74	1.16
D45C1†	.98	.66
D45C2†	1.03	.70
D45C3†	1.13	.75
D45C4†	1.11	.74
D45C5†	1.17	.78
D45C6†	1.21	.80
D45C7†	1.27	.85
D45C8†	1.30	.86
D45C9†	1.33	.88
D45C10†	1.33	.88
D45C11†	1.43	.95
D45C12†	1.44	.96
D45D1†	1.27	.94
D45D2†	1.35	.99
D45D3†	1.36	1.01
D45D4†	1.52	1.13
D45D5†	1.53	1.13
D45D6†	1.69	1.27
D45E1†	2.23	1.51
D45E2†	2.71	1.83
D45E3†	2.87	1.96
D45H1†	1.79	1.20
D45H2†	1.95	1.29
D45H4†	2.00	1.34
D45H5†	2.05	1.35
D45H7†	2.07	1.39
D45H8†	2.18	1.46
D45H10†	2.27	1.52
D45H11†	2.41	1.61
D64VS3	8.80	6.50
D64VS5	10.80	8.00
DA1701	.34	.22
DA1702	.29	.19
DA1703	.27	.18
DA1704	.26	.17
DE104	3.23	2.38
DE110	1.41	.95
DE111	1.66	1.11
DE112	1.83	1.23
DE113	1.09	.71
DE114	1.66	1.11
DE115	1.94	1.29
DT230A	.29	.17
DT230B	.34	.23
DT230F	.27	.16
DT230G	.33	.22
DT230H	.42	.32
DT230H1	.42	.32
DZ800	.15	.09
DZ805	.16	.11
DZ806	.18	.12
GES929	.39	.23
GES930	.39	.23
GES2221	.32	.21
GES2221A	.43	.26
GES2222	.33	.21
GES2222A	.48	.29
GES2906	.36	.22
GES2907	.36	.22
GES3053	.36	.29
GES3414	.30	.24
GES3415	.32	.25
GES3416	.35	.28
GES3417	.42	.36
GES4121	.38	.24
GES4122	.41	.28
GES4248	.39	.24
GES4891	.90	.60
GES4892	1.15	.77

GE Type	Net Ea., Lots of 1-99	100-999
GES4893	$ 0.96	$ 0.64
GES4894	1.05	.70
GES5305	.47	.32
GES5306	.45	.30
GES5306A	.53	.41
GES5307	.49	.34
GES5308	.55	.37
GES5308A	.62	.41
GES5368	.27	.19
GES5369	.29	.19
GES5370	.29	.20
GES5371	.27	.18
GES5372	.30	.19
GES5373	.30	.20
GES5374	.33	.22
GES5375	.29	.19
GES5447	.36	.29
GES5448	.36	.29
GES5449	.43	.30
GES5450	.42	.27
GES5451	.40	.27
GES5810	.38	.25
GES5811	.43	.28
GES5812	.40	.27
GES5813	.47	.32
GES5814	.41	.27
GES5815	.40	.27
GES5816	.43	.28
GES5817	.43	.28
GES5818	.45	.30
GES5819	.47	.32
GES5820	.63	.41
GES5821	.71	.47
GES5822	.65	.43
GES5823	.74	.48
GES5824	.26	.18
GES5825	.28	.19
GES5826	.30	.21
GES5827	.34	.22
GES5828	.36	.24
GES6000	.57	.38
GES6001	.59	.40
GES6002	.62	.41
GES6003	.62	.41
GES6004	.62	.41
GES6005	.62	.41
GES6006	.76	.50
GES6007	.81	.54
GES6010	.71	.47
GES6011	.74	.48
GES6012	.76	.50
GES6013	.78	.53
GES6014	.76	.50
GES6015	.78	.53
GES6016	.78	.50
GES6017	.80	.55
GES6218	.71	.47
GES6219	.68	.46
GES6220	.66	.44
GES6221	.59	.40
GES6222	.30	.21
GES6224	.36	.24
GES6560	.50	.34
GES6561	.47	.31
H11A1	1.00	.85
H11A2	.90	.75
H11A3	1.00	.85
H11A4	1.00	.85
H11A5	1.00	.83
H11A10	1.20	1.02
H11A520	1.50	1.25
H11A550	1.50	1.25
H11A5100	1.50	1.25
H11AA1	2.40	1.92
H11AA2	2.18	1.74
H11B1	1.90	1.60
H11B2	1.60	1.35
H11B3	1.28	1.02
H11B255	1.40	1.20
H11C1	4.00	3.36
H11C2	3.35	2.80
H11C3	1.71	1.37
H11C4	4.60	3.78
H11C5	4.00	3.30
H11C6	1.78	1.43
H11D1	1.98	1.58
H11D2	1.62	1.30
H11D3	1.48	1.19
H11D4	1.32	1.05
H11F1	2.64	2.11
H11F2	2.21	1.76
H11F3	1.47	1.18
H11G1	1.80	1.44
H11G2	1.53	1.22
H11G3	1.16	.92
H13A1	3.75	3.01
H13A2	3.37	2.70
H13B1	4.02	3.21
H13B2	3.64	2.92
H15A1	1.75	1.40
H15A2	1.60	1.28
H15B1	1.83	1.46

*Available in reverse polarity at same price; to order, add suffix **R**, i.e., 1N248**R**, 1N248**RA**, etc. †Prices include mounting hardware. For insulating hardware, add **$0.10** per unit, any quantity. ‡Prices include mounting hardware. For insulating hardware, add **$0.25** per unit, any quantity. ♦Contact factory.

OEM Semiconductor Pricing

GE Type	Net Ea., Lots of 1-99	100-999
H15B2	$ 1.68	$ 1.34
H20A1	3.75	3.01
H20A2	3.37	2.70
H20B1	4.02	3.21
H20B2	3.64	2.92
H21A1	2.02	1.50
H21A2	2.50	1.70
H21A3	3.00	2.08
H21A4	2.22	1.65
H21A5	2.75	1.87
H21A6	3.06	2.45
H21B1	2.17	1.60
H21B2	2.60	1.80
H21B3	2.91	2.32
H21B4	2.39	1.76
H21B5	2.86	1.98
H21B6	3.19	2.55
H22A1	2.02	1.50
H22A2	2.50	1.70
H22A3	3.00	2.08
H22A4	2.22	1.65
H22A5	2.75	1.87
H22A6	3.06	2.45
H22B1	2.17	1.60
H22B2	2.60	1.80
H22B3	2.91	2.32
H22B4	2.39	1.76
H22B5	2.86	1.98
H22B6	3.19	2.55
H74A1	1.53	1.22
H74C1	1.53	1.22
H74C2	2.23	1.79
LED55B	1.45	1.10
LED55BF	1.45	1.10
LED55C	1.50	1.15
LED55CF	1.50	1.15
LED56	1.45	1.16
LED56F	1.45	1.16
L14F1	2.20	1.85
L14F2	1.65	1.32
L14G1	1.70	1.45
L14G2	1.60	1.35
L14G3	1.80	1.55
L14H1	.48	.38
L14H2	.53	.42
L14H3	.60	.48
L14H4	.45	.36
MPD200	1.37	.91
MPD201	1.18	.74
MPD202	1.11	.63
MPD203	.79	.50
MPD300	1.68	1.11
MPD301	1.29	.84
MPD302	1.18	.75
MPD400	1.84	1.22
MPD401	1.46	.99
MPD402	1.34	.84
MPSA05	.50	.29
MPSA06	.53	.30
MPSA09	.54	.35
MPSA12	.47	.32
MPSA13	.44	.29
MPSA14	.49	.34
MPSA20	.27	.17
MPSA55	.55	.35
MPSA56	.63	.38
MPSA63	.44	.31
MPSA64	.53	.33
MPSA65	.82	.49
MPSA66	.85	.57
MPSA70	.27	.21
MPSD01	.99	.46
MPS2222	.33	.21
MPS2222A	.43	.26
MPS2907	.36	.22
MPS3638	.27	.21
MPS3638A	.28	.21
MPS3693	.33	.21
MPS3694	.37	.23
MPS3702	.36	.29
MPS3703	.36	.29
MPS3704	.33	.30
MPS3705	.32	.27
MPS3706	.29	.27
MPS3709	.29	.27
MPS3710	.29	.27
MPS3711	.29	.27
MPS5172	.20	.12
MPS6076	.26	.18
MPS6172	.20	.12
MPS6512	.59	.39
MPS6513	.58	.38
MPS6514	.61	.38
MPS6515	.76	.48
MPS6516	.59	.39
MPS6517	.58	.38
MPS6518	.61	.38
MPS6519	.76	.48
MPS6530	.48	.35
MPS6531	.54	.38
MPS6532	.43	.29
MPS6533	.57	.40
MPS6534	$ 0.58	$ 0.41
MPS6535	.48	.30
MPS6565	.49	.32
MPS6566	.53	.35
MPS6571	.54	.35
MPS6573	.44	.31
MPS6575	.47	.34
SC140B	1.59	1.16
SC140D	2.00	1.45
SC140E	2.65	1.93
SC140M	3.41	2.40
SC141B	1.68	1.14
SC141D	1.72	1.22
SC141E	2.41	1.71
SC141M	2.80	1.98
SC142B	1.87	1.36
SC142D	2.17	1.58
SC142E	3.11	2.28
SC142M	4.02	2.82
SC143B	1.62	1.15
SC143D	1.81	1.28
SC143E	2.54	1.80
SC143M	3.18	2.24
SC146B	1.92	1.36
SC146D	2.21	1.56
SC146E	3.14	2.23
SC146M	3.54	2.51
SC147B	2.25	1.63
SC147D	2.60	1.89
SC147E	3.74	2.73
SC147M	4.82	3.38
SC149B	1.99	1.43
SC149D	2.40	1.73
SC149E	2.92	2.10
SC149M	3.65	2.61
SC151B	2.35	1.71
SC151D	2.82	2.05
SC151E	2.98	2.17
SC151M	3.76	2.72
SC160B	6.18	4.12
SC160D	6.81	4.54
SC160E	7.42	4.94
SC160M	8.34	5.56
SC240B	3.63	2.59
SC240B2, 3, 4	4.35	3.10
SC240B5	3.63	2.59
SC240D	3.81	2.72
SC240D2, 3, 4	4.56	3.25
SC240D5	3.81	2.72
SC240E	4.08	2.91
SC240E2, 3, 4	4.68	3.34
SC240E5	4.08	2.91
SC240M	4.50	3.21
SC240M2, 3, 4	5.19	3.70
SC240M5	4.50	3.21
SC241B	2.81	2.01
SC241D	3.37	2.41
SC241E	4.13	2.95
SC241M	4.48	3.20
SC245B	3.69	2.63
SC245B2, 3, 4	4.44	3.17
SC245B5	3.69	2.63
SC245D	3.87	2.76
SC245D2, 3, 4	4.65	3.32
SC245D5	3.87	2.76
SC245E	4.14	2.95
SC245E2, 3, 4	4.77	3.40
SC245E5	4.14	2.95
SC245M	4.56	3.25
SC245M2, 3, 4	5.25	3.75
SC245M5	4.56	3.25
SC246B	3.02	2.14
SC246D	3.62	2.56
SC246E	4.41	3.12
SC246M	4.75	3.22
SC250B	3.90	2.78
SC250B2, 3, 4	4.68	3.34
SC250B5	3.90	2.78
SC250D	4.11	2.93
SC250D2, 3, 4	4.92	3.51
SC250D5	4.11	2.93
SC250E	4.41	3.15
SC250E2, 3, 4	5.07	3.62
SC250E5	4.41	3.15
SC250M	5.00	3.47
SC250M2, 3, 4	5.58	3.98
SC250M5	5.00	3.47
SC251B	3.21	2.27
SC251D	3.83	2.71
SC251E	4.68	3.30
SC251M	5.05	3.41
SC260B	4.23	3.25
SC260B2, 3, 4	5.23	4.04
SC260B5	4.23	3.25
SC260D	5.00	3.86
SC260D2, 3, 4	6.03	4.64
SC260D5	5.00	3.86
SC260E	5.88	4.55
SC260E2, 3, 4	6.79	5.23
SC260E5	5.88	4.55
SC260M	6.15	4.74
SC260M2, 3, 4	7.16	5.53
SC260M5	$ 6.15	4.74
SC261B	3.93	3.06
SC261D	4.80	3.64
SC261E	5.57	4.31
SC261M	5.88	4.54
SC265B	5.80	4.22
SC265B2, 3, 4	6.21	4.72
SC265B5	5.80	4.22
SC265D	6.90	5.01
SC265D2, 3, 4	7.31	5.51
SC265D5	6.90	5.01
SC265E	7.59	5.52
SC265E2, 3, 4	7.97	5.98
SC265E5	7.59	5.52
SC265M	8.54	6.72
SC265M2, 3, 4	8.95	7.28
SC265M5	8.54	6.72
SC266B	5.49	3.99
SC266D	6.58	4.78
SC266E	7.25	5.26
SC266M	8.22	5.98
ST2	.66	.44
ST4	.60	.46
STB567	.50	.34
STB568	.67	.45
STB569	.85	.57
TD9	10.05	6.71
TD261	24.39	16.25
TD261A	39.07	26.04
TD262	24.39	16.25
TD262A	39.07	26.04
TD263	19.57	13.06
TD263A	29.22	19.48
TD263B	39.07	26.04
TD264	24.39	16.25
TD264A	39.07	26.04
TD265	24.39	16.25
TD265A	39.07	26.04
TD266	24.39	16.25
TD266A	39.07	26.04
V18ZA1	1.04	.73
V18ZA3	1.75	1.20
V22ZA1	1.04	.73
V22ZA3	1.75	1.20
V24ZA1	1.04	.73
V24ZA4	1.75	1.20
V24ZA50	2.22	1.52
V27ZA1	1.04	.73
V27ZA4	1.75	1.20
V27ZA60	2.22	1.52
V33MA1A	.75	.45
V33MA1B	.83	.50
V33ZA1	1.04	.73
V33ZA5	1.75	1.20
V33ZA70	2.22	1.52
V36ZA80	2.22	1.52
V39MA2A	.75	.45
V39MA2B	.83	.50
V39ZA1	1.04	.73
V39ZA6	1.75	1.20
V47MA2A	.75	.45
V47MA2B	.83	.50
V47ZA1	1.04	.73
V47ZA7	1.75	1.20
V56MA2A	.75	.45
V56MA2B	.83	.50
V56ZA2	1.04	.73
V56ZA8	1.75	1.20
V68MA3A	.75	.45
V68MA3B	.83	.50
V68ZA2	1.04	.73
V68ZA10	1.75	1.20
V82MA3A	.75	.45
V82MA3B	.83	.50
V82ZA2	1.04	.73
V82ZA12	1.75	1.20
V95LA7A	1.60	1.22
V95LA7B	1.75	1.20
V100MA4A	.75	.45
V100MA4B	.83	.50
V100ZA3	1.04	.73
V100ZA15	1.75	1.20
V120MA1A	1.05	.65
V120MA2B	1.16	.72
V120ZA1	1.04	.73
V120ZA6	1.75	1.20
V130LA1	1.23	.82
V130LA2	1.38	.92
V130LA10A	1.75	1.20
V130LA20A	2.60	1.98
V130LA20B	2.85	2.17
V130PA10A	3.94	2.63
V130PA20A	4.70	3.14
V130PA20B	4.95	3.30
V130PA20C	5.18	3.45
V150LA1	1.23	.82
V150LA2	1.38	.92
V150LA10A	1.75	1.20
V150LA20A	2.60	1.98
V150LA20B	2.85	2.17
V150LXR100	14.00	12.25
V150MA1A	1.05	.65
V150MA2B	$ 1.16	$ 0.72
V150PA10A	3.94	2.63
V150PA20A	4.70	3.14
V150PA20B	4.95	3.30
V150PA20C	5.18	3.45
V150ZA1	1.04	.73
V150ZA8	1.75	1.20
V180MA1A	1.05	.65
V180MA3B	1.16	.72
V180ZA1	1.04	.73
V180ZA10	1.75	1.20
V220MA2A	1.22	.75
V220MA4B	1.34	.83
V250LA2	1.53	1.02
V250LA4	1.77	1.18
V250LA15A	2.18	1.65
V250LA20A	2.60	1.98
V250LA40A	4.30	3.27
V250LA40B	4.73	3.59
V250PA20A	4.70	3.14
V250PA40A	6.23	4.16
V250PA40B	6.55	4.37
V250PA40C	6.86	4.57
V270MA2A	1.22	.75
V270MA4B	1.34	.83
V275LA2	1.53	1.02
V275LA4	1.77	1.18
V275LA15A	2.18	1.65
V275LA20A	2.60	1.98
V275LA40A	4.30	3.27
V275LA40B	4.73	3.59
V275LXR100	15.00	13.13
V275PA20A	4.70	3.14
V275PA40A	6.23	4.16
V275PA40B	6.55	4.37
V275PA40C	6.86	4.57
V300LA2	1.53	1.02
V300LA4	1.77	1.18
V320LA15A	2.18	1.65
V320LA40A	4.30	3.27
V320LA40B	4.73	3.59
V320LXR100	15.00	13.13
V320PA40A	6.23	4.16
V320PA40B	6.55	4.37
V320PA40C	6.86	4.57
V330MA2A	1.51	.93
V330MA5B	1.66	1.02
V390MA3A	1.51	.93
V390MA6B	1.66	1.02
V420LA20A	3.34	2.53
V420LA40A	5.02	3.82
V420LA40B	5.52	4.19
V420PA20A	6.35	4.23
V420PA40A	7.88	5.25
V420PA40B	8.28	5.52
V420PA40C	8.66	5.78
V430MA3A	1.51	.93
V430MA7B	1.66	1.02
V460LA20A	3.34	2.53
V460LA40A	5.02	3.82
V460LA40B	5.52	4.19
V460PA20A	6.35	4.23
V460PA40A	7.88	5.25
V460PA40B	8.28	5.52
V460PA40C	8.66	5.78
V480LA20A	3.34	2.53
V480LA40A	5.02	3.82
V480LA80A	6.32	4.26
V480LA80B	7.18	5.00
V480PA40A	7.88	5.25
V480PA80A	10.94	7.29
V480PA80B	11.59	7.73
V480PA80C	12.04	8.03
V510LA20A	3.57	2.71
V510LA40A	5.27	4.01
V510LA80A	7.40	5.62
V510LA80B	8.14	6.18
V510PA40A	8.15	5.43
V510PA80A	11.21	7.47
V510PA80B	11.77	7.85
V510PA80C	12.33	8.22
V550LA20A	3.57	2.71
V550LA40A	5.27	4.01
V550LA80A	7.40	5.62
V550LA80B	8.14	6.18
V550PA40A	8.15	5.43
V550PA80A	11.21	7.47
V550PA80B	11.77	7.85
V550PA80C	12.33	8.22
V575LA20A	3.57	2.71
V575LA40A	5.27	4.01
V575LA80A	7.40	5.62
V575LA80B	8.14	6.18
V575PA40A	8.15	5.43
V575PA80A	11.21	7.47
V575PA80B	11.77	7.85
V575PA80C	12.33	8.22
V660PA100A	11.77	7.85
V660PA100B	12.33	8.22
V660PA100C	12.94	8.63
V1000LA80A	10.20	6.80
V1000LA160A	16.00	12.16

*Available in reverse polarity at same price; to order, add suffix **R**, i.e., 1N248**R**, 1N248**RA**, etc. †Prices include mounting hardware. For insulating hardware, add **$0.10** per unit, any quantity. ‡Prices include mounting hardware. For insulating hardware, add **$0.25** per unit, any quantity. ♦Contact factory.

PRICES LISTED ARE FOR GUIDANCE ONLY

HEWLETT-PACKARD OFFERS A BROAD LINE OF OPTOELECTRONIC DEVICES, MICROWAVE SEMICONDUCTORS AND RF SEMICONDUCTORS, PLUS:

· Immediate delivery · Applications support · Special testing for high reliability applications

LAMPS

PLASTIC SOLID STATE LED LAMPS

A wide range of package styles available: Rectangular, T-1, T-1 3/4, T-1 3/4 Low Dome, Subminiature.
High brightness over a wide viewing angle or point source.
IC compatible; low power consumption.
Choice of four bright colors: Red, High Efficiency Red, Yellow and High Performance Green.
Rectangular type offers high intensity brightness from a flat surface.
Excellent reliability. Long life.
Special panel mountable hardware available.

HERMETIC SOLID STATE LED LAMPS

JAN and JANTX screened versions available.
Designed for high reliability applications.
Choice of four bright colors: Red, High Efficiency Red, Yellow and Green.
IC compatible; low power consumption.
Panel mount option has wire wrappable leads and an electrically isolated case.

LED DISPLAYS

LARGE SEVEN-SEGMENT DISPLAYS

Character Heights: 0.3", 0.43", 0.56", and 0.8".
Available in four colors: Red, High Efficiency Red, Yellow, Green and high ambient versions.
Categorized for light output.

MONOLITHIC SEVEN-SEGMENT DISPLAYS

Compact display: 0.1"-0.175" character height.
Low power consumption; as low as 250 μA/segment.
CMOS compatible. Modular construction.

INTEGRATED NUMERIC DISPLAYS

On-board decoder/driver. Shaped dot matrix character font.
Available with standard high reliability screening.
Standard red available in plastic, glass/ceramic, and hermetically sealed packages.
High efficiency red, yellow, and green available in glass/ceramic package.

ALPHANUMERIC DISPLAYS

5 × 7 dot matrix available in three sizes: 0.15", 0.20", and 0.27" characters, 4 characetrs per package, red, high efficiency red and yellow, on-board IC.
16-segment display for low power and cost.
Complete display systems with either 5 × 7 or 16-segment characters.

LED LIGHT BARS AND ARRAYS

LIGHT BARS

Eight light-emitting surface arrangements in 4 SIP and DIP package sizes: .200" × .400", .200" × .800", .400" × .400", and .400" × .800".
All available in high efficiency red, yellow, or high performance green.
Bicolor arrangement available in .400" × .400" package.
Panel and legend mount available.

BAR GRAPH ARRAYS

Two arrangements available: 10 elements in a .400" × 1.000" DIP package, and 101 elements in a .390" × 4.16" SIP package. Either may be used as a position indicator.

OPTOCOUPLERS

HIGH-SPEED OPTOCOUPLERS

High speed: IM bit/s to 10M bit/s. TTL compatible.
Available in single or dual configurations.
Shielded detector version improves common mode rejection.
3000 VDC insulation voltage.
Recognized under the component program of UL (File No. E55361).

LOW INPUT CURRENT/HIGH GAIN OPTOCOUPLERS

High current transfer ratio; 1000% typical.
Low input current requirement; 0.5 mA.
3000 VDC insulation voltage.
Performance guaranteed over 0°C to 70°C temperature range.
Higher speed than conventional Photodarlington optocouplers.
Available in single or dual configurations.
Gain-bandwidth adjustment pin.
Recognized under the component program of UL.

HIGH RELIABILITY OPTOCOUPLERS

Hermetically sealed. High density packaging.
High current transfer ratio; 500% typical.
Higher radiation immunity than conventional phototransistor/Photodarlington optocouplers.
Available in low power and high speed configurations.
Performance guaranteed over temperature range.
Standard high reliability screened parts available.
1500 VDC insulation voltage.

AC/DC TO LOGIC INTERFACE OPTOCOUPLERS

AC or DC input. Programmable sense voltage.
Logic compatible output.
3000 VDC withstand test voltage.
Recognized under the component program of UL.

EMITTERS FIBER-OPTICS

Low cost, plastic, snap-in link kit.
High performance module link kit.
Separate transmitters, receivers, cable, connectors.
Functions with most silicon phototransistors and photodiodes.
Isotropic LED chip provides floodlight type beam.
Surface emitter LED chip provides bright spotlight.
By offsetting wirebonds, the active area of the chip is not masked or shadowed
A reciprocal optical port functions as an emitter or narrow band detector.

PIN PHOTODIODES

Offset wirebonds facilitate use with fiber optics.
All HP PIN photodiodes have antireflective coating which converts more incident radiation (light) into photocurrent.
Wide spectral response (ultraviolet through IR).
Low junction capacitance detects high speed pulses.
Ultra linear, permitting operation over 10 decades.

OPTICAL REFLECTIVE SENSOR

Fully specified and guaranteed for assured performance.
Focused optics for higher resolution.
Visible light source can detect most colors.
Standard TO-5 header.
Moisture resistance, sealed package.

BAR CODE PRODUCTS

Digital output. Single supply operation.
Fully specified performance.
Push-to-read switch for low power applications.

OPTICAL SHAFT ENCODERS

28 mm diameter package. High resolution.
Modular encoders; fully tested and prealigned components.

MICROWAVE DIODES AND TRANSISTORS

TRANSISTORS

Low noise series optomized for low noise with high associated gain.
General purpose series available.
Linear power series offers linear power with guaranteed tuned gain.
GaAs FETs.

STEP RECOVERY DIODES

High cut-off frequency; to 350 GHz.
Guaranteed RF parameters (5082-0300 Series).
Passivated for high reliability.

SCHOTTKY BARRIER DIODES

Low noise figure; 6 dB typical.
Matched pairs and quads.
Medium and low barrier.

PIN DIODES

Fast switching models feature: 5 nanosecond switching; low current requirement; 20 mA for 0.8 ohms.
General purpose models feature: low series resistance, 0.8 ohms at 100 mA; low junction capacitance, 0.07 pF at −10V.
Both PIN and NIP polarities available.

POWER MOS FIELD EFFECT TRANSISTORS

Fast switching speeds for high speed circuits.
High breakdown voltage combined with low on resistance.
Packaged and chip versions available.
Passivated for high reliability.

RF AND GENERAL PURPOSE DIODES

SCHOTTKY DIODES

High breakdown voltage; up to 70 V.
Picosecond switching speed.
Uniform forward tracking.
New low cost, rugged DO-35 package available.

PIN DIODES

Attenuator models feature: low distortion products; large dynamic range.
Band switching models feature: low cost for high volume applications; low series resistance, 0.5 ohms at 10 mA.

HIGH RELIABILITY DEVICES

MILITARY QUALIFIED PRODUCTS

1N5711: 70 V general purpose Schottky diode; JAN, JANTX and JANTXV versions.
1N5712: 20 V general purpose Schottky diode; JAN, JANTX and JANTXV versions.
1N5719: VHF/UHF/MW general purpose PIN diode; JAN and JANTX versions.

HP TEST PROGRAMS

Test programs patterned after MIL-S-19500.
Most HP commercial parts available with additional preconditioning and screening.

HEWLETT-PACKARD AUTHORIZED LOCATIONS: CLEVELAND, DAYTON, INDIANAPOLIS, LIVONIA, PITTSBURGH

SEMICONDUCTOR PRODUCTS
EIA REGISTERED DIODES AND TRANSISTORS

HP Number	Description	Net Each, Lots of 1-9	10-49	50-99	100-999
1N4456	High Conductance Diode (5082-1001)	$ 6.65	$ 6.65	$ 6.65	.....
1N4457	High Conductance Diode (5082-1006)	8.00	8.00	8.00	.....
1N4547	Step Recovery Diode (5082-0253)	100.00	94.00	.....	.....
1N4949	Step Recovery Diode (5082-0112)	13.50	11.80	.....	.....
1N5163	Step Recovery Diode (5082-0113)	15.00	13.20	13.20	.....
1N5164	Step Recovery Diode (5082-0114)	27.50	25.00	25.00	.....
1N5165	Schottky Barrier Diode (5082-2301)	13.20	11.70	10.70	9.20
1N5166	Schottky Barrier Diode (5082-2302)	10.70	9.90	9.20	8.30
1N5167	Schottky Barrier Diode (5082-2303)	5.50	5.00	4.70	4.20
1N5168	Schottky Barrier Diode (5082-2365)	22.00	18.70	18.70	.....
1N5169	Schottky Barrier Diode (5082-2350)	19.00	16.00	16.00	.....

		1-99	100-499	500-999	1000-4999
1N5711	Schottky HV Diode (5082-2800)	$0.89	$0.76	$0.53	$0.48
1N5712	Schottky HV Diode (5082-2810)	1.45	1.45	1.23	1.05
1N5713	Schottky Barrier Diode (5082-2811)	1.20	.90	.90	.82

		1-9	10-99	100-999
1N5719	PIN Diode (5082-3039)	$ 6.70	$ 6.05	$ 4.85

		1-99	100-499	500-999	1000-4999
1N5767	PIN Diode (5082-3080)	$2.00	$1.65	$1.22	$ 1.08
1N6263	Schottky Switching Diode (HSCH-1001)	.48	.39	.33	.27

		1-9	10-24	24-49	50-99
2N6617	Low Noise MW Transistor (HXTR-6101)	$55.00	$50.50	$47.50	$47.50
2N6618	Low Noise MW Transistor (HXTR-6103)	48.50	45.00	42.00	42.00

		1-9	10-24	25-49	50-99
2N6701	Linear Power Transistor	$31.00	$27.50	$26.50	$26.50
2N6741	Linear Power MW Transistor	33.00	31.00	28.50	28.50
2N6742	Linear Power MW Transistor	68.00	65.00	62.50	62.50
2N6743	Linear Power MW Transistor	68.00	65.00	62.50	62.50

DIODE CHIPS AND HYBRID CIRCUITS

HP Number	Description	Net Ea., 10-99	100-499
5082-0001*	High Speed Switch PIN Chip	$ 7.90	$6.30
5082-0008*	Step Recovery Diode Chip	10.75	....
5082-0009*	X-Band Schottky Detector Chip	9.45	....
5082-0012*	PIN Switching Diode Chip	5.00	4.10
5082-0013*	Zero Bias Detector	9.45	....
5082-0024*	High Voltage Switching Schottky Chip	.90	....
5082-0025*	AGC Pin Chip	2.60	2.40
5082-0029*	Ku-Band Schottky Mixer Chip	14.70	....
5082-0030*	PIN Switching Diode Chip	4.75	4.05
5082-0031#	Low Voltage Switch Schottky Chip	.85	.68
5082-0034*	VHF/UHF Switching PIN Chip	2.60	....
5082-0039*	AGC PIN Chip	2.90	....
5082-0047*	PIN Switching Diode Chip	4.75	....
5082-0049*	Medium Power Switch PIN Chip	9.40	....
5082-0057#	Schottky Diode Chip	1.70	....
5082-0058#	Schottky Diode Chip	1.35	....
5082-0087#	General Purpose Switch Schottky Chip	.95	.80
5082-0094#	Schottky Diode Chip	.90	.76
5082-0097#	General Purpose Switch Schottky Chip	.95	.82
5082-9394*	Beam Lead Quad	9.60	....
5082-9395*	Beam Lead Quad	9.60	....
5082-9396*	Beam Lead Quad	12.50	....
5082-9397*	Beam Lead Quad	12.50	....
5082-9398*	Beam Lead Quad	15.25	....
5082-9399*	Beam Lead Quad	15.25	....
5082-9696*	Beam Lead Quad	6.85	....
5082-9697*	Beam Lead Quad	6.85	....

*Must be ordered in 10 piece increments. #Must be ordered in 25 piece increments.

STEP RECOVERY DIODES

HP Number	Net Each, Lots of 1-9	10-49	50-99	100-499	500-999
5082-0112	$ 14.20	$ 12.65	$10.40	.....	.....
5082-0113	15.75	14.20	14.20	.....	.....
5082-0114	28.90	26.20	26.20	.....	.....
5082-0132	67.20	62.06	.....	.....	.....
5082-0151	31.50	27.95	25.30	.....	.....
5082-0153	46.20	43.00	36.30	.....	.....
5082-0180	4.65	4.65	4.65	$3.90	.....
5082-0241	75.60	70.60	.....	.....	.....
5082-0243	105.00	100.00	.....	.....	.....
5082-0253	150.00	100.00	.....	.....	.....

HP Number	Net Each, Lots of 1-9	10-49	50-99	100-499	500-999
5082-0300	$64.00	$56.00	.....	.....	.....
5082-0310	58.00	53.00	.....	.....	.....
5082-0320	58.00	53.00	.....	.....	.....
5082-0335	58.00	53.00	.....	.....	.....
5082-0800	30.00	26.00	.....	.....	.....
5082-0805	30.00	26.00	.....	.....	.....
5082-0810	30.00	26.00	.....	.....	.....
5082-0820	30.00	26.00	.....	.....	.....
5082-0830	30.00	26.00	.....	.....	.....
5082-0885	45.00	41.00	.....	.....	.....

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SEMICONDUCTOR PRODUCTS (CONTINUED)

HIGH CONDUCTANCE DIODES

HP Number	Net Each, 1-99	HP Number	Net Each, 1-99
5082-1001	$7.00	5082-1006	$8.40
5082-1002	7.30		

SCHOTTKY BARRIER DIODES

HP Number	Description	Net Each, Lots of 1-9	10-24	25-49	50-99	100-499	500-999	1000-4999
5082-0041	X-Band Schottky Mixer Chip	$ 9.45	$ 9.45	$ 9.45	.....	.....	.....	.....
5082-2080	Batch Matched Diode 5082-2835	.....	.....	.....	.....	$ 1.70	$ 1.70	$ 1.70
5082-2200	Hermetic Stripline Schottky Diode	28.35	25.50	25.50	.....	.....	.....	.....
5082-2201	Matched Batch of 5082-2200	.....	.....	.....	.....	.....	28.10	24.00
5082-2202	Hermetic Stripline Schottky Diode	23.75	21.40	21.40	.....	.....	.....	.....
5082-2203	Matched Batch of 5082-2202	.....	.....	.....	.....	.....	23.40	20.00
5082-2207	Stripline Schottky Diode	19.50	17.55	17.55	.....	.....	.....	.....
5082-2208	Matched Batch of 5082-2207	.....	.....	.....	.....	.....	19.30	16.50
5082-2209	Stripline Schottky Diode	15.50	13.95	13.95	.....	.....	.....	.....
5082-2210	Matched Batch of 5082-2209	.....	.....	.....	.....	.....	15.35	13.15
5082-2214	Matched Pair of 5082-2213	25.40	21.80	21.80	21.80	.....	.....	.....
5082-2215	Stripline Schottky Diode	9.10	8.35	8.35	8.35	.....	.....	.....
5082-2229*	X-Band Low V_F Schottky Beam Lead	.....	5.00	5.00	4.50	.....	.....	.....
5082-2233	Low V_F Hermetic Stripline Schottky Quad	61.00	55.35	44.50	.....	.....	.....	.....
5082-2263	Hermetic Stripline Schottky Ring Quad	54.50	49.00	49.00	.....	.....	.....	.....
5082-2264*	Ku-Band Low V_F Schottky Beam Lead	.....	10.00	10.00	10.00	.....	.....	.....
5082-2273	Ku-Band Schottky Mixer Diode	62.85	53.55	53.55	53.55	.....	.....	.....
5082-2279	Low V_F Broadband Stripline Schottky Diode Quad	44.50	40.00	40.00	.....	.....	.....	.....
5082-2280	Low V_F Broadband Stripline Schottky Quad	56.00	53.00	51.00	.....	.....	.....	.....
5082-2294	Stripline Schottky Ring Quad	47.00	44.50	44.50	42.80	.....	.....	.....
5082-2295	X-Band Low V_F Schottky Diode	54.00	43.00	43.00	43.00	.....	.....	.....
5082-2296	Matched Pair of 5082-2295	120.00	95.00	95.00	95.00	.....	.....	.....
5082-2299*	Ku-Band Low V_F Schottky Beam Lead	.....	7.50	7.50	6.70	6.00	.....	.....
HSCH-5017	Zero Bias Detector Schottky Chip	.....	8.00	8.00	.....	.....	.....	.....
HSCH-5018	Zero Bias Detector Schottky Chip	30.00	24.00	24.00	.....	.....	.....	.....
HSCH-5019	Zero Bias Detector Schottky Chip	30.00	24.00	24.00	.....	.....	.....	.....
5082-2830	Monolithic Matched Schottky Diode Ring	4.50	3.95	3.70	3.55	.....	.....	.....
5082-2831	Low V_F Monolithic Matched Schottky	4.50	3.95	3.70	3.55	.....	.....	.....

*Must be ordered in 10 piece increments.

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Pioneer-Standard

SEMICONDUCTOR PRODUCTS (CONTINUED)
SCHOTTKY BARRIER DIODES (CONTINUED)

HP Number	Description	Net Each, Lots of 1-9	10-24	25-49	50-99	100-499	500-999
5082-2301	Schottky Barrier Diode (1N5165)	$13.20	$11.70	$11.70	$10.70	$ 9.80	$ 9.20
5082-2302	Schottky Barrier Diode (1N5166)	10.70	9.90	9.90	9.20	8.70	8.30
5082-2303	Schottky Barrier Diode (1N5167)	5.50	5.00	4.70	4.40	4.20	.....
5082-2305	Schottky Barrier Diode	19.00	16.75	16.75	16.75	15.00	.....
5082-2306	Matched Pair of 5082-2301	27.80	24.60	24.60	24.60	22.00	.....
5082-2308	Matched Pair of 5082-2303	14.00	12.80	12.80	12.80	11.90	.....
5082-2350	Schottky Barrier Diode	19.00	16.00	16.00	16.00	16.00	.....
5082-2351	Matched Pair of 5082-2350	45.20	42.80	42.80	41.20	.....	.....
5082-2356	Matched Encapsulated Bridge Quad	41.80	39.30	39.30	37.30	35.90	.....
5082-2370	Matched Quad of 5082-2303	41.60	37.80	37.80	35.00	32.60	.....
5082-2396	Matched Encapsulated Ring Quad	49.40	45.20	45.20	42.00	39.40	.....
5082-2509§	Batch Matched 5082-2709	.....	.....	9.70	8.20	7.31	.....
5082-2510§	Batch Matched 5082-2716	13.30	11.30	11.30	10.00	.....	.....
5082-2520	Schottky Barrier Diode	14.75	13.41	12.41	11.60	.....	.....
5082-2521	Matched Pair of 5082-2520	31.40	29.64	29.64	28.35	27.35	.....
5082-2565	Schottky Barrier Diode	14.90	14.00	14.00	13.30	12.75	.....
5082-2566	Matched Pair of 5082-2565	32.40	30.45	30.45	29.00	27.80	.....
5082-2701	X-Band Schottky Mixer Diode	55.00	45.00	45.00	45.00	.....	.....
5082-2706	Matched Pair of 5082-2701	120.00	95.00	95.00	95.00	.....	.....
5082-2709§	X-Band Schottky Mixer Beam Lead	.....	4.50	4.50	4.50	4.00	.....
5082-2711	X-Band Schottky Mixer Diode	23.15	17.95	17.95	17.95	.....	.....
5082-2712	Matched Pair of 5082-2711	51.00	39.45	39.45	39.45	.....	.....
5082-2713	X-Band Schottky Mixer Diode	32.00	27.25	27.25	27.25	.....	.....
5082-2714	Matched Pair of 5082-2713	70.55	59.85	59.85	59.85	.....	.....
5082-2716§	Ku-Band Schottky Mixer Beam Lead	.....	6.55	6.55	6.55	.....	.....
5082-2721	Ku-Band Schottky Mixer Diode	28.40	23.40	23.40	23.40	.....	.....
5082-2722	Matched Pair of 5082-2721	62.60	54.00	54.00	54.00	.....	.....
5082-2723	Ku-Band Schottky Mixer Diode	44.50	37.10	37.10	37.10	.....	.....
5082-2724	Matched Pair of 5082-2723	91.50	81.60	81.60	81.60	.....	.....
5082-2750	Schottky Detector Diode	30.45	25.85	25.85	25.85	.....	.....
5082-2751	Schottky Detector Diode	24.30	20.60	20.60	20.60	.....	.....
5082-2755	Schottky Detector Diode	17.65	15.00	15.00	12.75	.....	.....
5082-2765	Low V_F Hermetic Stripline Schottky	28.35	25.50	25.50	.....	.....	.....
5082-2766	Matched Batch of 5082-2765	.....	28.10	28.10	24.00	.....	.....
5082-2767§	Ku-Band Schottky Mixer Beam Lead	.....	10.00	10.00	10.00	.....	.....
5082-2768§	X-Band Schottky Mixer Beam Lead	.....	7.25	7.25	7.25	.....	.....
5082-2769*	Ku-Band Schottky Mixer Beam Lead	.....	6.55	6.55	6.55	.....	.....
5082-2774	Low V_F Stripline Schottky Diode	19.50	17.55	17.55	.....	.....	.....
5082-2775	Matched Batch of 5082-2774	.....	19.30	19.30	16.50	.....	.....
5082-2778§	Matched Batch of 5082-2768	.....	8.00	8.00	8.00	.....	.....
5082-2779§	Matched Batch of 5082-2769	.....	7.25	7.25	7.25	.....	.....
5082-2787*	Schottky Barrier Diode	6.30	6.30	6.30	6.30	.....	.....

HP Number	Description	1-9	10-24	25-49	50-99	100-499	500-999
5082-2800	Schottky Barrier Diode (1N5711)	$ 0.89	$ 0.89	$ 0.89	$ 0.89	$ 0.76	$ 0.53
5082-2802*	High Voltage Switch Schottky Diode	12.68	12.68	12.68	12.68	12.68	12.68
5082-2804	Matched Pair of 5082-2800 Unconnected	2.00	2.00	2.00	2.00	1.70	.....
5082-2805	Matched Quad of 5082-2800 Unconnected	4.45	4.45	4.45	4.45	3.80	.....
5082-2810	Schottky Barrier Diode (1N5712)	1.45	1.45	1.45	1.45	1.45	1.23
5082-2811	Schottky Barrier Diode (1N5713)	1.19	1.19	1.19	1.19	1.19	1.05
5082-2813	Matched Bridge Quad of 5082-2811 Encapsulated	12.60	12.60	12.60	12.60	11.05	11.05
5082-2814	Matched Ring Quad of 5082-2811 Encapsulated	12.60	12.60	12.60	12.60	11.05	11.05
5082-2815	Matched Quad of 5082-2811 Unconnected	5.90	5.90	5.00	5.00	.....	.....
5082-2817	Schottky Barrier Diode	2.78	2.78	2.78	2.78	2.34	2.00
5082-2818	Matched Pair of 5082-2817	5.55	5.55	5.55	5.55	4.68	4.00
5082-2824	Schottky Barrier Diode	9.50	9.50	9.50	9.50	8.00	.....
5082-2826	Batch Matched Diode 5082-2811	.....	.....	.....	.....	.....	1.65

HP Number	Description	1-9	10-24	25-49	50-99	100-499	500-999
5082-2835	Low Offset Schottky Diode	$ 0.65	$ 0.65	$ 0.65	$ 0.65	$ 0.50	$ 0.40
5082-2836	Batch Matched Diode 5082-2800	.....	.....	1.06	.....	.....	.....
5082-2837#	Schottky Diode Beam Lead	6.05	6.05	6.05	6.05	6.05	5.65
5082-2900	Schottky Barrier Diode	2.90	2.90	2.65	2.65	2.45	2.20

*Must be ordered in 5 piece increments. #Must be ordered in 25 piece increments. §Must be ordered in 10 piece increments.

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SEMICONDUCTOR PRODUCTS (CONTINUED)

SCHOTTKY BARRIER DIODES (CONTINUED)

HP Number	Description	Net Each, Lots of				
		1-9	10-49	50-99	100-499	500-999
5082-2912	Matched Pair of 5082-2900 Unconnected	$ 6.80	$ 6.25	$ 5.80	$ 5.50	$ 5.25
5082-2970	Matched Quad of 5082-2900 Unconnected	17.20	15.50	14.50	13.75	....
		1-99	100-499	500-999	1000-4999	5000-9999
HSCH-1001	Schottky Switching Diode (1N6263)	$ 0.48	$ 0.39	$ 0.33	$ 0.27	$ 0.23
		1-9	10-24	25-49	50-99	100-249
HSCH-3171	Zero Bias Detector Schottky Diode	$16.29	$16.29	$15.42	$14.75	$14.29
HSCH-3206	Zero Bias Detector Schottky Diode	28.75	25.25	25.25	.....	.....
HSCH-3207	Zero Bias Detector Schottky Diode	28.75	25.25	25.25	.....	.....
HSCH-3486	Zero Bias Detector Schottky Diode	15.50	15.50	13.75	12.40	11.30

PIN DIODES

HP Number	Description	Net Each, Lots of			
		50-99	100-249	250-999	
5082-3000*	RF PIN Switching Diode	$11.00	.....	.....	
5082-3001	RF PIN Diode	10.90	$10.30	.....	
5082-3002	RF PIN Diode	.....	.....	.....	
5082-3005*	PIN Switching Diode	.....	.....	.....	
5082-3039	RF PIN Diode (1N5719)	6.05	4.85	$ 4.85	
5082-3040*	Stripline PIN Diode	27.00	.....	.....	
5082-3041	Stripline PIN Diode	27.00	.....	.....	
5082-3042	RF PIN Diode	10.90	.....	.....	
5082-3043	RF PIN Diode	6.95	.....	.....	
5082-3046	Stripline PIN Diode	.....	.....	.....	
5082-3071	Microwave Limiter PIN Diode	.....	.....	.....	

		1-99	100-499	500-999	1000-4999
5082-3077	VHF/UHF PIN Switching Diode	$ 3.35	$ 2.60	$ 2.60	.....
5082-3080	HF/VHF/UHF Current Controlled Resistor (1N5767)	2.00	1.65	1.22	$ 1.08
5082-3081	HF/VHF/UHF Current Controlled Resistor	2.20	1.80	1.34	1.20

		1-9	10-49	50-99
5082-3140	Hermetic Stripline PIN Diode	$40.00	$34.00	$30.00
5082-3141	Hermetic Stripline PIN Diode	40.00	34.00	30.00

		1-99	100-999	1000-4999
5082-3168	VHF/UHF Switching PIN Diode	$ 0.75	$ 0.60	$ 0.50

		1-9	10-49	50-99
5082-3170	Hermetic Stripline PIN Diode	$40.00	$34.00	$30.00

		1-99	100-999	1000-4999
5082-3188	VHF/UHF Switching PIN Diode	$ 0.90	$ 0.64	$ 0.55

		1-9	10-49	50-99
5082-3201	RF PIN Diode	$22.05	$17.65	$15.90
5082-3202	RF PIN Diode	27.50	22.05	20.60
5082-3340	Stripline PIN Diode	36.00	30.00	27.00
5082-3900*	Beam Lead PIN Diode	.....	10.50	.....
HPND-4001	Beam Lead PIN Diode (Low Loss)	.....	14.40	14.40
HPND-4050*	Beam Lead PIN Diode	.....	11.25	11.25
HPND-4165	RF PIN Diode	16.90	12.85	12.85
HPND-4166	RF PIN Diode	16.90	12.85	12.85

		1-9	10-24	25-49	50-99
HPND-4005	Beam Lead PIN Diode	.....	$16.00	$14.40	$13.60

		1-9	10-99	100-999	1000-4999
5082-3379	RF PIN Diode	$ 1.50	$ 1.50	$ 1.28	$ 1.08

*Must be ordered in 5 piece increments.

SEMICONDUCTOR PRODUCTS (CONTINUED)

MILITARY QUALIFIED PRODUCTS

HP Number	Description	Net Each, Lots of 1-99	100-499	500-999	1000-4999
JAN1N5711	MIL Schottky Diode	$ 1.90	$ 1.35	$ 1.25	$ 1.15
JAN1N5712	MIL Schottky Diode	2.65	2.10	2.10	1.55
JAN1N5719	MIL PIN Diode	5.50	4.20	4.20	.....
JANTX1N5711	MIL Schottky Diode	8.40	7.20	6.15	.....
JANTX1N5712	MIL Schottky Diode	8.70	7.55	7.55	.....
JANTX1N5719	MIL PIN Diode	11.00	10.50	10.50	.....
JANTXV1N5711	MIL Schottky Diode	12.00	.....	.....	.....
JANTXV1N5712	MIL Schottky Diode	12.25	.....	.....	.....

		1-49	50-99
TXVBF-1101	Hi Rel HFET-1101	.....	$315.00
TXVBF-1102	Hi Rel HFET-1102	.....	336.00
TXVBF-2201	Hi Rel HFET-2201	.....	700.00

		1-4	5-9	10-24	25-49
TXVF-1101	Hi Rel HFET-1101	.....	$320.00	$290.00	$230.00
TXVF-1102	Hi Rel HFET-1102	.....	370.00	330.00	265.00
TXVF-2201	Hi Rel HFET-2201	.....	450.00	420.00	380.00

HIGH FREQUENCY TRANSISTORS

HP Number	Description	Net Each, Lots of 1-9	10-24	25-49	50-99
HFET-1001	General Purpose Microwave GaAs FET Chip	$50.00	$39.50	$39.50	$37.40
HFET-1101	Microwave GaAs FET (Same as 2N6680)	52.00	49.90	48.35	46.80
HXTR-2101	General Purpose Microwave Transistor (2N6679)	21.00	20.00	19.00	18.50
HXTR-3001	General Purpose Transistor Chip	10.00	9.40	9.40	9.40
HXTR-3002	Linear Power Transistor Chip	12.00	11.30	11.30	11.30
HXTR-3101	General Purpose Transistor	7.00	6.45	6.00	5.65
HXTR-3102	General Purpose Transistor	8.75	8.05	7.45	6.90
HXTR-4101	Oscillator Transistor	39.00	36.00	34.00	34.00
HXTR-5001	Linear Power MW Transistor	16.00	14.00	14.00	12.25
HXTR-5002	Linear Power MW Transistor	21.00	19.00	18.00	18.00
HXTR-5101	Linear Power MW Transistor	31.00	27.50	26.50	26.50
HXTR-5102	Linear Power MW Transistor	68.00	62.50	59.50	59.00
HXTR-5103	Linear Power MW Transistor	33.00	31.00	28.50	28.50
HXTR-5104	Linear Power MW Transistor	50.50	46.00	44.00	43.00
HXTR-6101	Low Noise Microwave Transistor (2N6617)	55.00	50.50	47.50	47.50
HXTR-6102	Low Noise Microwave Transistor	68.00	65.00	62.50	62.50
HXTR-6103	Low Noise Microwave Transistor (2N6618)	48.50	45.00	42.00	42.00
HXTR-6104	Low Noise Microwave Transistor	68.00	65.00	62.50	62.50
HXTR-6105	Low Noise Microwave Transistor	31.00	27.50	26.50	26.50
HXTR-6106	Low Noise MW Transistor	33.00	31.00	28.50	28.50

POWER MOS FIELD EFFECT TRANSISTORS

HP Number	Description	Net Each, Lots of 1-9	10-24	25-99	100-249
HPWR-6501	Power MOSFET	$25.00	$21.40	$20.00	$18.80
HPWR-6502	Power MOSFET	22.10	19.00	17.00	16.80
HPWR-6503	Power MOSFET	23.60	20.20	18.80	17.70
HPWR-6504	Power MOSFET	20.70	17.70	16.50	15.50
HPWR-6900	Power MOSFET	46.50	.....	.....	.....

GaAs FIELD EFFECT TRANSISTORS

HP Number	Description	Net Each, Lots of 1-9	10-24	25-49	50-99
HFET-1102	Low Noise MW FET	$ 60.00	$ 57.40	$ 55.60	$53.80
HFET-2201	Low Noise MW FET	145.00	133.40	127.60	.....
HFET-2202	Low Noise MW FET	93.00	85.55	81.85	80.00
HFET-2204	Low Noise MW FET	112.00	103.00	98.55	96.30
HFET-5001	Linear Power MW FET	55.00	47.00	47.00	44.50

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MEMORY PRODUCTS

Intel Number	Description	Net Each, Lots of 1-24	25-99	100 Up
D2114A-4	1024 × 4 bit static RAM	$ 5.85	$ 5.25	$ 4.70
P2114A-4		3.35	3.00	2.70
D2114A-5		5.85	5.25	4.70
P2114A-5		2.00	2.70	2.45
P2114A-6		2.55	2.30	2.10
D2114AL-1		10.20	9.20	8.25
P2114AL-1		8.55	7.70	6.95
D2114AL-2		8.05	7.25	6.55
P2114AL-2		6.45	5.80	5.20
D2114AL-3		6.75	6.10	5.50
P2114AL-3		5.15	4.65	4.15
D2114AL-4		6.35	5.70	5.15
P2114AL-4		3.50	3.15	2.85
D2115A	High speed 1024 bit static RAM, open collector	3.80	3.40	3.10
D2115A-2		3.15	2.80	2.55
D2115AL		4.75	4.25	3.85
D2115AL-2		3.80	3.40	3.10
D2115H-2		12.95	11.10	9.50
D2115H-3		9.85	8.45	7.25
D2115H-4		8.10	6.50	5.20
D2118-3	16,384 × 1 bit dynamic RAM	9.35	8.40	7.55
D2118-4		7.10	6.40	5.75
D2118-7		6.15	5.55	5.00
D2125A	High speed 1024 bit static RAM, three-state	3.80	3.40	3.10
D2125A-2		3.15	2.80	2.55
D2125AL		4.75	4.25	3.85
D2125AL-2		3.80	3.40	3.10
D2125H-1		21.40	18.35	15.75
D2125H-2		12.95	11.10	9.50
D2125H-3		9.85	8.45	7.25
D2125H-4		8.10	6.50	5.20
D2141-2	4096 × 1 bit static RAM	10.30	9.30	8.35
P2141-2		6.70	6.05	5.45
D2141-3		8.30	7.45	6.70
P2141-3		5.30	4.75	4.30
D2141-4		7.60	6.85	6.15
P2141-4		4.95	4.45	4.00
D2141-5		6.90	6.20	5.55
P2141-5		4.40	3.95	3.55
D2141L-3		9.00	8.10	7.30
P2141L-3		5.80	5.25	4.70
D2141L-4		8.30	7.45	6.70
P2141L-4		5.30	4.75	4.30
D2141L-5		7.60	6.85	6.15
P2141L-5		4.95	4.45	4.00
D2142	1024 × 1 bit static RAM	19.95	16.95	14.45
D2142-2		29.05	24.70	21.00
D2142-3		21.35	18.15	15.45
D2142L		21.35	18.15	15.45
D2142L-3		22.75	19.35	16.45
P2142L-3		24.90	21.20	18.00
D2147A	4K × 1 bit SRAM	7.25	6.50	5.85
P2147A		5.45	4.90	4.45
D2147A-3		7.75	7.00	6.30
P2147A-3		6.00	5.40	4.85
D2147AL		12.85	11.60	10.45
P2147AL		11.10	10.00	9.00
D2147AL-3		13.85	12.45	11.20
P2147AL-3		12.10	10.85	9.80
D2147H		7.25	6.50	5.85
D2147H-1		9.10	8.15	7.35
D2147H-2		8.00	7.20	6.50
D2147H-3		7.75	7.00	6.30
D2147HL		7.75	7.00	6.30
D2147HL-3		8.00	7.20	6.50
D2148H	1024 × 1 bit static RAM	8.80	7.95	7.15
D2148H-3		9.45	8.50	7.65
D2148HL		9.70	8.75	7.85
D2148HL-3		10.40	9.35	8.45
D2149H	1024 × 1 bit static RAM	$ 8.80	$ 7.95	$ 7.15
D2149H-2		15.00	13.50	12.15
D2149H-3		9.45	8.50	7.65
D2149HL		9.70	8.75	7.85
D2149HL-3		10.40	9.35	8.45
C2164-15	65,536 × 1 bit dynamic RAM	41.55	37.40	33.65
C2164-20		34.60	31.15	28.05
C2164-25		30.05	27.05	24.30
C2167-10	16,384 × 1 bit static RAM	39.55	37.60	35.70
C2167-55		63.25	60.10	57.05
C2167-70		47.50	45.10	42.85
C2167L-70		52.25	49.60	47.15
D2716	16,384 bit UV erasable EPROM	16.35	10.95	9.20
D2716-1		19.60	13.15	11.05
D2716-2		18.00	12.05	10.10
D2716-5		14.70	9.85	8.30
D2716-6		13.90	9.30	7.80
D2732A	32,768 bit UV erasable EPROM	30.95	22.25	19.30
D2732A-2		48.40	34.85	30.25
D2732A-3		22.50	16.20	14.05
D2732A-4		20.00	14.40	12.50
D2732A-20		53.25	38.25	33.30
D2732A-25		34.05	24.50	21.25
D2732A-30		24.75	17.80	15.45
D2758	1024 × 8 bit UV erasable EPROM	16.35	11.75	10.20
D2764	8,192 × 8 bit UV erasable EPROM	80.50	59.00	51.50
D2764-2		97.00	71.00	62.00
D2764-3		68.00	50.00	43.50
D2764-4		56.00	41.00	36.00
D2764-20		200.00	146.50	128.00
D2764-25		88.50	65.00	56.50
D2764-30		75.00	55.00	48.00
D2764-45		61.50	45.00	39.50
D2815	2048 × 8 bit EEPROM	50.00	43.00	40.00
D2815-3		42.50	36.50	34.00
D2815-4		40.00	34.50	32.00
D2816	2048 × 8 EEPROM	71.00	61.00	57.70
D2816-3		60.50	52.00	49.00
D2816-4		57.00	49.00	46.00
P3101A	64 bit RAM, fully decoded	11.45	9.30	7.60
D3104	16 bit content addressable memory	55.00	44.50	35.00
D3205	1-of-8 decoder	8.10	6.15	5.50
P3205		5.90	4.45	3.95
D3242	Address multiplexer and refresh counter	14.75	11.20	10.00
D3245	Quad TTL-MOS driver	8.50	6.45	5.70
D3404	6 bit latch	9.60	7.00	6.20
P3404		8.50	6.85	5.50
D3628A-1	1024 × 8 bit PROM, three-state	18.20	15.75	14.75
D3628A-3		16.15	13.95	13.10
D3628A-4		15.00	13.00	12.15
D3636	2048 × 8 bit PROM, three-state	22.60	20.55	18.95
D3636-1		25.45	23.35	21.55
D3636B-1		29.10	26.70	24.60
D3636B-2		27.20	24.95	22.90
D82S181	1K × 8 PROM, three-state	16.15	13.95	13.10
D82HS181	1K × 8 PROM, three-state	18.20	15.75	14.75
D82S191	2K × 8 PROM, three-state	25.45	23.35	21.55
D82HS191	2K × 8 PROM, three-state	27.20	24.95	22.90

MICROCOMPUTER COMPONENTS

D3001	Microprogram control unit	$30.60	$22.95	$19.15
D3002	Central processing element	20.30	15.25	12.70
D3003	Look-ahead carry unit	15.10	11.35	9.45
D8008	8 bit central processor unit	51.50	38.65	32.50
D8008-1		51.50	38.65	32.50
P8020H	8 bit microcomputer	*	*	*
P8021	8 bit microcomputer	*	*	*
P8021H		*	*	*
P8022	8 bit microcomputer	*	*	*
D8031	8 bit microcomputer	29.40	25.56	23.25
P8031		23.40	21.06	19.50
P8031-3		23.40	21.06	19.50
D8035	8 bit microcomputer	27.00	20.15	16.90
D8035L		12.00	9.50	8.05
P8035L		6.00	5.00	4.30
D8035HL		12.00	9.50	8.05
P8035HL		6.00	5.00	4.30
D8039	8 bit microcomputer	13.20	10.05	8.55
P8039		7.20	5.55	4.80
P8039-6		7.20	5.55	4.80
D8039H		13.20	10.05	8.55
P8039H		7.20	5.55	4.80
D8039HL		13.20	10.05	8.55
P8039HL		7.20	5.55	4.80
D8041A	Universal peripheral interface	*	*	*
P8041A		*	*	*
D8048	8 bit microcomputer	*	*	*
P8048		*	*	*
P8048H		*	*	*
P8048H-1		*	*	*
P8048L		*	*	*
D8049	8 bit microcomputer	*	*	*
P8049		*	*	*
D8051	8 bit microcomputer	*	*	*
P8051		*	*	*
P8051-3		*	*	*
D8080A	8 bit central processor unit	$ 9.80	$ 7.35	$ 6.15
P8080A		5.90	4.45	3.70
D8080A-1		12.70	9.55	7.95
P8080A-1		7.70	5.80	4.85
D8080A-2		11.30	8.50	7.10
P8080A-2		6.80	5.10	4.25
D8085AH	8 bit central processor unit	12.70	9.55	7.95
P8085AH		7.00	5.25	4.40
D8085AH-1		25.90	19.45	16.20
P8085AH-1		14.95	12.45	9.95
D8085AH-2		15.00	11.25	9.40
P8085AH-2		9.30	7.00	5.85
D8086	16 bit central processor unit	93.60	70.20	58.50
D8086-1		204.00	153.00	127.40
D8086-2		117.00	87.75	73.15
C8087	Numeric processor	*	*	*
D8088	8 bit central processor unit	32.00	24.00	20.00
P8088		23.00	16.90	14.10

*Price available on request.

MICROCOMPUTER COMPONENTS

Intel Number	Description	Net Each, Lots of 1-24	25-99	100 Up
D8089-3	I/O processor	$90.00	$78.00	$68.00
iAPX86/11	Advanced processor kit with (1) D8086 & (1) D8089-3	207.00	165.75	141.15
iAPX88/11	Advanced processor kit with (1) D8088 & (1) D8089-3	122.00	102.00	88.00
iAPX86/20	Advanced processor kit with (1) D8086 & (1) C8087	602.00	512.75	453.15
iAPX88/20	Advanced processor kit with (1) D8088 & (1) C8087	517.00	449.00	400.00
iAPX86/21	Advanced processor kit with (1) D8086, (1) C8087 and (1) D8089-3	692.00	590.75	501.15
iAPX88/21	Advanced processor kit with (1) D8088, (1) C8087 and (1) D8089-3	606.00	523.75	466.10
D8155H	256 × 8 bit HMOS static RAM	13.40	10.00	8.40
P8155H		7.70	5.75	4.80
D8155H-2		15.40	11.50	9.65
P8155H-2		9.70	7.25	6.05
D8156H	256 × 8 bit HMOS static RAM	13.40	10.00	8.40
P8156H		7.70	5.25	4.80
D8156H-2		15.40	11.50	9.65
P8156H-2		9.70	7.25	6.05
C8185	1024 × 8 bit bus multiplexed static RAM for 8085 systems	33.00	24.75	20.65
P8185		30.00	22.50	18.75
C8185-2		42.00	31.50	26.25
P8185-2		39.00	29.25	24.40
D8202A	16K dynamic RAM controller	40.50	30.40	25.30
D8202A-1		44.50	33.75	27.80
D8202A-3		30.00	22.50	18.75
D8203	64K dynamic RAM controller	43.40	32.55	27.15
D8203-1		47.70	35.80	29.80
D8203-3		32.20	24.15	20.15
C8206	Error detection/correction unit	99.20	74.40	62.00
C8206-8		89.30	67.00	55.85
D8212	I/O port	4.70	3.55	2.95
P8212		2.60	1.95	1.65
D8214	Interrupt control unit	12.80	9.60	8.00
P8214		8.55	5.70	5.35
D8216	Non-inverting bidirectional bus driver	4.40	3.30	2.75
P8216		2.50	1.90	1.60
D8224	Clock generator/driver for 8080A	5.80	4.35	3.65
P8224		3.30	2.50	2.10
D8226	Inverting bidirectional bus driver	4.40	3.30	2.75
P8226		2.50	1.90	1.60
D8228	System controller and bus driver for 8080A	8.10	6.10	5.10
P8228		5.50	4.15	3.45
C8231A	Math processor	195.00	195.00	162.50
C8231A-8		148.50	148.50	123.75
C8232	Floating point processor	195.00	195.00	162.50
C8232-8		148.50	148.50	123.75
D8237A	Programmable DMA controller for 8080A systems	28.00	21.00	17.50
P8237A		21.00	15.75	13.15
D8237A-5	Programmable DMA controller for iAPX 86, 88 systems	42.60	31.95	26.65
P8237A-5		32.00	24.00	20.00
D8238	System controller and bus driver for 8080A	8.10	6.10	5.10
P8238		5.50	4.15	3.45
D8243	I/O extender for single-chip microcomputers	14.00	10.50	8.75
P8243		8.00	6.00	5.00
D8251A	Programmable communication interface	10.30	8.00	6.90
P8251A		6.00	4.60	4.00
D8253	Programmable interval timer	15.30	11.50	9.60
P8253		10.30	7.75	6.45
D8253-5		16.20	12.15	10.15
P8253-5		11.00	8.25	6.90
D8254	High speed timer/counter	21.60	16.20	13.50
P8254		14.40	10.80	9.00
D8254-2		33.00	24.75	20.65
P8254-2		26.00	18.50	16.25
D8255A	Programmable peripheral interface	10.50	7.90	6.60
P8255A		6.00	4.50	3.75
D8255A-5	Programmable peripheral interface for 8080A systems	11.00	8.25	6.90
P8255A-5		6.50	4.90	4.10
D8257	Programmable DMA controller	$14.00	$10.45	$ 8.75
P8257		8.50	6.35	5.30
D8257-5	Programmable DMA controller for 8085 systems	14.80	11.05	9.25
P8257-5		9.00	6.70	5.65
D8259A	Programmable interrupt controller	15.00	11.20	9.40
P8259A		9.50	7.10	5.95
D8259A-2		22.60	16.85	14.15
P8259A-2		17.10	12.75	10.70
D8259A-8		14.50	10.80	9.05
P8259A-8		9.00	6.70	5.65
D8271-6	Floppy disk controller	66.40	49.80	41.50
P8271-6		57.60	43.20	36.00
C8272	Floppy disk controller, double density	38.00	28.50	23.75
P8272		28.80	21.60	18.00
D8273	Programmable SDLC/HDLC protocol controller	53.00	40.00	33.50
P8273		45.00	34.00	28.50
D8273-4		48.00	36.00	30.00
P8273-4		40.00	30.50	25.50
D8273-8		48.00	36.00	30.00
P8273-8		40.00	30.50	25.50
D8275	Programmable CRT controller	39.30	29.50	24.55
P8275		35.10	26.35	21.95
D8275-2		48.10	36.10	30.05
P8275-2		43.00	32.25	26.90
D8276	Small system CRT controller	26.50	19.90	16.60
P8276		22.00	16.50	13.75
D8276-2		29.00	21.75	18.10
P8276-2		24.20	18.15	15.15
D8278	Keyboard controller	33.90	28.25	25.30
P8278		27.90	23.25	20.80
D8279	Programmable keyboard/display interface	15.00	11.25	7.40
P8279		9.00	6.75	5.65
D8279-5		16.00	12.00	10.00
P8279-5		11.00	8.25	6.90
D8282	Non-inverting latch	13.00	9.75	8.10
P8282		8.90	6.70	5.60
D8283	Inverting octal latch	13.00	9.75	8.10
P8283		8.90	6.70	5.60
D8284A	Clock generator for 8088 and 8086	10.80	8.10	6.75
P8284A		7.80	5.85	4.90
D8284A-1		16.20	12.15	10.15
P8284A-1		11.70	8.80	7.35
D8286	Non-inverting octal bus transceiver	13.00	9.75	8.10
P8286		8.90	6.70	5.55
D8287	Inverting octal bus transceiver	13.00	9.75	8.10
P8287		8.90	6.70	5.55
D8288	Bus controller for iAPX88/10	27.00	20.25	16.90
C8289	Bus arbiter for iAPX86/11	73.50	62.30	53.75
P8289		58.20	49.30	42.55
D8291A	General purpose interface bus talker/listener	37.50	28.15	23.45
P8291A		32.40	24.30	20.25
D8292	General purpose interface bus controller	34.00	25.50	21.25
P8292		26.40	19.80	16.50
D8293-10	Bus transceiver	19.50	14.65	12.20
D8294(6)	Data encryption unit	33.90	28.25	25.30
P8294(6)		27.90	23.25	20.80
P8295	Dot matrix printer controller	27.90	23.25	20.80
D8355	2048 × 8 bit ROM with 16 I/O lines	★	★	★
P8355		★	★	★
D8355-2		★	★	★
P8355-2		★	★	★
D8741A	Universal peripheral	59.40	49.50	42.35
D8741A-8		33.60	28.00	24.30
D8748	8 bit microcomputer	30.00	25.00	21.50
D8748-6		22.00	18.30	14.70
D8748-8		22.00	18.30	14.70
C8751-6	8 bit microcomputer	225.00	210.00	180.00
C8751-8		225.00	210.00	180.00
D8749H	8 bit microcomputer	★	★	★
D8749H-3		68.00	52.00	45.00
D8749H-5		61.20	51.00	43.70
D8755A	2048 × 8 bit EEPROM	36.00	26.85	22.50
D8755A-2		54.00	40.30	33.75

★Price available on request.

PRICES LISTED ARE FOR GUIDANCE ONLY

intel Integrated Circuits

MILITARY COMPONENTS

Intel Number	Description	Net Each, Lots of 1-24	25-99	100 Up
MD2114A-4/B	1024 × 4 bit static RAM	$21.50	$19.30	$17.50
MD2114A-4		16.75	15.00	13.50
MD2114A-5/B		13.90	12.75	11.40
MD2114A-5		9.90	9.00	8.25
MD2114AL-3/B		27.50	24.75	22.25
MD2114AL-3		23.50	21.00	18.95
MD2114AL-4/B		23.95	21.50	19.50
MD2114AL-4		20.00	17.95	16.25
MD2115A/B	High speed 1024 bit static RAM, open collector	20.00	17.75	15.50
MD2115A		14.75	12.25	10.95
MD2115AL/B		21.25	18.75	16.25
MD2115AL		15.50	13.50	11.50
MD2118-4/B	16,384 bit dynamic RAM	43.00	38.75	34.95
MD2118-4		30.25	27.25	24.50
MD2118-7/B		33.25	29.95	26.95
MD2118-7		23.25	20.95	18.95
MD2125A/B	1024 bit static RAM, three-state	20.00	17.95	15.95
MD2125A		14.50	12.75	10.95
MD2125AL/B		21.25	18.75	16.25
MD2125AL		15.50	13.50	11.50
JD2147H01	4K × 1 static RAM	35.25	31.50	26.75
JD2147H03		37.00	33.25	28.00
JD2147H05		104.50	93.65	84.30
JD2147H07		124.95	112.50	101.50
MD2147H/B	4096 × 1 bit static RAM	16.95	15.30	13.75
MD2147H		12.75	11.70	10.50
MD2147H-3/B		66.50	59.95	53.95
MD2147H-3		49.95	44.95	40.50
MD2148H/B	1024 × 4 bit static RAM	84.95	73.75	63.95
MD2148H		63.95	55.30	47.95
MC2167-10		255.00	250.00	242.95
MD2716M/B	16,384 bit UV erasable EPROM	28.20	21.70	19.20
MD2716/B		25.70	19.95	17.70
MD2716		23.20	17.95	15.95
MD2732/B	32K EPROM	67.75	51.95	46.50
MS2732-20		58.95	45.50	40.25
MD2764	64K EPROM	282.00	247.00	212.00
MD2764/B		376.50	329.00	282.50
MD2816/B	2K × 8 EPROM	310.00	257.00	236.00
MD2816-4/B		279.00	231.00	213.00
MD2816/B		383.00	316.00	291.00
MD2816		258.95	214.00	196.95
MD3001/B	Microprogram control unit	118.70	89.05	74.20
MD3002/B	Central processing unit	63.90	47.95	39.95
MD3003/B	Look-ahead carry unit	48.00	36.00	30.00
MD3636/B	16K bit PROM, three-state	96.00	73.95	65.95
JD3636A02		256.00	202.50	160.00
MD8035L/B	8 bit microcomputer	53.20	39.80	34.60
MD8048/B		*	*	*
JD8080A	Central processing unit	169.40	127.05	105.90
MD8080A/B		40.55	33.85	26.85
MD8085AH/B		121.90	97.50	81.25
MD8086/B		585.00	438.75	365.75
MD8086/JAN		866.25	649.70	541.45
MD8155H/B	HMOS SRAM	112.50	90.00	75.00
MC8185/B	1024 × 8 static RAM, multiplexed	247.50	185.65	154.70
MD8212		*	*	*
MD8214/B	Interrupt control unit	28.00	24.75	21.15
MD8214		*	*	*
MD8216/B	Non-inverting bidirectional	9.50	8.35	7.15
MD8216		*	*	*
MD8224	Clock generator/driver	15.00	13.15	11.25
MD8226/B	Inverting bidirectional	9.50	8.35	7.15
MD8226		*	*	*
MD8228/B	System controller	17.85	15.65	13.40
MD8228		*	*	*
MD8251A/B	Programmable communications interface	44.00	36.00	31.00
MD8253/B	Programmable interval timer	96.60	77.30	64.40
MD8255A/B	Programmable peripheral interface	53.00	39.75	33.15
MD8257/B	Programmable DMA controller	72.00	62.00	52.00
MD8259A/B	Programmable interrupt controller	90.00	67.50	56.25
MD8282/B	Non-inverting octal latch	52.00	39.00	32.50
MD8283/B	Inverting octal latch	52.00	39.00	32.50
MD8284A/B	Clock generator	43.80	32.85	27.40
MD8286/B	Non-inverting octal bus transceiver	52.00	39.00	32.50
MD8287/B	Inverting octal bus transceiver	52.00	39.00	32.50
MD8288/B	Bus controller	108.00	81.00	67.60
MD8741A/B	Universal peripheral interface	227.70	192.50	167.20
MD8748/B	8 bit microcomputer	160.00	120.00	100.00
MD8755A/B	16,384 bit EPROM	144.00	108.00	90.00

*Price available on request.

INDUSTRIAL GRADE PRODUCTS

Intel Number	Description	Net Each, Lots of 1-24	25-99	100 Up
ID2114A-4	1024 × 8 bit static RAM	$10.15	$ 9.15	$ 8.20
ID2114A-5		9.10	8.15	7.35
ID2114AL-3		12.15	10.95	9.85
ID2114AL-4		11.10	10.00	9.00
ID2118-4	16,384 bit dynamic RAM	25.65	23.10	20.80
ID2118-7		19.75	17.80	16.00
ID2716	16,384 bit UV erasable EPROM	21.25	14.25	11.95
ID2732A	4K × 8 UV EPROM	36.50	26.75	23.40
ID8022	8 bit microcomputer	*	*	*
ID8035L		32.76	30.50	20.33
ID8039		37.00	27.61	24.67
ID8048		*	*	*
ID8049		*	*	*
ID8085A	Central processor unit	18.20	13.60	11.40
ID8086		277.20	207.90	173.25
ID8155H	256 × 8 static RAM	42.80	32.15	26.85
ID8156H		42.80	32.15	26.85
IC8185	1024 × 8 static RAM, multiplexed	43.90	32.75	27.45
ID8212	I/O port	7.50	5.60	4.70
ID8216	Non-inverting bidirectional bus driver	6.70	5.00	4.20
ID8226	Inverting bidirectional	6.70	5.00	4.20
ID8243	I/O extender	19.00	14.18	12.67
ID8251A	Programmable communications interface	31.65	23.75	19.80
ID8253	Programmable interval timer	39.40	29.55	24.65
ID8255A	Programmable peripheral interface	23.00	17.30	14.40
ID8259A	Programmable interrupt controller	21.20	15.80	13.25
ID8279	Programmable keyboard/display interface	31.50	23.65	19.70
ID8282	Non-inverting latch	26.00	19.50	16.25
ID8283	Inverting octal latch	26.00	19.50	16.25
ID8284	Clock generator	21.60	16.20	13.50
ID8286	Non-inverting octal bus transceiver	26.00	19.50	16.25
ID8287	Inverting octal bus	26.00	19.50	16.25
ID8288	Bus controller	54.00	40.50	33.75
ID8741A	Universal peripheral interface	109.10	90.90	71.50
ID8748	8 bit microcomputer	99.20	82.60	65.00
ID8755A	16,384 bit EEPROM	52.50	39.20	32.80

INTEL MAGNETICS

Intel Number	Description	Net Each, Lots of 1-9	10-24
BPK 70	One megabit bubble memory system contains (1) 7110, (1) 7242, (1) 7230, (1) 7250, (2) 7254		
BPK 70 S9014	Temp. range −20°C to +85° C	$3145.00	$2965.00
BPK 70-0	Temp. range 0° C to +50° C	995.00	890.00
BPK 70-1	Temp. range 0° C to +70° C	1110.00	990.00
BPK 70-2	Temp. range +10° C to +50° C	860.00	770.00
BPK 72	Bubble memory prototype kit contains documentation, IBM-72 blank P.C. board, (1) 7110, (1) 7220, (1) 7230, (1) 7242, (1) 7250, (2) 7254		
BPK 72 S9014	Temp. range −20° C to +85° C	3495.00	3295.00
BPK 72-0	Temp. range 0° C to +50° C	1130.00	1010.00
BPK 72-1	Temp. range 0° C to +70° C	1245.00	1115.00
BPK 72-2	Temp. range +10° C to +50° C	995.00	890.00
D7220-1	Bubble memory controller	100.00	95.00

OEM MICROCOMPUTER SYSTEMS

iSBC-80™ SINGLE-BOARD COMPUTERS

Intel Number	Description	Net Each, Lots of 1-9	Net Each, Lots of 10-24
SBC-80/04	Complete computer system on one 6.75" × 7.85" board. Includes an 8085A CPU, system clock, 256 bytes of read/write memory, sockets for 2K or 4K bytes of ROM, 22 programmable I/O lines with sockets for drivers and terminators, serial I/O lines with TTL buffering and hole patterns for RS232C drivers and receivers, and programmable binary timer.	$ 245.00	$ 225.00
SBC-80/05	Complete computer system on one 6.75" × 12" board. Includes an 8085A CPU, system clock, 512 bytes of read/write memory, sockets for 2K or 4K bytes of ROM, 22 programmable I/O lines with sockets for drivers and terminators, serial I/O lines with TTL buffering and sockets for RS232C drivers and receivers, multimaster MULTIBUS control logic, and programmable interval timer.	435.00	400.00
SBC-80/10B	Complete computer system on one 6.75" × 12" board. Includes an 8085A CPU, system clock, one iSBX bus MULTIMODULE interface, 1K bytes of RAM with sockets for expansion to 4K bytes, sockets for 4K, 8K, or 16K bytes of ROM, 48 programmable I/O lines, a USART with RS232C and TTY drivers/receivers, sockets for I/O line drivers/terminators, a 1.04 millisecond timer, and MULTIBUS control logic.	560.00	515.00
SBC-80/20-4	Complete computer system on one 6.75" × 12" board. Includes an 8080A CPU, system clock, 4K bytes of RAM, sockets for 4K or 8L bytes of ROM, multimaster MULTIBUS arbitration logic, 8-level programmable vectored interrupt control, 2 programmable BCD and binary timers/counters, 48 programmable I/O lines, a USART, RS232C drivers and receivers, and sockets for I/O line drivers and terminators.	925.00	850.00
SBC-80/24	Complete computer system on one 6.75" × 12" board. Includes an 8085A-2 CPU, system clock, two iSBX bus MULTIMODULE interfaces, 4K bytes of RAM, sockets for 4K, 8K, or 16K bytes of ROM, multimaster MULTIBUS arbitration logic, 12-level programmable vectored interrupt control, 2 programmable BCD or binary timers/counters, 48 programmable I/O lines, a USART, and RS232C drivers and terminators.	1095.00	1005.00
SBC-80/30	Complete computer system on one 6.75" × 12" board. Includes an 8085A CPU, system clock, 16K bytes of dual-port RAM, sockets for 2K, 4K, or 8K bytes of ROM, socket for an 8041/8741 Universal Peripheral Interface, multimaster MULTIBUS arbitration logic, 12-level programmable vectored interrupt control, 2 programmable BCD and binary timers/counters, 24 programmable I/O lines, a USART, RS232C drivers and receivers, and sockets for I/O drivers and terminators.	1565.00	1430.00

iSBC-86™ SINGLE-BOARD COMPUTERS

Intel Number	Description	Net Each, Lots of 1-9	Net Each, Lots of 10-24
SBC-86/05	Complete computer system on one 6.75" × 12" board. Includes 8086-2 CPU, two iSBX bus MULTIMODULE interfaces, 8K bytes of RAM, sockets for 8K, 16K, or 32K bytes of ROM, multimaster MULTIBUS arbitration logic, 9-level programmable interrupt control, 2 programmable BCS binary timers/counters, 24 programmable I/O lines with sockets for I/O drivers and terminators, and a USART with associated RS232C drivers and receivers.	$1790.00	$1645.00
SBC-86/12A	Complete computer system on one 6.75" × 12" board. Includes an 8086 CPU, system clock, 32K bytes of dual-port RAM, sockets for 4K, 8K, or 16K bytes of ROM, multimaster MULTIBUS arbitration logic, 2 programmable BCD binary timers/counters, 24 programmable I/O lines with sockets for line drivers and terminators, and a USART with associated RS-232C drivers and receivers.	2620.00	2405.00
SBC-957B	Intellec to target system interface and system monitor suitable for use on iSBC 86 and 88 computers, or other iAPX 86 and 88 microcomputers. A default configuration is included to be used as a monitor and full speed debugging tool for the iSBC 86/12A, 86/05, and 88/40 computers. Utilities for transferring files and programs between the target system and the development system are supplied on both single and double density diskettes.	2250.00	2250.00

iSBC-88™ SINGLE-BOARD COMPUTERS

SBC-88/40	Complete computer system and analog input on one 6.75" × 12" board. Includes iAPX 88/10 microprocessor, 32 single-ended/16 differential analog inputs, 3 counters/timers, 24 lines of parallel I/O, 4K bytes of static RAM (1K bytes dual-port), four 28-pin EPROM sockets, and three iSBX MULTIMODULE connectors.	$2000.00	$1840.00
SBC-88/25	Complete computer system on one 6.75" × 12" board. Includes an 8088 CPU, two iSBX bus MULTIMODULE interfaces, 4K bytes of RAM, sockets for 8K, 16K, or 32K bytes of ROM, multimaster MULTIBUS arbitration logic, 9-level programmable interrupt control, 2 programmable BCD binary timers/counters, 24 programmable I/O lines with sockets for drivers and terminators, and a USART with associated RS232C drivers and receivers.	1295.00	1190.00

SPACE DOES NOT PERMIT LISTING OF ALL RELATED COMPONENTS. WRITE FOR INFORMATION ON UNLISTED ITEMS.

PRICES LISTED ARE FOR GUIDANCE ONLY

intel Microcomputer Boards

OEM MICROCOMPUTER SYSTEMS

iSBC™ HIGH-SPEED MATHEMATICS UNITS

Intel Number	Description	Net Each, Lots of 1-9	Net Each, Lots of 10-24
SBC-310A	High-speed mathematics unit. Contains Series 3000 microcomputer.	$1100.00	$1010.00
SBC-337	MULTIMODULE Numeric Data Processor. Contains 8087 IC and can be used on iSBC 86, SBC 88 single-board computers or with iAPX 86/88 component designs operating at 5 MHz.	560.00	515.00

iSBC COMBINATION MEMORY AND I/O EXPANSION BOARDS

SBC-108A	Combination memory and I/O expansion with 8K bytes of RAM, sockets for 4K, 8K, or 16K bytes of ROM, 48 programmable I/O lines, USART with RS232C drivers and receivers, sockets for I/O line drivers and terminators, 8 interrupt request lines, and 1 millisecond timer.	$980.00	$900.00
SBC-116A	Combination memory and I/O expansion with 16K bytes of RAM, sockets for 4K, 8K, or 16K bytes of ROM, 48 programmable I/O lines, USART with RS232C drivers and receivers, sockets for I/O line drivers and terminators, 8 interrupt request lines, and 1 millisecond timer.	1185.00	1090.00

iSBC™ MASS STORAGE EXPANSION

SBX-218	Flexible Disk Controller iSBX MULTIMODULE board. Controls up to four 8" or 5 1/4" single or double density, single or double sided diskette drives, provides on-board data separator using phase-locked loop.	$540.00	$495.00
SBC-208	Flexible Disk Controller. Controls up to four 8" or 5 1/4" single or double density diskette drives from MULTIBUS System bus, data transfers take place via DMA, on-board data separator uses phase-locked loop.	1065.00	980.00
SBC-202	Double Density Flexible Diskette Controller. Plugs into two slots of iSBC-604 or -614 cardcage.	1680.00	1545.00
SBC-204	Universal Flexible Diskette Controller. Plugs into one MULTIBUS System slot. Controls most single density standard flexible diskette drives.	780.00	720.00
SBC-215A	Winchester disk controller. Interfaces up to four 8" or 14" open-loop Winchester disk drives. Shugart SA1000/Memorex 101 compatible.	2000.00	1820.00
SBC-215B	Winchester disk controller. Interfaces up to four 8" or 14" closed-loop Winchester disk drives. Priam/Pertec compatible.	2000.00	1820.00
SBC-220	SMD disk controller. Interfaces up to four SMD compatible disk drives.	2500.00	2275.00

MEMORY EXPANSION BOARDS

Intel Number	Description	Net Each, Lots of 1-9	Net Each, Lots of 10-24
SBC-016A	16K byte dynamic RAM memory	$705.00	$635.00
SBC-032A	32K byte dynamic RAM memory	950.00	860.00
SBC-064	64K byte dynamic RAM memory	1150.00	1035.00
SBC-064A	64K byte dynamic RAM memory w/parity	1310.00	1180.00
SBC-028A	128K byte dynamic RAM memory w/parity	1810.00	1630.00
SBC-056A	256K byte dynamic RAM memory w/parity	3195.00	2875.00
SBC-012B	512K byte dynamic RAM memory w/parity	3995.00	3595.00
SBC-094	4K byte low power static CMOS RAM with battery backup for 96 hours minimum data retention.	1150.00	1060.00
SBC-300	32K byte RAM expansion module for iSBC 86/12A computer.	1045.00	960.00
SBC-301	4K byte RAM MULTIMODULE board for iSBC 88/40 and 80/24 computers.	325.00	295.00
SBC-302	8K byte RAM MULTIMODULE board for iSBC 86/05 computer.	450.00	405.00
SBC-340	16K byte EPROM/ROM Expansion Module for iSBC 86/12A computer.	140.00	130.00
SBC-341	MULTIMODULE EPROM Expansion for iSBC 86/05 and 88/40 computers.	150.00	140.00
SBC-416	16K byte EPROM/ROM memory.	360.00	330.00
SBC-464	64K byte EPROM/ROM memory.	570.00	525.00

iSBC DIGITAL I/O EXPANSION BOARDS

SBX-488	Complete implementation of GPIB (IEEE 488-1978) Talker, Listener, and Controller on one 3.7" X 2.85" board.	$650.00	$598.00
SBC-517	Programmable Serial and Parallel I/O. Contains 48 programmable I/O lines. USART with RS232C drivers and receivers, sockets for I/O line drivers and receivers, 8 interrupt request lines, and 1 msec. interval timer.	470.00	430.00
SBC-519	Programmable I/O. Contains 72 programmable I/O lines, sockets for line drivers and terminators, 8-level programmable interrupt control, and 1 to 4 msec interval timer.	550.00	505.00
SBC-566	Optically isolated Input/Output. Contains 24 input lines, 16 output lines, and 8 programmable input/output lines with sockets for user supplied optical isolators and terminators.	485.00	436.00
SBC-569	Intelligent Digital Controller. Complete system on one 6.75" X 12" board. Includes an 8085A CPU, system clock, 2K bytes of dual-port RAM sockets for 2K-16K bytes of ROM, sockets for three Universal Peripheral Interfaces, sockets for 12 I/O line drivers and terminators, MULTIBUS interface logic, 12-level programmable vectored interrupt control, 3 programmable BCD and binary timers/counters, serial input and output lines, and +5 V operation.	800.00	720.00

OUR STOCKS ARE FULLY UP TO DATE WITH ALL THE LATEST PRODUCTS.

ASK ABOUT NEW OR UNLISTED ITEMS.

Intel Number	Description	Net Each, Lots of 1-9	10-24
	iSBC COMMUNICATION BOARDS		
SBC-534	Four Channel Communications Controller. Contains four RS-232C or optically isolated 20 mA buffered USART channels plus Auto-call Unit Interface with software programmable baud rates, programmable interrupt handling, two interval timers, and loopback for diagnostic uses.	$790.00	$710.00
SBC-544	Intelligent Communications Controller with four programmable USART channels. Contains 8085A CPU, system clock, 16K bytes of dual-port RAM, sockets for 4K or 8K bytes of ROM, 12-level programmable vectored interrupt control, 3 programmable timers/counters, Auto-call interface, and RS232C drivers and receivers.	1780.00	1602.00
SBC-550	Ethernet Communications Controller. A two-board set for 10M bit per sec. coaxial transmission.	4000.00	3680.00
	iSBC ANALOG I/O EXPANSION BOARDS		
SBC-711	Analog Input. Contains 8 differential/16 single-ended input multiplexer, programmable gain amplifier, sample/hold, 12-bit A/D converter, pacer clock, DC/DC converter, and interface logic.	$840.00	$840.00
SBC-724	Analog Output. Contains four independent, 12-bit A/D voltage output converters with DC/DC converter, and interface logic.	756.00	756.00
SBC-732	Combination Analog Input/Output. Contains 8 differential/16 single-ended input multiplexer, programmable gain amplifier, sample/hold, 12-bit A/D converter, pacer clock, DC/DC converter, two 12-bit D/A converters with voltage and current output.	1035.00	1035.00
	iSBC CARDCAGES AND CHASSIS		
SBC-604	Stand-Alone Cardcage and PC backplane. Sockets for four iSBC boards. Unit can interface with iSBC-614 units via its male backplane connector.	$235.00	$215.00
SBC-614	Expansion Cardcage and PC backplane. Sockets for four iSBC boards. Unit can interface with iSBC-604 and 614 units via male and female connectors.	235.00	215.00
SBC-655	System Chassis. 3 1/2" high. Contains one iSBC-604 Cardcage/backplane with connectors for up to four MULTIBUS compatible iSBC-80 86 boards, plus a power supply, dual cooling fans, front panel with switches and lights, RS-232C cable and parallel connectors. Mounts in standard 19" rack.	1695.00	1525.00
SBC-660	System 80 Chassis. 7" high. Contains connectors and backplane for 8 iSBC boards, power supply, dual fans, and front panel. Mounts in 19" rack.	2120.00	1910.00
SBC-665	System Chassis. Contains four MULTIBUS board slots in 19" rack. Provides switching power supply, integral cooling, control/indicator panel.	1625.00	1460.00

Intel Number	Description	Net Each, Lots of 1-9	10-24
	iCS™ INDUSTRIAL CONTROL SERIES		
ICS 80 Kit 635	Industrial chassis with SBC 635 power supply. Contains 4-slot MULTIBUS backplane, four fans, control panel with 3 switches and indicators, keylock, mounting hardware, and iCS 9XX signal conditioning panels.	$2090.00	$1880.00
ICS 80 Kit 640	Same, except with SBC 640 power supply.	2290.00	2060.00
ICS 910	Analog Signal Conditioning/Termination Panel. Includes cables and connectors, rack brackets, labels, and hardware.	390.00	351.00
ICS 920	Digital Signal Conditioning/Termination Panel. Includes cable, labels, and hardware.	420.00	378.00
ICS 930	AC Signal Conditioning/Termination Panel. Includes cables and connectors, labels, and hardware.	380.00	342.00
	iSBC POWER SUPPLIES		
SBC-635	Single-Chassis Power Supply provides ±12 V and ±12 V with output current capacity for one single-board computer and up to 3 iSBC memory, I/O, or peripheral control expansion boards.	$610.00	$545.00
SBC-640	Single Chassis Power Supply provides ±5 V and ±12 V with current capacity for 8 to 12 iSBC boards. Mounts in iSCS 80 Industrial Chassis.	825.00	745.00
SBC-645	110 Watt Switching Power Supply. Provides ±5 V and ±12 V in EMI-shielded cooled package with controls/indicators for MULTIBUS System environment.	1120.00	1010.00
	iSBX™ MULTIMODULE SERIES		
SBX-311	Analog Input Multimodule Board. Contains 8 differential/16 single-ended inputs. Resistor gain (1-250 X), 12-bit resolution, 18 kHz samples/sec, iSBX bus compatible.	$610.00	$560.00
SBX-328	Analog Output Multimodule Board. Contains 8 independent analog output, voltage or current loop selectable, 12-bit resolution, iSBX bus compatible.	750.00	690.00
SBX-331	High speed fixed/floating point math iSBX MULTIMODULE board. Performs fixed single and double precision (16/32 bit) and floating point 32 bit arithmetic functions. Additional functions include transcendental, data manipulation, and fixed/float and float/fixed point conversion commands.	350.00	325.00
SBX-332	High speed floating point math iSBX MULTIMODULE board. Performs single/double precision (32/64 bit) add, subtract, multiply, and divide functions compatible with proposed IEEE and existing Intel floating point format.	350.00	325.00
SBX-350	Programmable Input/Output iSBX MULTIMODULE board. Contains 24 parallel I/O lines and sockets for line drivers and terminators.	155.00	140.00
SBX-351	Programmable Communications iSBX MULTIMODULE board. Contains one RS232C or RS449/422 buffered USART channel with software programmable baud rates, and two programmable BCD and binary timers/counters.	230.00	210.00
SBX-960-5	Male iSBX MULTIMODULE Connector. Package of five.	65.00	60.00

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MOSTEK Microcomputer Hardware

MICROCOMPUTER COMPONENTS

An extensive selection of microcomputer components are available to cover the full spectrum of microcomputer applications. The F8 series, the 3870 series, and the Z80 series offer a wide range of performance and power for a wide variety of system needs.

Model No.	Features
F8 SERIES	
MK3850(P/N)-3	CPU for F8 Series
MK3851(P/N)	Program storage unit
MK3852(P/N)	Dynamic memory interface
MK3853(P/N)	Static memory interface
MK3854(P/N)	Direct memory access
MK3861(P/N)	Peripheral I/O
MK3871(P/N)	Peripheral I/O

Z80 SERIES

All parts are available in either 2.5 or 4.0 MHz versions, except the MK3886 Combo Chip (2.5 MHz only) and the MK-3880-6 (6MHZ Z80 CPU).

MK3880(P/N)	Z80 CPU-3 speeds: 6.0, 4.0, or 2.5 MHz
MK3881(P/N)	Parallel I/O controller
MK3882(P/N)	Counter/Timer circuit
MK3883(P/N)	Direct memory access controller
MK3884/5/6(P/N)	Serial I/O controller
MK3886	Combo Chip. 256×8 RAM, 2 timers, Serial I/O port, interrupt vector

3870 SERIES

For single chip applications, this series allows extensive design momentum. Choose from the basic 3870 models, the 3873 models with a hardware USART, or the 3875 models for battery back-up capability. All models listed below have a CPU memory RAM 64 byte temporary storage device (Scratchpad).

Model No.	ROM (bytes)	XEC RAM (bytes)	Prll. I/O (bits)	Spec. I/O
MK3870/10	1K	0	32	....
MK3870/12	1K	64	32	....
MK3870/20	2K	0	32	....
MK3870/22	2K	64	32	....
MK3870/30	3K	0	32	....
MK3870/32	3K	64	32	....
MK3870/40	4K	0	32	....
MK3870/42	4032	64	32	....
MK3873/10	1K	0	29	SI,SO,SCLK
MK3873/12	1K	64	29	SI,SO,SCLK
MK3873/20	2K	0	29	SI,SO,SCLK
MK3873/22	2K	64	29	SI,SO,SCLK
MK3875/22	2K	64	30	V_{SB},V_{BB}
MK3875/42	4032	64	30	V_{SB},V_{BB}
MK38P70/02	External	64	32	....
MK38P73/02	External	64	29	SI,SO,SCLK

MOSTEK SDE™ SERIES

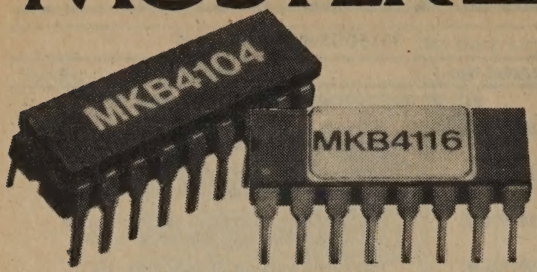
The SDE series offers powerful features and versatility to the OEM enabling construction of high performance, memory-intensive systems for a wide range of applications.

Model No.	Designator	Description
DATA PROCESSING		
MK78122	OEM-80E/4	Z80 CPU with CTC, 4K-bytes RAM and two PIO ports
MK78124	OEM-80E/16	Z80 CPU with CTC, 16K-bytes RAM and two PIO ports
MEMORY		
MK78109	RAM-80E	16-bytes RAM
MK78110	RAM-80BE	64K-RAM with PIO Channels
INPUT/OUTPUT		
MK78146	FLP-80E	Floppy-disk interface
MK78172-42	AIO-80E/1	Analog I/O board
MK78172-56	AIO-80E/2	Analog I/O board
MK78175-40	AIO-80E/3	Analog I/O board
MK78177-26	A/D-80E/1	Analog to digital input
ACCESSORIES		
MK78182-1	SDE-RMC6	Rack mount chassis, 6 slot
MK78182-2	SDE-RMC6-50	Rack mount chassis, 6 slot 50 Hz
MK79062	SDE-EXT	Extender Card

TELECOMMUNICATIONS

Model No.	Features
PULSE, REPERTORY, AND TONE DIALERS	
MK50981(N)	For use in parallel-pulse applications, ceramic resonator frequency reference, redial capability
MK50982(N)	Improved Version of MK5098. Ceramic resonator frequency reference, redial capability
MK50991(N)	Mute output interfaces with bi-stable latching relay, RC reference, redial capability
MK50992(N)	Improved version of MK5099. RC reference, redial capability
MK5170(N)	Capacity of 10, 24, 50 or 100 different 20-digit call numbers determined by RAM
MK5175(N)	On-chip RAM capable of storing ten 16-digit telephone numbers.
MK5087(N)	Tone amplitude regulation and muting
MK5089(N)	Interfaces easily in electronic or microprocessor dialing applications
MK5091(N)	Designed to meet European CEPT Specs. with on-board bi-polar driver
MK5380(N)	Improved version of Tone II series. Direct Telephone line operation
MK5389(N)	Improved version of MK5389 with lower operating voltage
MK5382(N)	Integrated tone dialer with up to 13 digit last-number redial
ACTIVE SPEECH NETWORK	
MK5242(N)	Will replace subscriber set hybrid transformer type speech network in 2 to 4-wire conversion function
TONE DECODERS	
MK5102(N)-5	High immunity to false decoders. Single power supply
MK5103(N)-5	Intended for non-voice DTMF applications
PCM CODECS AND FILTERS	
MK5116(J/P)	μ255-law companding CODEC, 16-pin package
MK5151(J/P)	μ255-law companding CODEC with A-B signaling, 24-pin package
MK5156(J/P)	A-law companding CODEC, 16-pin package
MK5912(N/J/P)	Monolithic transmit/receive filter, 16-pin package, low power
MK5300(J/P)	Combination transmit/receive filter and μ255 companding CODEC in a single chip
INDUSTRIAL COUNTER/TIME BASE	
MK5009(P/N)	16-pin MOS oscillator and divider chain with division modes from 1 to 36 × 108
INDUSTRIAL A/D CONVERTERS	
MK50808(N)	8-bit linear A/D converter, 8-channel input, 28-pin package
MK50816(N)	8-bit linear A/D converter, 16-channel input (expendable), 40-pin package
MK5168(N)	8-bit linear A/D converter, single channel input, 16-pin package
INDUSTRIAL FREQUENCY GENERATORS	
MK50240(P/N)	Top-octave frequency generator with 50% output duty cycle, 13 notes, 16-pin package
MK50241(P/N)	Top-octave frequency generator with 30% output duty cycle, 13 notes, 16-pin package
MK50242(P/N)	Top-octave frequency generator with 50% output duty cycle, 12 notes, 16-pin package
INDUSTRIAL COUNTER/DECODERS	
MK5002(P/N)	4-digit counter/decoder display with multiplexed 7-segment and BCD outputs in a 28-pin package
MK5005(P/N)	4-digit counter/decoder display with multiplexed 7-segment outputs in a 24-pin package
MK5007(P/N)	4-digit counter/display decoder with multiplexed BCD outputs, 16-pin
MK50395(N)	6-decade counter/display decoder with multiplexed BCD outputs and 7-segment outputs, 40-pin
MK50396(N)	6-decade counter display decoder programmed to count time: 99 hrs., 59 min., 59 sec., 40-pin
MK50397(N)	6-decade counter display decoder programmed to count time: 59 min., 59 sec., 99/100 sec., 40-pin
MK50398(N)	6-decade counter display decoder with multiplexed 7-segment outputs, 28-pin
MK50399(N)	6-decade counter display decoder with multiplexed BCD outputs, 28-pin

MOSTEK Memory Components



DYNAMIC RANDOM ACCESS MEMORIES (RAMs)

× 1 pin-compatibility permits density upgrades from the MK4116 (16K), to the MK4332 (32K), to the MK4164 (64K) with minimum redesign. The newest +5 Volt × 1 memories will allow upgrades to the 128K level: MK4516 (16K), to MK4532 (32K), to MK4164 (64K), to MK4528 (128K). Power supply requirements +12V, +5V, −5V, (±10%) or +5V, −12V as indicated.

Model No.	Org.	Access Time	Pins	Net Each, Lots of
MK4006(P)-6†	1K×1	400ns	16	Prices On Request
MK4008(P)-6*†	1K×1	500ns	16	
MK40027(J/N)-1‡	4K×1	120ns	16	
MK4027(J/N)-2‡	4K×1	150ns	16	
MK4027(J/N)-3‡	4K×1	200ns	16	
MK4027(J/N)-4‡	4K×1	250ns	16	
MK4116(J/N)-2‡	16K×1	150ns	16	
MK4016(J/N)-3‡	16K×1	200ns	16	
MK4116(J/N)-4‡	16K×1	250ns	16	
MK4332(D)-3‡	32K×1	200ns	16	
MK4516(J/N)-10†	16K×1	100ns	16	
MK4516(J/N)-12†	16K×1	120ns	16	
MK4516(J/N)-15†	16K×1	150ns	16	
MK4164(J/N)-10†	64K×1	100ns	16	
MK4164(J/N)-12†	64K×1	120ns	16	
MK4164(J/N)-15†	64K×1	150ns	16	

*Not recommended for new design. †Power supply: +5V, −12V. ‡Power supply: +12V, +5V, −5V, (±10%).

PSEUDOSTATIC RAMs

This 2K × 8 RAM has all the performance and cost advantages of a dynamic RAM but is as easy to use as a static RAM.

MK4816(J/N)-3	2K×8	200ns	28	Prices On Request
MK4816(J/N)-4	2K×8	250ns	28	
MK4816(J/N)-5	2K×8	300ns	28	
MK4816(J/N)-34	2K×8	220ns	28	
MK4816(J/N)-44	2K×8	250ns	28	
MK4816(J/N)-54	2K×8	300ns	28	

STATIC RAMs

Complimenting the series of dynamic memories are the static memories. Choose two configurations: either ×1 organization or × 8 organization. The × 1 statics feature single +5V power supply and Edge-Activated™ design to reduce power dissipation in the standby mode. Wide-word statics are part of the BYTEWYDE™ series of static RAMs, ROMs, and EPROMs. All feature high performance, n words × 8 organization, and common-pin configurations to allow easy system upgrades in density and performance.

MK2147(J/N)-55	4K×1	55ns	18	Prices On Request
MK2147(J/N)-70	4K×1	70ns	18	
MK2147(J/N)-85	4K×1	85ns	18	
MK4104(J/N)-3	4K×1	200ns	18	
MK4104(J/N)-4	4K×1	250ns	18	
MK4104(J/N)-5	4K×1	300ns	18	
MK4104(J/N)-6	4K×1	350ns	18	
MK4118(P/J/N)-1	1K×8	120ns	24	
MK4118(P/J/N)-2	1K×8	150ns	24	
MK4118(P/J/N)-34	1K×8	200ns	24	
MK4118(P/J/N)-4	1K×8	250ns	24	
MK4801A(P/J)-70	1K×8	70ns	24	
MK4801A(P/J)-90	1K×8	90ns	24	
MK4802(P/J)-70	1K×8	70ns	24	
MK4802(P/J)-90	2K×8	90ns	24	
MK4802(P/J)-1	2K×8	120ns	24	
MK4802(P/J)-3	2K×8	200ns	24	

ELECTRICALLY PROGRAMMABLE READ ONLY MEMORIES (EPROMs)

The MK2716 series EPROMs are a popular 16K programmable memory with access speeds of from 650ns to a fast 300ns. All are pin-compatible with the series of BYTEWYDE™ static memories. . . .

MK2716(J)-5	2K×8	300ns	24	Prices On Request
MK2716(J)-6	2K×8	350ns	24	
MK2716(J)-7	2K×8	400ns	24	
MK2716(J)-8	2K×8	450ns	24	
MK2716(J)-12	2K×8	650ns	24	
MK2764(T)-8*	8K×8	450ns	28	

*Available 1981
™BYTEWIDE and Edge-Activated are trademarks of Mostek, Inc.

MILITARY PRODUCTS

High reliability metal oxide semiconductor (MOS) memories. Military processing is available for dynamic RAMs, static RAMs, and EPROMs. A JAN qualified 16K RAM with an access time of 200ns and a temperature range of −55°C to +110°C is available packaged in leadless chip carriers. Temperature range for the units listed below is 0°C to 70°C unless otherwise specified.

Model No.	Pkg.	Part ID	Org.	Access Time (ns)	Net Each, Lots of
DYNAMIC RAMs					
MKK 4027	J	2	4K×1	150	Prices On Request
MKM4027	J	3	4K×1	200	
MKM4027	J	4	4K×1	250	
MKM4116	J	2	16K×1	150	
MKM4116	J	3	16K×1	200	
MKM4116	J	4	16K×1	250	
STATIC RAMs					
MKM4104	J	4	4K×1	250	Prices On Request
MKM4104	J	5	4K×1	300	
MKM4118	J	2	1K×8	150	
MKM4118	J	3	1K×8	200	
ROMs					
MKM36000	J	0	8K×8	250	Prices On Request
EPROMs					
MKM2716	J	6	2K×8	350	Prices On Request
MKM2716	J	7	2K×8	390	
MKM2716	J	8	2K×8	450	
MKM2716‡	J	78	2K×8	450	

‡Temperature Range −40°C to +85°C.

MICROCOMPUTERS

MKM3880	P	4	CPU	4MHz
MKM3881	P	4	PIO	4MHz
MKM3882	P	4	CTC	4MHz

Prices On Request

CHIP CARRIER PACKAGING

Model No. MKB41-	Org.	Access Time (ns)	Act. Pwr. (mW)	Stand-by Pwr. (mW)	Net Each, Lots of
DYNAMIC RAMs					
16E-83	16K×1	200	462	30	Prices On Request
16	16K×1	250	462	30	
STATIC RAMs					
04E-84	4K×1	250	150	53	Prices On Request
04E-85	4K×1	300	150	53	

MILITARY (MKB) PRODUCTS

Below is a listing of military products screened to MIL-STD-883, Method 5004, Class B (prefixed MKB).

Model No.	Pkg.*	Part No.	Org.	Access Time (ns)	Net Each, Lots of
DYNAMIC RAMs					
MKB4027	J	83	4K×1	200	Prices On Request
MKB4027	J	84	4K×1	250	
JM38510†	P	..	16K×1	200	
24001BEC†	P	..	16K×1	200	
JM38510†	P	..	16K×1	200	
24002BEC†	P	..	16K×1	250	
MKB4116	E,F,J	82	16K×1	150	
MKB4116	E,F,J	83	16K×1	200	
MKB4116	E,F,J	84	16K×1	250	
STATIC RAMs					
MKB4104	E,J	84	4K×1	250	Prices On Request
MKB4104	E,J	85	4K×1	300	
MKB4118	P,J	82	1K×8	150	
MKB4118	P,J	83	1K×8	200	
ROMs					
MKB36000	P,J	83	8K×8	250	Prices On Request
MKB36000	P,J	84	8K×8	300	
MKB36000	P,J	80	8K×8	250	
EPROMs					
MKB2716	J	87	2K×8	390	Prices On Request
MKB2716	J	88	2K×8	450	
MKB2716	J	90	2K×8	550	

*Package Type Key: F = Ceramic Flat Package. J = Cerdip Hermetic. E = Leadless Hermetic Chip Carrier. P = Ceramic Dual-in-Line Hermetic Package. D = Dual-in-Line Double Density Ceramic Package. †JAN Qualified.

PRICES LISTED ARE FOR GUIDANCE ONLY

Motorola No.	Description	Net Each, Lots of 1-5
MICROMODULES		
M68MM01	Monoboard microcomputer	$ 495.00
M68MM01-1	Same as above, except with four connectors and three 4.7K termination packages	534.00
M68MM01-2	Same as M68MM01, except with four connectors and three 330/220 termination packages	537.00
M68MM01A2	Monoboard microcomputer	495.00
M68MM01A2-1	Same as above, except with four connectors	537.00
M68MM01B	Monoboard microcomputer	286.00
M68MM01B1A	Monoboard microcomputer	495.00
M68MM01D	Monoboard microcomputer	515.00
M68MM17	6809 monoboard microcomputer, 1 MHz	495.00
M68MM19-1	6809 monoboard microcomputer, 1 MHz	695.00
M68MM19A1	6809 monoboard microcomputer, 2 MHz	795.00
M68MM02	CPU module	325.00
M68MM14	2 MHz hardware arithmetic processing unit	875.00
M68MM14A	3 MHz hardware arithmetic processing unit	995.00
M68MM04	16K EROM/ROM module	303.00
M68MM04A	16 socket EPROM, ROM, or RAM module	465.00
M68MM06	2K static RAM module	245.00
M68MM09	4K CMOS RAM with battery backup	695.00
M68MM16-1	Combo micromodule for MM01 Series	575.00
M68MM16-2	Combo micromodule for MM19 Series	575.00
M68MM16-3	Combo micromodule for use with EXORset	575.00
M68MM03	32/32 input/output module	375.00
M68MM03-1	Same with 4.7K termination packages	391.00
M68MM03-2	Same with 330/220 termination packages	401.00
M68MM07	Quad communications module	595.00
M68MM10A	Power failure detect module	295.00
M68MM10B	Power failure detect module	570.00
M68MM10C	Clock/calendar with battery backup	405.00
M68MM11	RS232 to TTY adapter module	180.00
M68MM12	IEEE 488 Listener/talker/controller	795.00
M68MM12A	GPIB listener/talker module	400.00
M68MM12-1	Same with 6809 firmware	795.00
M68MM12-2	Same with EXORset firmware	795.00
M6809MM12KT	IEEE 488 firmware software for 6809 version of M68MM12	100.00
M68MM13A	Digital output (contact closure) module with 16 outputs	430.00
M68MM13B	Same with 32 outputs	695.00
M68MM13C	Same with 24 voltage outputs	430.00
M68MM13D	Same with 24 contact closure outputs	550.00
M68MM23	Optically isolated I/O module	350.00
M68MM05A	8-channel, 12-bit differential input I/O module	840.00
M68MM05B	Same with 16 channels	840.00
M68MM15A	High-level A/D module	730.00
M68MM15A1	High-level A/D module	790.00
M68MM15B	Low-level A/D module	805.00
M68MM15BEX1	1-channel, low-level expander module	445.00
M68MM15BEX2	2-channel, low-level expander module	720.00
M68MM15BEX3	3-channel, low-level expander module	995.00
M68MM15BEX4	4-channel, low-level expander module	1265.00
M68MM05C	Quad 12-bit A/D module	840.00
M68MM15CV1	High-level voltage D/A module	475.00
M68MM15CV2	High-level voltage D/A module	620.00
M68MM15CV3	High-level voltage D/A module	730.00
M68MM15CV4	High-level voltage D/A module	855.00
M68MM15CI1	Current D/A module	435.00
M68MM15CI2	Current D/A module	570.00
M68MM15CI3	Current D/A module	695.00
M68MM15CI4	Current D/A module	810.00
M68MMCC05	5-card cardcage	210.00
M68MMCC10	10-card cardcage	310.00
M68MMFLC1	Front load chassis, 14 cards, 110 VAC	1405.00
M68MMFLK	Rack mounting slide kit, front load chassis	100.00
M68MM23IKT	M68MM23 installation kit	50.00
M68MMLC1	Long chassis, 10 cards, 110 VAC	1110.00
M68MMSC1	Short chassis, 5 cards, 110 VAC	904.00
M68MMSK	Rack mounting slide kit, short chassis	100.00
M68MMPS1-1	Power supply, 110 VAC	375.00

Motorola No.	Description	Net Each, Lots of 1-5
MICROMODULES (CONT'D)		
M68MMI/OC1	Micromodule and VERSAmodule I/O adapter, direct PCB I/O connection	$ 120.00
M68MMI/OC3	Same with right angle connectors	120.00
M68MMI/OC2	Micromodule and VERSAmodule I/O adapter, 50-pin ribbon cable connection	120.00
M68MM08	MICROBUG module	425.00
M68MM08A	MICROBUG module	75.00
M68MM19SB	SUPERbug firmware ROM set	250.00
M68EAM1	Resident editor/assembler module	578.00
M68BASRM2	Resident BASIC interpreter module	578.00
M68EAB2	Resident editor/assembler and BASIC interpreter module	895.00
M68MM12SWM	Micromodule 12 software on MDOS diskette	50.00
M68MM12ASWM	Micromodule 12A software on MDOS diskette	50.00
VERSAMODULES		
M68KVM01A1	68000 16-bit monoboard microcomputer with 32K bytes RAM	$ 2500.00
M68KVM01Aq	68000 16-bit monoboard microcomputer with 64K bytes RAM	3800.00
M68KVM10-1	32K bytes VERSAbus RAM module	1400.00
M68KVM10-2	64K bytes VERSAbus RAM module	1800.00
M68KVM10-3	128K bytes VERSAbus RAM module	2500.00
M68KVM20	Intelligent floppy disk controller module	1700.00
M68KFD1100	EXORdisk II dual drive, single sided, single density floppy disk system with 10-foot cable	3500.00
M68KFD1102	EXORdisk III with 10-foot cable	4195.00
M68SFDU1102E	EXORdisk IIIE expansion unit with cable	4195.00
M68KVM21	Intelligent universal disk controller module	3125.00
M68KVMCFD1	Cable assembly to connect EXORdisk II or III to the UDC module via the VERSAbus backplane	60.00
M68KVMCHD1	Cable assembly to connect two SMD interface compatible hard disk drives to the UDC module	150.00
M68KVMSMDC	Industry standard SMD interface 15' daisy chain control cable	60.00
M68KVMSMDE	Industry standard SMD interface 6'8" daisy chain control cable	60.00
M68KVMSMDR	Industry standard SMD interface 15' radial data cable	40.00
M68KVM30	Multichannel communications module	1795.00
M68KVM232CP	VERSAmodule chassis cable assembly	250.00
M68KVMPRTCE	Centronics/Data Products compatible 10' cable	75.00
M68KVMCH1-1	115 VAC, 60 Hz, 4-slot, VERSAmodule system chassis with 15 A, 5 VDC capacity	1865.00
M68KVMCH1-2	115 VAC, 60 Hz, 4-slot, VERSAmodule system chassis with 30 A, 5 VDC capacity	2415.00
M68KVMCC1	4-slot VERSAmodule cardcage	620.00
M68KVMCHS	VERSAmodule chassis slide mount kit	100.00
M68KVMCHD	VERSAmodule chassis decorative cover kit	150.00
M68KVMCHE	VERSAmodule chassis/cardcage expansion kit	250.00
M68KVMCHU	VERSAmodule chassis expansion unified power control kit	230.00
M68KVMCCC	VERSAmodule cardcage mating I/O connector kit	75.00
M68KVMSIOC1	Dual port RS232C serial I/O cable assembly for M68KVM01	195.00

Microprocessor IC's

Motorola Number	Description	Net Each, Lots of 1-24	25-99	100-999
MC68A00CL	Microprocessor, 1.5 MHz	$19.00	$16.35	$15.00
MC68A00CP		9.50	8.20	7.50
MC68A00P		7.65	6.50	6.00
MC68A00S		12.30	10.50	9.70
MC68B00P	Microprocessor, 2.0 MHz	7.90	6.80	6.25
MC68B00S		12.65	10.75	10.00
MC68A02L	Microprocessor, 1.5 MHz, with clock and RAM	17.25	14.50	13.00
MC68A02P		8.90	7.70	6.80
MC68B02L	Microprocessor, 2.0 MHz, with clock and RAM	17.50	14.90	13.20
MC68B02P		9.35	7.90	7.00
MC68A09EL	Microprocessor, 1.5 MHz	22.50	19.40	17.00
MC68A09EP		14.40	12.50	10.85
MC68A09L	Microprocessor, 1.5 MHz, with clock	22.50	19.40	17.00
MC68A09P		14.40	12.50	10.85
MC68B09EL	Microprocessor, 2.0 MHz	23.50	19.90	17.65
MC68B09EP		15.10	13.00	11.50
MC68B09L	Microprocessor, 2.0 MHz, with clock	23.50	19.90	17.65
MC68B09P		15.10	13.00	11.50
MC68A21CL	Peripheral interface adapter, 1.5 MHz	14.25	12.50	11.00
MC68A21CP		4.40	3.85	3.40
MC68A21P		3.50	3.10	2.70
MC68A21S		8.35	7.35	6.45
MC68B21P	Peripheral interface adapter, 2.0 MHz	3.85	3.40	3.00
MC68B21S		8.70	7.60	6.70
MC68A39L	Floating point ROM	55.00	48.50	42.00
MC68A39L		61.00	53.00	46.00
MC68A40CL	Program timer module,	16.10	14.05	12.65
MC68A40CP	1.5 MHz	8.55	7.55	6.80
MC68A40P		7.15	6.30	5.75
MC68A40S		10.70	9.30	8.45
MC68B40P	Program timer module, 2.0 MHz	7.80	6.85	6.20
MC68B40S		11.25	9.85	8.80
MC68A44L	Direct memory access controller	28.25	24.60	22.50
MC68A44P		20.25	17.75	16.00
MC68B44L		29.50	26.10	23.75
MC68B44P		21.90	19.25	17.50
MC68A45P	CRT controller, 1.5 MHz	15.50	13.40	12.00
MC68B45P	CRT controller, 2.0 MHz	16.75	14.50	13.10
MC68A50CL	Asynchronous communications interface, 1.5 MHz	11.25	9.75	8.75
MC68A50P		3.40	2.95	2.70
MC68A50S		5.75	5.25	4.75
MC68B50P	Asynchronous communications interface, 2.0 MHz	3.70	3.25	3.00
MC68B50S		6.25	5.45	5.00
MC68A52P	Synchronous serial adapter, 1.5 MHz	4.85	4.30	3.95
MC68A52S		7.30	6.50	6.00
MC68B52L	Synchronous serial adapter, 2.0 MHz	10.60	9.50	8.75
MC68B52P		5.25	4.65	4.30
MC68B52S		7.75	6.90	6.35
MC68A54L	CRT controller	17.25	14.50	13.25
MC68A54P		9.90	8.50	7.80
MC68B54L		17.25	14.50	13.25
MC68B54P		10.85	9.25	8.40
MC68A488L	General purpose interface adapter, 1.5 MHz	19.00	16.75	15.00
MC68A488P		11.10	9.60	8.50
MC68B488L	General purpose interface adapter, 2.0 MHz	20.20	17.50	15.80
MC68B488P		12.00	10.50	9.40
MC6840CL	Program timer module	14.90	13.10	11.75
MC6840CP		7.50	6.55	5.90
MC6840P		6.25	5.50	4.95
MC6840S		9.50	8.50	7.75
MC6843P	Direct memory access controller	24.50	21.75	19.50
MC6844P		17.50	15.40	13.90
MC6845CL	CRT controller	28.25	24.00	21.75
MC6845L		22.50	19.25	17.30
MC6845P		14.25	12.25	11.00
MC6846CL	Direct memory access controller	*	*	*
MC6846CP		*	*	*
MC6846L		*	*	*
MC6846P		*	*	*
MC6846L1	Combo with Mikbug	35.00	33.00	31.00
MC6846P1	Combo with Mikbug	27.50	24.75	22.25
MC6846P3	Combo with TV bug	43.50	38.50	35.00
MC6847L	Video display generator	17.00	15.50	14.50
MC6847P		12.00	10.75	9.75
MC6847YP	With interlace	12.00	10.75	9.75
MC6850CL	Asynchronous communications interface	10.75	9.40	8.50
MC6850CP		3.90	3.35	3.10
MC6850P		3.15	2.75	2.55
MC6850S		5.00	4.65	4.35
MC6852CL	Synchronous serial adapter	11.60	10.50	9.50
MC6852CP		5.20	4.65	4.25
MC6852P		3.90	3.45	3.30
MC6852S		6.25	5.85	5.50
MC6854CL	CRT controller	17.75	15.25	14.00
MC6854CP		9.75	8.75	8.10
MC6854L	CRT controller	$14.00	$12.75	$11.75
MC6854P		8.50	7.50	6.80
MC6859L	DATA security device	70.00	60.00	55.00
MC6859S		65.00	56.50	51.00
MC6860P	0-600 bps modem	9.25	8.00	7.55
MC6860S		10.30	9.20	8.75
MC6862P	2400 bps modulator	11.00	10.00	9.00
MC6862S		13.50	12.30	11.00
MC6800BQBA	Microprocessor, −55 to +125° C	39.00	32.50	27.86
MC6800BQBE	−40 to +85° C	35.29	29.41	25.21
MC6800BQBS	0 to +70° C	31.58	26.32	22.56
MC6800CQBA	Microprocessor, −55 to +125° C	27.28	22.74	19.49
MC6800CQBE	−40 to +85° C	24.71	20.59	17.65
MC6802BQCA	MPU with clock and RAM, −55 to +125° C	72.87	60.73	52.05
MC6802BQCE	−40 to +85° C	67.28	56.06	48.05
MC6802BQCS	0 to +70° C	61.65	51.38	44.04
MC6802CQCA	−55 to +125° C	51.00	42.50	36.43
MC6802CQCE	−40 to +85° C	47.08	39.23	33.63
MC6809BQAA	MPU with clock and RAM, −55 to +125° C	47.08	39.23	33.63
MC6809BQCA	−55 to +125° C	132.33	110.28	94.52
MC6809BQCE	−40 to +85° C	117.07	97.56	83.62
MC6809BQCS	0 to +70° C	110.84	92.36	79.17
MC6809CQCA	−55 to +125° C	92.62	77.19	66.16
MC6809CQCS	0 to +70° C	77.58	64.65	55.41
MC6821BQBA	Peripheral interface adapter, −55 to +125° C	32.24	26.87	23.03
MC6821BQBE	−40 to +85° C	28.11	23.43	20.08
MC6821BQBS	0 to +70° C	24.00	20.00	17.14
MC6821CQBA	−55 to +125° C	22.56	18.80	16.11
MC6821CQBE	−40 to +85° C	19.68	16.40	14.06
MC6840BTBA	Program timer module, −55 to +125° C	41.08	34.23	29.34
MC6840BTCA	−55 to +125° C	41.08	34.23	29.34
MC6850BJBA	Asynchronous communications interface, −55 to +125° C	24.64	20.53	17.60
MC6850BJBS	0 to +70° C	18.31	15.26	13.08
MC6852BJBA	Synchronous serial adapter, −55 to +125° C	25.28	21.06	18.05
MC6854BTBA	CRT controller, −55 to +125° C	56.74	47.28	40.53
MC6854BTBE	−40 to +85° C	54.83	45.69	39.16
MC6854CTBA		39.71	33.09	28.36
MC6854CTBE		38.39	31.99	27.42
MC68488BQBA	General purpose interface adapter, −55 to +125° C	57.05	47.54	40.75
MC68488BQBE	−40 to +85° C	53.08	44.23	37.91
MC68488CQBA	−55 to +125° C	39.95	33.29	28.53
MC68488CQBE	−40 to +85° C	37.16	30.96	26.54
MC68000CL4	16-bit MPU, −40 to +125° C, 4 MHz	120.70	92.50	81.20
MC68000L4		95.40	73.70	65.00
MC68000ZC4		99.40	77.70	69.00
MC68000CL6	6 MHz	132.90	101.50	89.00
MC68000L6		104.70	80.60	71.00
MC68000ZC6		108.70	84.60	75.00
MC68000CL8	8 MHz	187.20	144.43	126.36
MC68000L8		144.00	111.10	97.20
MC68000ZC8		149.80	115.10	101.20
MC68000L10	10 MHz	206.40	168.30	152.20
MC68000ZC10		210.40	172.30	156.20
MC68000L12	12 MHz	335.00	271.90	245.10
MC68000ZC12		208.80	171.00	155.00
MC68230L8	Parallel interface timer	16.80	15.50	14.90
MC68451L8	Memory management unit	188.70	132.10	110.90
MC68488L	General purpose interface adapter	14.25	12.70	12.30
MC68488P		9.25	8.25	7.65
MC68652L	Communications controller	24.50	19.20	17.10
MC68652L2		31.30	24.30	21.50
MC68661LA	Enhanced programmable communications interface	15.10	13.70	13.00
MC68661LB		15.10	13.70	13.00
MC68661LC		15.10	13.70	13.00
MC68661PA		11.10	9.70	9.00
MC68661PC		11.10	9.70	9.00
MC68701L	Microprocessor with EPROM	59.00	53.00	50.00
MC68701L1		72.00	66.00	60.00
MC68705P3L		32.50	29.50	27.50
MC68705P3S		24.50	21.50	20.00
MC68705R3L		63.00	55.50	50.50
MC68705R3S		55.00	47.50	44.00
MC68705U3L		53.50	46.50	42.75
MC68705U3S		45.00	39.25	36.00

*Price available on request.

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Motorola Number	Description	Net Each, Lots of 1-99	100-499
MC8500L	CRCC generator	$35.10	$25.10
MC8500P		31.90	22.80
MC8501L	Error pattern register	31.50	22.50
MC8501P		28.60	20.45
MC8502L	LRCC/data register	35.10	25.10
MC8502P		31.90	22.80
MC8503L	Universal polynomial generator	19.80	14.15
MC8503P		17.80	12.75
MC8504L	Universal polynomial generator	12.00	8.60
MC8504P		11.00	7.90
MC8506L	Polynomial generator	19.80	14.15
MC8506P		17.80	12.75
MC8507L	Priority interrupt controller	20.90	14.95
MC8507P		18.40	13.15
MC8520L	Deskew/quege register	74.80	53.45

		Net Each, Lots of 1-24	25-99	100-249
MCM21L14C20	1K × 4 low power NMOS static RAM, 200 ns	$6.35	$5.70	$5.70
MCM21L14C25	1K × 4 low power NMOS static RAM, 250 ns	6.00	5.45	4.85
MCM21L14C30	1K × 4 low power NMOS static RAM, 300 ns	5.70	5.15	4.60
MCM21L14C45	1K × 4 low power NMOS static RAM, 450 ns	5.35	4.80	4.30
MCM21L14P20	1K × 4 low power NMOS static RAM, 200 ns	3.40	3.05	2.75
MCM21L14P25	1K × 4 low power NMOS static RAM, 250 ns	3.25	2.90	2.60
MCM21L14P30	1K × 4 low power NMOS static RAM, 300 ns	3.10	2.80	2.50
MCM21L14P45	1K × 4 low power NMOS static RAM, 450 ns	3.00	2.65	2.40
MCM21L15AC45	1K × 1 low power NMOS static RAM	4.65	4.15	3.75
MCM21L15AC70	1K × 1 low power NMOS static RAM	3.70	3.35	3.00
MCM21L25AC45	1K × 1 low power NMOS static RAM	4.65	4.15	3.75
MCM21L25AC70	1K × 1 low power NMOS static RAM	3.70	3.35	3.00
MCM27A08C	1K × 8 NMOS EPROM, 300 ns	14.65	12.15	10.30
MCM51L01C45	256 × 4 CMOS RAM	4.60	4.10	3.70
MCM51L01C65	256 × 4 CMOS RAM	4.40	3.95	3.55
MCM51L01P45	256 × 4 CMOS RAM	3.80	3.40	3.05
MCM51L01P65	256 × 4 CMOS RAM	3.65	3.25	2.95
MCM66L41C20	4K × 1 low power NMOS static RAM, 200 ns	8.30	7.45	6.70
MCM66L41P20	4K × 1 low power NMOS static RAM, 200 ns	7.05	6.35	5.70
MCM66L41C25	4K × 1 low power NMOS static RAM, 250 ns	7.60	6.85	6.15
MCM66L41P25	4K × 1 low power NMOS static RAM, 250 ns	6.35	5.70	5.15
MCM66L41C30	4K × 1 low power NMOS static RAM, 300 ns	7.00	6.25	5.65
MCM66L41P30	4K × 1 low power NMOS static RAM, 300 ns	5.65	5.10	4.60
MCM66L41C45	4K × 1 low power NMOS static RAM, 450 ns	6.45	5.75	5.20
MCM66L41P45	4K × 1 low power NMOS static RAM, 450 ns	5.15	4.65	4.20
MCM68A10BJBE	1K NMOS static RAM, 360 ns, −40 to +85° C	16.68	13.90	11.91†
MCM68A10BJBS	1K NMOS static RAM, 360 ns, 0 to +70° C	15.87	13.21	11.34†
MCM68A10CP	128 × 8 NMOS static RAM, 360 ns	4.50	4.10	3.60†
MCM68A10P	128 × 8 NMOS static RAM, 360 ns	3.80	3.40	2.95†
MCM68A10S	128 × 8 NMOS static RAM, 240 ns	6.20	5.65	4.95†
MCM68B10P	128 × 8 NMOS static RAM, 250 ns	4.30	3.70	3.25†
MCM68B10S	128 × 8 NMOS static RAM	6.75	6.00	5.25†
MCM68A70BJBC	8K NMOS EPROM, 300 ns, −55 to +100° C	31.51	26.26	22.51†
MCM68A70BJBE	8K NMOS EPROM, 300 ns −40 to +85° C	28.06	23.39	20.00†
MCM68A708C	1K × 8 NMOS EPROM, 300 ns	14.65	12.15	10.30
MCM68A708BJBS	1K × 8 NMOS EPROM, 300 ns, 0 to +70° C	25.02	20.85	17.87†
MCM2114BVBA25	1K × 4 NMOS static RAM, 250 ns, −55 to +125° C	22.49	18.74	16.06†
MCM2114BVBE25	1K × 4 NMOS static RAM, 250 ns, −40 to +85° C	18.26	15.22	13.04†
MCM2114BVBS	1K × 4 NMOS static RAM, 250 ns, 0 to +70° C	15.00	12.50	10.71†
MCM2114BVBA45	1K × 4 NMOS static RAM, 450 ns, −55 to +125° C	19.68	16.40	14.06†

†Lots of 100-999.

Motorola Number	Description	Net Each, Lots of 1-24	25-99	100-249
MCM2114BVBE45	1K × 4 NMOS static RAM, 450 ns, −40 to +85° C	16.02	13.35	11.44†
MCM2114BVBS45	1K × 4 NMOS static RAM, 450 ns, 0 to +70° C	14.03	11.69	10.02†
MCM2114C20	1K × 4 NMOS static RAM, 200 ns	5.85	5.25	4.70
MCM2114P20	1K × 4 NMOS static RAM, 200 ns	3.35	2.90	2.60
MCM2114C25	1K × 4 NMOS static RAM, 250 ns	5.50	4.90	4.40
MCM2114P25	1K × 4 NMOS static RAM, 250 ns	2.90	2.60	2.35
MCM2114C30	1K × 4 NMOS static RAM, 300 ns	5.15	4.65	4.15
MCM2114P30	1K × 4 NMOS static RAM, 300 ns	2.60	2.35	2.10
MCM2114C45	1K × 4 NMOS static RAM, 450 ns	4.80	4.30	3.85
MCM2114P45	1K × 4 NMOS static RAM, 450 ns	2.55	2.30	2.05
MCM2115AC45	1K × 1 NMOS static RAM	3.70	3.35	3.00
MCM2115AC55		3.40	3.05	2.75
MCM2115AC70		3.05	2.70	2.45
MCM21125AC45		3.70	3.35	3.00
MCM2125AC55		3.40	3.05	2.75
MCM2125AC70		3.05	2.70	2.45
MCM2147C55	4K × 1 static RAM	7.45	6.65	6.00
MCM2147C70		7.05	6.35	5.70
MCM2147C85		6.70	6.00	5.40
MCM2147C100		11.40	10.00	8.15
MCM2147BVBA45	4K × 1 static NMOS RAM, −55 to +125° C	34.98	29.15	24.99†
MCM2147BVBE45	4K × 1 static NMOS RAM, −40 to +85° C	29.50	24.59	21.07†
MCM2147BVBS45	4K × 1 static NMOS RAM, 0 to +70° C	23.39	19.49	16.70†
MCM2147BVBA100	4K × 1 static NMOS RAM, −55 to +125° C	31.58	26.32	22.56†
MCM2147BVBE100	4K × 1 static NMOS RAM, −40 to +85° C	26.29	21.91	18.78†
MCM2147BVBS100	4K × 1 static NMOS RAM, 0 to +70° C	20.81	17.34	14.87†
MCM2532C	4K × 8 NMOS EPROM, 450 ns	15.00	12.90	10.70
MCM2708C	1K × 8 NMOS static RAM	12.20	10.10	8.55
MCM2708BJBA	1K × 8 NMOS EPROM, −55 to +125° C	29.50	24.59	21.07†
MCM2708BJBC	1K × 8 NMOS EPROM −55 to +125° C	26.27	21.89	18.76†
MCM2708BJBE	1K × 8 NMOS EPROM, −40 to +85°C	23.41	19.51	16.72†
MCM2708BJBS	1K × 8 NMOS EPROM, 0 to +70° C	20.83	17.36	14.88†
MCM2716C	2K × 8 NMOS EPROM, 450 ns	9.00	7.75	6.45
MCM2716BJBC	2K × 8 NMOS EEPROM, −55 to +125° C	42.21	35.18	30.15†
MCM2716BJBE	2K × 8 NMOS EEPROM, −40 to +85° C	38.48	32.07	27.49†
MCM2716BJBS	2K × 8 NMOS EEPROM, 0 to +70° C	34.77	28.98	24.84†
MCM2801P	16 × 16 NMOS EEPROM	12.00	8.40	7.20
MCM4027AC1	4K × 1 dynamic MOS RAM, 120 ns	6.95	5.55	4.45
MCM4027AC2	4K × 1 dynamic MOS RAM, 150 ns	6.45	5.20	4.15
MCM4027AC3	4K × 1 dynamic MOS RAM, 200 ns	6.15	4.95	3.95
MCM4027AC4	4K × 1 dynamic MOS RAM, 250 ns	5.75	4.65	3.70
MCM4027BEBB20	4K × 1 dynamic MOS RAM, 200 ns	20.03	16.69	14.31†
MCM4027BEBE20	4K × 1 dynamic MOS RAM, 200 ns, −40 to +85° C	18.05	15.04	12.89†
MCM4027BEBS20	4K × 1 dynamic MOS RAM, 200 ns	16.25	13.54	11.61†
MCM4027BEBB25	4K × 1 dynamic MOS RAM, 250 ns	18.66	15.55	13.33†
MCM4027BEBE25	4K × 1 dynamic MOS RAM, 250 ns, −40 to +85° C	16.80	14.00	12.00†
MCM4027BEBS25	4K × 1 dynamic MOS RAM, 250 ns	15.26	12.72	10.90†
MCM4116BEBB20	16K × 1 dynamic MOS RAM, 200 ns, −55 to +110° C	24.29	20.24	17.35†
MCM4116BEBE20	16K × 1 dynamic MOS RAM, 200 ns, −40 to +85° C	21.02	17.52	15.01†
MCM4116BEBS20	16K × 1 dynamic MOS RAM, 200 ns, 0 to +70° C	18.17	15.14	12.98†

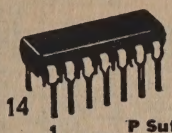
Motorola Number	Description	Net Each, Lots of 1-24	25-99	100-299
MCM4116BEBB25	16K × 1 dynamic MOS RAM, 250 ns, −55 to +110° C	22.56	18.80	16.12†
MCM4116BEBE25	16K × 1 dynamic MOS RAM, 250 ns, −40 to +85° C	19.56	16.30	13.97†
MCM4116BEBS25	16K × 1 dynamic MOS RAM, 250 ns, 0 to +70° C	16.91	14.09	12.08†
MCM4116AC15	16K × 1 dynamic MOS RAM, 150 ns	8.20	7.20	5.75
MCM4116AC20	16K × 1 dynamic MOS RAM, 200 ns	7.75	6.80	5.45
MCM4116AC25	16K × 1 dynamic MOS RAM, 250 ns	7.55	6.665	5.30
MCM4116AC30	16K × 1 dynamic MOS RAM, 300 ns	7.40	6.50	5.20
MCM4116AC35	16K × 1 dynamic MOS RAM, 350 ns	7.35	6.45	5.15
MCM4116BC15	16K × 1 dynamic MOS RAM, 150 ns	9.00	7.90	6.30
MCM4116BC20	16K × 1 dynamic MOS RAM, 200 ns	8.55	7.50	6.00
MCM4116BC25	16K × 1 dynamic MOS RAM, 250 ns	8.25	7.25	5.80
MCM4116BC30	16K × 1 dynamic MOS RAM, 300 ns	8.15	7.15	5.70
MCM4116BC35	16K × 1 dynamic MOS RAM, 350 ns	8.05	7.05	5.65
MCM4116BP15	16K × 1 dynamic MOS RAM, 150 ns	4.45	3.55	2.85
MCM4116BP20	16K × 1 dynamic MOS RAM, 200 ns	4.00	3.20	2.55
MCM4116BP25	16K × 1 dynamic MOS RAM, 250 ns	3.90	3.15	2.50
MCM4116BP30	16K × 1 dynamic MOS RAM, 300 ns	3.80	3.05	2.45
MCM4116BP35	16K × 1 dynamic MOS RAM, 350 ns	3.65	2.95	2.35
MCM4517P10	16K × 1 dynamic MOS RAM, 100 ns	9.15	8.20	7.40
MCM4517P12	16K × 1 dynamic MOS RAM, 120 ns	7.05	6.35	5.70
MCM4517P15	16K × 1 dynamic MOS RAM, 150 ns	6.10	5.50	4.95
MCM4517P20	16K × 1 dynamic MOS RAM, 200 ns	5.50	4.95	4.45
MCM5101C65	256 × 4 static CMOS RAM	4.15	3.70	3.35
MCM5101C80		3.95	3.55	3.20
MCM5101P65		3.35	3.00	2.70
MCM5101P80		3.15	2.85	2.55
MCM6641C20	4K × 1 static NMOS RAM, 200 ns	7.60	6.85	6.15
MCM6641P20	4K × 1 static NMOS RAM, 200 ns	6.35	5.70	5.15
MCM6614C25	4K × 1 static NMOS RAM, 250 ns	6.90	6.20	5.55
MCM6641P25	4K × 1 static NMOS RAM, 250 ns	5.80	5.25	4.70
MCM6641C30	4K × 1 static NMOS RAM, 300 ns	6.20	5.55	5.00
MCM6641P30	4K × 1 static NMOS RAM, 300 ns	5.15	4.65	4.20
MCM6641C45	4K × 1 static NMOS RAM, 450 ns	5.60	5.00	4.50
MCM6641P45	4K × 1 static NMOS RAM, 450 ns	4.70	4.20	3.80
MCM6664AL15	64K × 1 dynamic RAM, 150 ns	21.00	18.90	17.00
MCM6664AL20	64K × 1 dynamic RAM, 200 ns	15.35	13.80	12.40
MCM6664AL25	64K × 1 dynamic RAM, 250 ns	15.00	13.50	12.15
MCM6664L25	64K × 1 dynamic RAM, 200 ns	15.35	13.80	12.40
MCM6664L25	64K × 1 dynamic RAM, 250 ns	15.00	13.50	12.15
MCM6665AL15	64K × 1 dynamic RAM, 150 ns	18.95	17.00	15.30
MCM6665AL20	64K × 1 dynamic RAM, 200 ns	13.75	12.35	11.15
MCM6665AL25	64K × 1 dynamic RAM, 250 ns	13.55	12.20	10.95
MCM6665L20	64K × 1 dynamic RAM, 200 ns	13.75	12.35	11.15
MCM6665L25	64K × 1 dynamic RAM, 250 ns	13.55	12.20	10.95

Motorola Number	Description	Net Each, Lots of 1-24	25-99	100-299
MCM6665KIT	64K RAM evaluation kit	150.00	150.00	150.00
MCM6674P	128 × 7 × 5 character generator	8.00	7.10	6.20
MCM6810CP	128 × 8 static NMOS RAM, 450 ns	4.30	3.70	3.25
MCM6810L	128 × 8 static NMOS RAM, 450 ns	8.50	7.65	7.00
MCM6810P	128 × 8 static NMOS RAM, 450 ns	3.20	2.85	2.65
MCM6810S	128 × 8 static NMOS RAM, 370 ns	5.00	4.70	4.40
MCM6810BJBA	128 × 8 static NMOS RAM, 450 ns, −55 to +125° C	16.68	13.90	11.91
MCM7643DC	1K × 4 TTL PROM	8.88	8.88	5.65
MCM7681DC	1K × 8 TTL PROM	20.00	20.00	13.15
MCM14505ABCB	64 bit static RAM	19.16	19.16	15.96
MCM14505ADCB		16.18	16.18	13.49
MCM14505AL		12.15	12.15	10.12
MCM14505CL		10.53	10.53	8.77
MCM14505CP		8.10	8.10	6.75
MCM14505ALD		12.65	12.65	10.54
MCM14505CLD		11.03	11.03	9.19
MCM14505CPD		8.60	8.60	7.17
MCM14537ABEBS	256 × 1 static CMOS RAM	48.36	48.36	40.30
MCM14537ADEBS		40.88	40.88	34.06
MCM14537AL		31.10	31.10	25.91
MCM14537CL		26.95	26.95	22.46
MCM14537CP		20.73	20.73	17.28
MCM14537ALD		31.60	31.60	26.33
MCM14537CLD		27.45	27.45	22.87
MCM14552AL	64 × 4 static CMOS RAM	24.26	24.26	20.21
MCM14552BBJBS		45.01	45.01	37.50
MCM14552BDJBS		38.02	38.02	37.50
MCM14552CL		21.02	21.02	17.52
MCM14552CP		16.17	16.17	13.48
MCM14552ALD		24.76	24.76	20.63
MCM14552CLD		21.52	21.52	17.94
MCM14552CPD		16.67	16.67	13.89
MCM65147C55	4K × 1 CMOS RAM, 55 ns	8.85	7.95	7.15
MCM65147C70	4K × 1 CMOS RAM, 70 ns	8.00	7.15	6.45
MCM65147C85	4K × 1 CMOS RAM, 85 ns	7.20	6.45	5.80
MCM66710C	128 × 9 × 7 ASCII shift with Greek	15.10	13.60	12.15
MCM66710P		10.75	9.50	8.30
MCM66714C	128 × 9 × 7 MCM6591 downcount	15.10	13.60	12.15
MCM66714P		10.75	9.50	8.30
MCM66720C	128 × 9 × 7 ASCII non-shifted with Greek	15.10	13.60	12.15
MCM66720P		15.10	13.60	12.15
MCM66730C	128 × 9 × 7 KATA Kana Japanese	15.10	13.60	12.15
MCM66730P		10.75	9.50	8.30
MCM66734C	128 × 9 × 7 KATA Kana Japanese	15.10	13.60	12.15
MCM66734P		10.75	9.50	8.30
MCM66740C	128 × 9 × 7 math symbols & pictures	15.10	13.60	12.15
MCM66740P		10.75	9.50	8.30
MCM66750C	128 × 9 × 7 alphanumeric control chara.	15.10	13.60	12.15
MCM66750P		10.75	9.50	8.30
MCM66760C	128 × 9 × 7 MCM6674 British standard	15.10	13.60	12.15
MCM66760P		10.75	9.50	8.30
MCM66770C	128 × 9 × 7 MCM6674 German standard	15.10	13.60	12.15
MCM66770P		10.75	9.50	8.30
MCM66780C	128 × 9 × 7 MCM6674 French standard	15.10	13.60	12.15
MCM66780P		10.75	9.50	8.30
MCM66790C	128 × 9 × 7 general European standard	15.10	13.60	12.15
MCM66790P		10.75	9.50	8.30
MCM68708BJBA	1K × 8 NMOS EPROM, −55 to +125° C	29.50	24.59	21.07
MCM66708BJBC	1K × 8 NMOS EPROM, −55 to +100° C	26.27	21.89	18.76
MCM66708BJBE	1K × 8 NMOS EPROM, −40 to +85° C	23.41	19.51	16.72
MCM66708BJBS	1K × 8 NMOS EPROM, 0 to +70° C	20.83	17.36	14.88
MCM68708C	1K + 8 NMOS EPROM	12.20	10.10	8.55
MCM68764C	8K × 8 NMOS EPROM	40.00	34.30	28.60
MCM68764L		55.00	47.20	39.30
MCM68766L	8K × 8 NMOS EPROM	55.00	47.20	39.30
MCM68766L35		70.60	60.50	50.40
MCM93415DC	1K × 1 TTL RAM	6.95	6.95	6.40
MCM93415DM		20.30	20.30	17.60
MCM93415PC		6.95	6.95	6.40
MCM93425DC		6.95	6.95	6.40
MCM93425DM		20.30	20.30	17.60
MCM93425PC		6.95	6.95	6.40

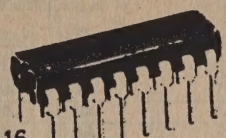
PRICES LISTED ARE FOR GUIDANCE ONLY

McMOS™ MC14000 SERIES COMPLEMENTARY MOS

P Suffix
Plastic Package
CASE 626

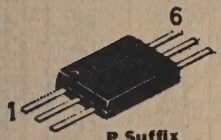


P Suffix
Plastic Package
Case 646



P Suffix
Plastic Package
Case 648

P Suffix
Plastic Package
Case 649



P Suffix
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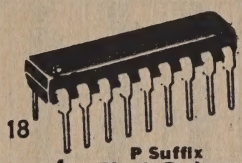
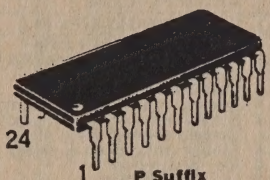
CASE 704



P Suffix
Plastic Package
CASE 707



P Suffix
Plastic Package
CASE 709

Output logic excursion is independent of fan out; diode protection on all inputs. Temperature, voltage and package descriptions are given in table below. All devices are available in chip form. Types with **B** in part number conform to the JEDEC B-Series specifications. Listed units in ceramic packages are in Case 620 unless otherwise noted; plastic packages are in Case 648 unless otherwise noted

SUFFIX LETTER DESIGNATORS

Suffix	Description
AL	3 to 18 V, −55° C to +125° C, ceramic package
CL	3 to 18 V, −40° C to +85° C, ceramic package
CP	3 to 18 V, −40° C to +85° C, plastic package
L	Limited voltage range, limited temperature range, ceramic package
P	Limited voltage range, limited temperature range, plastic package

Suffix	Description
EFL	3 to 18 V, −55° C to +125° C, ceramic package
FL	3 to 18 V, −40° C to +85° C, ceramic package
FP	3 to 18 V, −40° C to +85° C, plastic package
EVL	3 to 6 V, −55° C to +125° C, ceramic package
VL	3 to 6 V, −40° C to +85° C, ceramic package
VP	3 to 6 V, −40° C to +85° C, plastic package
Z	Limited voltage range, limited temperature range, leadless ceramic package

Motorola Type	Function	Suffix	Net Each, Lots of 1-99	Net Each, Lots of 100-999	Suffix	Net Each, Lots of 1-99	Net Each, Lots of 100-999	Suffix	Net Each, Lots of 1-99	Net Each, Lots of 100-999
MC14000UB	Dual 3-input NOR gate/inverter	-AL†	$0.60	$0.50	-CL†	$0.52	$0.43	-CP▲	$0.40	$0.33
MC14001B	Quad 2-input NOR gate	-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14001UB		-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14002B	Dual 4-input NOR gate	-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14002UB		-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14006B	18-bit static shift register	-AL†	2.13	1.77	-CL†	1.84	1.54	-CP▲	1.42	1.18
MC14007UB	Dual comp. pair plus inverter	-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14008B	4-bit full adder	-AL	1.88	1.56	-CL	1.63	1.36	-CP	1.25	1.44
MC14011B	Quad 2-input NAND gate	-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14011UB		-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14012B	Dual 4-input NAND gate	-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14012UB		-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14013B	Dual D flip-flop	-AL†	1.08	.90	-CL†	.93	.78	-CP▲	.72	.60
MC14014B	8-bit static shift register	-AL	1.88	1.56	-CL	1.63	1.36	-CP	1.25	1.04
MC14015B	Dual 4-bit static shift register	-AL	2.20	1.83	-CL	1.91	1.59	-CP	1.47	1.22
MC14016B	Quad ana. switch/multiplexer	-AL†	1.08	.90	-CL†	.93	.78	-CP▲	.72	.60
MC14017B	Decade counter/divider	-AL	1.88	1.56	-CL	1.63	1.36	-CP	1.25	1.04
MC14018B	Preset. divide by N counter	-AL	1.71	1.43	-CL†	1.48	1.24	-CP	1.14	.95
MC14020B	14-bit binary counter	-AL	2.20	1.83	-CL	1.91	1.59	-CP	1.47	1.22
MC14021B	8-bit static shift register	-AL	1.88	1.56	-CL	1.63	1.36	-CP	1.25	1.04
MC14022B	Octal counter/divider	-AL	1.88	1.56	-CL	1.63	1.36	-CP	1.25	1.04
MC14023B	Triple 3-input NAND gate	-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14023UB		-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14024B	7-stage ripple counter	-AL†	1.60	1.33	-CL†	1.38	1.15	-CP▲	1.06	.89
MC14025B	Triple 3-input NOR gate	-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14025UB		-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14027B	Dual J-K flip-flop	-AL	1.08	.90	-CL	.93	.78	-CP	.72	.60
MC14028B	BCD-to-decimal decoder	-AL	1.52	1.27	-CL	1.32	1.10	-CP	1.02	.85
MC14029B	Bin./Dec. up/down ctr.	-AL	2.13	1.78	-CL	1.85	1.54	-CP	1.42	1.19
MC14032B	Triple serial adder (+ logic)	-AL	3.29	2.74	-CL	2.85	2.38	-CP	2.19	1.83
MC14034B	8-bit univ. bus register	-AL‡	5.25	4.37	-CL‡	4.55	3.79	-CP•	3.50	2.91
MC14035B	4-bit shift register	-AL	2.79	2.32	-CL	2.42	2.01	-CP	1.86	1.55
MC14038B	Triple serial adder (− logic)	-AL	3.29	2.74	-CL	2.85	2.38	-CP	2.19	1.83
MC14040B	12-bit binary counter	-AL	2.20	1.83	-CL	1.91	1.59	-CP	1.47	1.22
MC14042B	Quad latch	-AL	1.60	1.33	-CL	1.38	1.15	-CP	1.06	.89
MC14043B	Quad NOR R-S latch	-AL	1.49	1.24	-CL	1.29	1.08	-CP	.99	.83
MC14044B	Quad NAND R-S latch	-AL	1.49	1.24	-CL	1.29	1.08	-CP	.99	.83
MC14046B	Phase locked loop	-AL	2.36	1.96	-CL	2.04	1.70	-CP	1.57	1.31
MC14049UB	Hex inverter/buffer	-AL	1.08	.90	-CL	.93	.78	-CP	.72	.60
MC14050B	Hex buffer	-AL	1.08	.90	-CL	.93	.78	-CP	.72	.60
MC14051B	8-channel analog multiplexer	-AL	1.95	1.62	tCL	1.69	1.41	tCP	1.30	1.08
MC14052B	Dual 4-ch. analog multiplexer	-AL	1.95	1.62	-CL	1.69	1.41	-CP	1.30	1.08
MC14053B	Triple 2-ch. analog multiplexer	tAL	1.95	1.62	-CL	1.69	1.41	-CP	1.30	1.08
MC14066B	Quad analog switch	tAL†	1.20	1.00	tCL†	1.04	.86	tCP▲	.80	.66

COMPLEMENTARY CMOS LISTING CONTINUED ON FOLLOWING PAGE

McMOS™ MC 14000 SERIES COMPLEMENTARY MOS (Cont'd)

Motorola Type	Function	Suffix	Net Each, Lots of 1-99	Net Each, Lots of 100-999	Suffix	Net Each, Lots of 1-99	Net Each, Lots of 100-999	Suffix	Net Each, Lots of 1-99	Net Each, Lots of 100-999
MC14068B	8-input NAND gate	-AL†	$0.60	$0.50	-CL†	$0.52	$0.43	-CP▲	$0.40	$0.33
MC14069UB	Hex inverter	-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14070B	Quad Exclusive-OR gate	-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14071B	Quad 2-input OR gate	-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC10072B	Dual 4-input OR gate	-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14073B	Triple 3-input AND gate	-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14075B	Triple 3-input OR gate	-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14076B	Quad D type register	-AL	2.36	1.96	-CL	2.04	1.70	-CP	1.57	1.31
MC14077B	Quad Exclusive-NOR gate	-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14078B	8-input NOR gate	-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14081B	Quad 2-input AND gate	-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14082B	Dual 4-input AND gate	-AL†	.60	.50	-CL†	.52	.43	-CP▲	.40	.33
MC14093B	Quad 2-in. NAND Schmitt trig.	-AL†	1.17	.97	-CL†	1.01	.84	-CP▲	.78	.65
MC14094B	8-stage shift/store reg.	-AL	3.83	3.19	-CL	3.32	2.77	-CP	2.56	2.13
MC14099B	8-bit addressable latch	-AL	2.60	2.17	-CL	2.25	1.88	-CP	1.73	1.44
MC14160B	Decade counter (asyn. clear)	-AL	1.91	1.59	-CL	1.66	1.38	-CP	1.28	1.06
MC14161B	Binary counter (asyn. clear)	-AL	1.91	1.59	-CL	1.66	1.38	-CP	1.28	1.06
MC14162B	Decade counter (syn. clear)	-AL	1.91	1.59	-CL	1.66	1.38	-CP	1.28	1.06
MC14163B	Binary counter (syn. clear)	-AL	1.91	1.59	-CL	1.66	1.38	-CP	1.28	1.06
MC14174B	Hex D flip-flop	-AL	1.91	1.59	-CL	1.66	1.38	-CP	1.28	1.06
MC14175B	Quad D flip-flop	-AL	1.91	1.59	-CL	1.66	1.38	-CP	1.28	1.06
MC14194B	4-bit univ. shift register	-AL	2.13	1.77	-CL	1.84	1.54	-CP	1.42	1.18
MC14406	Pulse code modulator	-L	25.51	21.26	-P	22.56	18.80	...	....	....
MC14407	Pulse code modulator	-L	24.21	20.18	-P	21.26	17.72	...	....	....
MC14408	Binary-to-phone pulse conv.	-L	15.72	13.10	-P	13.41	11.17	...	....	....
MC14409	Binary-to-phone pulse conv.	-L	15.72	13.10	-P	13.41	11.17	...	....	....
MC14410	2-of-8 tone encoder	-L	13.77	11.48	-P	11.77	9.81	...	....	....
MC14411	Bit rate generator	-L‡	15.29	12.74	-P	11.77	9.81	...	....	....
MC14412	Low speed MODEM	-FL	18.35	15.71	-FP	14.11	11.76	-VL	13.76	11.47
		-VP	10.59	8.82	...	....	....	...	....	....
MC14415	Quad timer/driver	-EFL	11.30	9.42	-FL	9.80	8.17	-FP	7.54	6.28
		-EVL	8.48	7.07	-VL	7.35	6.12	-VP	5.65	4.71
MC14416	PCM time slot assigner	-L	8.60	7.17	-P	7.74	6.45	...	....	....
MC14418	PCM time slot assigner	-L	12.07	10.06	-P	10.35	8.63	...	....	....
MC14419	2-of-8 keypad-to-binary enc.	-L	10.91	9.09	-P	7.79	6.49	...	....	....
MC14433	3½ digit A/D converter	-L‡	18.50	15.42	-P	14.24	11.86	...	....	....
MC14435	3½ digit A/D logic subsystem	-EFL	11.79	9.82	-FL	10.21	8.51	-FP	7.86	6.55
		-EVL	8.84	7.37	-VL	8.84	7.37	-VP	5.89	4.91
MC14443	μP A/D converter	-L	3.01	2.51	-P	2.85	2.38	...	....	....
MC14447	μP A/D converter	-L	5.87	4.89	-P	4.52	3.77	...	....	....
MC14457	Transmitter	-L	5.85	4.87	-P	4.50	3.75	...	....	....
MC14458	Receiver	-L	12.16	10.14	-P	9.36	7.80	...	....	....
MC14460	Auto speed control processor	-L	15.57	12.97	-P	11.68	9.73	...	....	....
MC14466	Low cost smoke detector	...	....	....	-P	2.40	2.00	...	....	....
MC14469	Addressable asynchronous receiver/transmitter	-L	17.83	14.86	-P	13.37	11.14	...	....	....
MC14490	Hex contact bounce eliminator	-EFL	5.97	4.98	-FL	5.19	4.32	-FP	3.82	3.18
		-EVL	4.53	3.78	-VL	3.97	3.31	-VP	2.89	2.40
MC14495	BCD-to-segment decoder driver/latch	-L	3.92	3.27	-P	2.70	2.25	...	....	....
MC14500B	Industrial control unit	-AL	8.19	6.82	-CL	7.10	5.91	-CP	5.46	4.55
MC14501UB	Triple gate	-AL	.60	.50	-CL	.52	.43	-CP	.40	.33
MC14502B	Strobed hex inverter/buffer	-AL	2.60	2.16	-CL	2.25	1.88	-CP	1.73	1.44
MC14503B	Hex 3-state buffer	-AL	1.27	1.06	-CL	1.10	.92	-CP	.84	.70
MC14504B	Hex TTL or CMOS to CMOS level shifter	-AL	2.43	2.02	-CL	2.11	1.75	-CP	1.62	1.35
MC14506B	Dual exp. AND/OR/invert gate	-AL	1.50	1.25	-CL	1.30	1.08	-CP	1.00	.83
MC14508B	Dual 4-bit latch	-AL§	6.80	5.66	-CL§	5.89	4.91	-CP•	4.53	3.78
MC14510B	BCD up/down counter	-AL	2.20	1.83	-CL	1.91	1.59	-CP	1.47	1.22
MC14511B	BCD-7-seg. latch/dec./driver	-AL	2.16	1.80	-CL	1.87	1.56	-CP	1.44	1.20
MC14512B	8-channel data selector	-AL	2.13	1.77	-CL	1.84	1.54	-CP	1.42	1.18
MC14513B	BCD-7-seg. latch/dec./driver	-AL♦	2.87	2.39	-CL♦	2.49	2.07	-CP‡	1.91	1.59
MC14514B	4/16 line decoder (high)	-AL§	4.37	3.64	-CL§	3.78	3.15	-CP	2.91	2.43
MC14515B	4/16 line decoder (low)	-AL§	4.37	3.64	-CL§	3.78	3.15	-CP•	2.91	2.43
MC14516B	Binary up/down counter	-AL	2.38	1.99	-CL	2.07	1.72	-CP	1.59	1.32
MC14517B	Dual 64-bit static shift reg.	-AL	10.55	8.79	-CL	9.14	7.62	-CP	7.03	5.86
MC14518B	Dual BCD up counter	-AL	2.20	1.83	-CL	1.91	1.59	-CP	1.47	1.22
MC14519B	4-bit AND/OR selector	-AL	1.20	1.00	-CL	1.04	.86	-CP	.80	.66
MC14520B	Dual binary up counter	-AL	2.20	1.83	-CL	1.91	1.59	-CP	1.47	1.22
MC14521B	24-stage frequency divider	-AL	5.34	4.45	-CL	4.63	3.86	-CP	3.56	2.97
MC14522B	BCD divide by N counter	-AL	2.71	2.26	-CL	2.35	1.96	-CP	1.81	1.51
MCM14524	256 x 4 bit ROM	-AL	15.96	13.30	-CL	13.83	11.52	-CP	10.64	8.86
MC14526B	Binary divide by N counter	-AL	2.71	2.26	-CL	2.35	1.96	-CP	1.81	1.51
MC14527B	BCD rate multiplier	-AL	2.39	1.99	-CL	2.07	1.73	-CP	1.59	1.33
MC14528B	Dual monostable multivibrator	-AL	2.71	2.26	-CL	2.35	1.96	-CP	1.81	1.51
MC14529B	Dual 4-channel multiplexer	-AL	2.93	2.44	-CL	2.54	2.12	-CP	1.96	1.63
MC14530B	Dual 5-input maj. logic gate	-AL	1.83	1.53	-CL	1.59	1.32	-CP	1.22	1.02
MC14531B	12-bit parity tree	-AL	2.13	1.78	-CL	1.85	1.54	-CP	1.42	1.19
MC14532B	8-bit parity encoder	-AL	4.52	3.77	-CL	3.92	3.27	-CP	3.01	2.51
MC14534B	Real time 5-decade counter	-AL§	13.74	11.45	-CL§	11.91	9.92	-CP•	9.16	7.63
MC14536B	Programmable timer	-AL	7.29	6.07	-CL	6.32	5.26	-CP	4.86	4.05
MCM14537	256 x 1 bit static RAM	-AL	31.10	25.91	-CL	26.95	22.46	-CP	20.73	17.28
MC14538B	Dual monostable multivibrator	-AL	2.71	2.26	-CL	2.35	1.96	-CP	1.81	1.51
MC14539B	Dual 4-channel multiplexer	-AL	2.16	1.80	-CL	1.88	1.56	-CP	1.44	1.20
MC14541B	Oscillator/timer	-AL†	2.70	2.25	-CL†	2.34	1.95	-CP▲	1.80	1.50
MC14543B	BCD-7-seg. latch/dec./driver	-AL	3.95	3.29	-CL	3.42	2.85	-CP	2.63	2.19
MC14544B	BCD-to-7 segment latch/ decoder/driver	-AL	4.40	3.67	-CL	3.82	3.18	-CP	2.94	2.45
MC14547B	BCD-to-7 segment latch/ decoder/driver	-AL	2.48	2.07	-CL	2.15	1.79	-CP	1.65	1.38
MC14549B	Succ. approximation register	-AL	11.32	9.44	-CL	9.81	8.18	-CP	7.55	6.29

*Minimum order quantity of 12. †Case 632. ‡Case 716. §Case 715. #Case 698. •Case 709. ■Case 704. ▲Case 646. ΙCase 703. ♦Case 680. ‡Case 707.

SEE OTHER MOTOROLA IC PAGES FOR CASE ILLUSTRATIONS

COMPLEMENTARY CMOS LISTING CONTINUED ON FOLLOWING PAGE

McMOS™ MC 14000 SERIES COMPLEMENTARY MOS (CONT'D)

Motorola Type	Function	Suffix	Net Each, Lots of 1-99	Net Each, Lots of 100-999	Suffix	Net Each, Lots of 1-99	Net Each, Lots of 100-999	Suffix	Net Each, Lots of 1-99	Net Each, Lots of 100-999
MC14553B	3-digit BCD counter	-AL	$5.92	$4.93	-CL	$5.13	$4.28	-CP	$3.95	$3.29
MC14554B	2 x 2 bit par. bin. multiplier	-AL	3.73	3.11	-CL	3.24	2.70	-CP	2.49	2.07
MC14555B	Dual binary to 1-of-4 decoder	-AL	1.72	1.44	-CL	1.49	1.24	-CP	1.15	.96
MC14556B	Dual bin. to 1-of-4 dec. inv.	-AL	1.72	1.44	-CL	1.49	1.24	-CP	1.15	.96
MC14557B	1-to-64 bit shift register	-AL	5.92	4.93	-CL	5.13	4.28	-CP	3.95	3.29
MC14558B	BCD-to-7-segment decoder	-AL	2.65	2.21	-CL	2.30	1.92	-CP	1.77	1.47
MC14559B	Succ. approximation register	-AL	11.32	9.44	-CL	9.81	8.18	-CP	7.55	6.29
MC14560B	NBCD adder	-AL	5.70	4.75	-CL	4.94	4.12	-CP	3.80	3.17
MC14561B	9's complementer	-AL†	2.35	1.96	-CL†	2.04	1.70	-CP▲	1.57	1.31
MC14562B	128-bit static shift register	-AL†	7.59	6.33	-CL†	6.58	4.58	-CP▲	5.06	4.22
MC14566B	Ind. time base generator	-AL	3.57	2.97	-CL	3.09	2.58	-CP	2.38	1.98
MC14568B	Phase comp./programmable counte	-AL	6.49	5.41	-CL	5.63	4.69	-CP	4.33	3.61
MC14569B	Dual prog. counter	-AL	3.72	3.10	-CL	3.22	2.69	-CP	2.48	2.07
MC14572UB	Hex gate	-AL	1.16	.97	-CL	1.01	.84	-CP	.78	.65
MC14580B	4 x 4 multiport register	-AL§	8.70	7.25	-CL§	7.54	6.28	-CP•	5.80	4.83
MC14581B	4-bit arith. logic unit	-AL§	5.77	4.81	-CL§	5.00	4.17	-CP•	3.85	3.21
MC14582B	Lookahead carry block	-AL	2.06	1.71	-CL	1.78	1.49	-CP	1.37	1.14
MC14583B	Schmitt trigger	-AL	2.54	2.11	-CL	2.20	1.83	-CP	1.69	1.41
MC14584B	Hex Schmitt trigger	-AL†	1.28	1.06	-CL†	1.11	.92	-CP▲	.85	.71
MC14585B	4-bit magnitude comparator	-AL	2.70	2.25	-CL	2.34	1.95	-CP	1.80	1.50
MC14597B	8-bit latch with ctr.	-AL	5.58	4.65	-CL	4.84	4.03	-CP	3.72	3.10
MC14598B	8-bit address. latch	-AL	6.49	5.41	-CL	5.63	4.69	-CP	4.33	3.61

*Minimum order quantity of 12. †Case 632. ‡Case 716. §Case 715. #Case 698. •Case 709. ■Case 704. ▲Case 646. ΙCase 703. ♦Case 680. ‡Case 707.

MTTL III™ MC3000 AND MC3100 SERIES

Designed for general purpose digital applications. High operating speed (30–50 MHz clock rate), good external noise immunity, high fan-out and capability of driving lines up to 600 pF capacitance. Temperature range 0° C to +75° C (MC3000 Series), −55° C to +125° C (MC3100 Series). V_{CC} = 5.0 V; T_A = 25° C. **L** suffix denotes dual inline ceramic pkg. (Case 632, TO-116), **F** flat ceramic pkg. (Case 607, TO-86) and **P** dual inline plastic pkg. (Case 646, TO-116).

Function	Typical t_{pd} ns	Typical P_D mW	Motorola Type	Net Each, Lots of 1-99	Net Each, Lots of 100-999	Motorola Type	Net Each, Lots of 1-99	Net Each, Lots of 100-999
Quad 2-input AND gate	9.0	112	MC3001L	$3.24	$2.49	MC3101L	$4.07	$3.13
Quad 2-input NOR gate	6.0	122	MC3002L	3.34	2.57	MC3102L	4.18	3.22
Quad 2-input OR gate	9.0	150	.....	....	....	MC3103L	4.16	3.20
8-input NAND gate	8.0	22	MC3007L	3.24	2.49	MC3107L	4.07	3.13
Quad 2-input exclusive-OR gate	14.0	100	MC3015L	3.12	2.40	MC3115L	3.96	3.05
Quad 2-input exclusive-NOR gate	14.0	85	MC3021L	3.87	2.98	MC3121L	4.91	3.77
Dual 4-input NAND power gate	6.0	70	MC3022L	3.87	2.98	MC3122L	4.91	3.77
Dual 4-input AND power gate	9.0	90	MC3025L	3.24	2.49	MC3125L	4.07	3.13
Dual 3-input 3-output AND series terminated line driver	9.0	56	MC3026L	3.24	2.49	MC3126L	4.07	3.13
Dual 3-input, 3-output AND terminated line driver	9.0	56	MC3028L	3.24	2.49	MC3128L	4.07	3.13
Dual 3-input 3-output NAND series terminated line driver	6.0	44	MC3029L	3.24	2.49	MC3129L	4.07	3.13
AND input J-K flip-flop	§	50	MC3051L	4.18	3.22	MC3151L	5.02	3.86
AND input JJ-KK flip-flop	‡	75	MC3052L	4.47	3.44	MC3152L	5.61	4.32
Dual type D flip-flop	#	120	MC3060L	4.18	3.22	MC3160L	5.02	3.86
Dual J-K flip-flop	§	100	MC3061L	4.18	3.22	MC3161L	5.02	3.86
Dual J-K flip-flop	§	100	MC3062L	4.18	3.22	MC3162L	5.02	3.86

*Δt_{pd1} = 0.4 ns; Δt_{pd0} = 0.05 ns. †Δt_{pd} = 1.0 ns. ‡f = 40 MHz. §f = 50 MHz. #f = 30 MHz.

SERIES MC3000 P PACKAGES

Motorola Type	P Suffix Net Each, Lots of 1-99	P Suffix Net Each, Lots of 100-999
MC3001	$2.38	$1.83
MC3002	2.38	1.83
MC3007	2.35	1.81
MC3015	2.27	1.74
MC3021	2.82	2.17

Motorola Type	P Suffix Net Each, Lots of 1-99	P Suffix Net Each, Lots of 100-999
MC3022	$2.82	$2.17
MC3025	2.35	1.81
MC3026	2.35	1.81
MC3028	2.35	1.81
MC3029	2.35	1.81

Motorola Type	P Suffix Net Each, Lots of 1-99	P Suffix Net Each, Lots of 100-999
MC3051	$3.17	$2.44
MC3052	3.61	2.78
MC3060	3.87	2.98
MC3061	3.17	2.44
MC3062	3.17	2.44

SERIES MC3100 F PACKAGES

Motorola Type	Net Each, Lots of 1-99
MC3101F	$5.74
MC3102F	5.72
MC3103F	5.72
MC3107F	5.74

Motorola Type	Net Each, Lots of 1-99
MC3115F	$5.54
MC3121F	6.82
MC3122F	6.82
MC3125F	5.74

Motorola Type	Net Each, Lots of 1-99
MC3126F	$5.74
MC3128F	5.74
MC3129F	5.74
MC3151F	6.36

Motorola Type	Net Each, Lots of 1-99
MC3152F	$7.13
MC3160F	6.38
MC3161F	6.38
MC3162F	6.38

SEE OTHER MOTOROLA IC PAGES FOR CASE ILLUSTRATIONS

MECL 10,000™ MC10,000 SERIES

Provides non-saturated switching for very high speed operation. MECL IIIT™ is directly compatible with MECL 10,000 and can be used to extend the speed capability of the MECL 10,000 Series. Temperature −30° C to +85° C (MC10,000/MC10,200); −55° C to +125° C (MC10,500/MC10,600). V_{CC} = 0 V; V_{EE} = −5.2 V; T_A = 25° C. **L** suffix denotes dual inline ceramic package (Case 620); most units also available in P (648) and/or F (650) package.

Function	Typical t_{pd} nsec	Typical P_D mW	−30° C to +85° C Motorola Type	−30° C to +85° C Net Each, Lots of 1-99	−30° C to +85° C Net Each, Lots of 100-999	−55° C to +125° C Motorola Type	−55° C to +125° C Net Each, Lots of 1-99	−55° C to +125° C Net Each, Lots of 100-999
Quad 2-input NOR w/strobe	.....	....	MC10100L	$ 0.75	$ 0.70	MC10500L	$ 2.80	$ 2.40
Quad gate	2.0	100	MC10101L	.75	.70	MC10501L	2.80	2.40
Quad 2-input gate	2.0	100	MC10102L	.75	.70	MC10502L	2.80	2.40
Quad 2-input OR gate	.....	....	MC10103L	.75	.70	MC10503L	2.80	2.40
Quad AND gate	2.7	140	MC10104L	.75	.70	MC10504L	2.80	2.40
Triple 2-3-2-input gate	2.0	75	MC10105L	.75	.70	MC10505L	2.80	2.40
Triple 4-3-3-input gate	2.0	75	MC10106L	.75	.70	MC10506L	2.80	2.40
Triple 2-input exclusive-OR/exclusive-NOR	2.5	110	MC10107L	.80	.75	MC10507L	3.48	2.98
Dual 4-5-input OR-NOR gate	2.0	50	MC10109L	.75	.70	MC10509L	2.80	2.40
Dual 3-input 3-output OR gate	2.4	150	MC10110L	.75	.70	.....	....	....
Dual 3-input 3-output NOR gate	2.4	150	MC10111L	.75	.70	.....	....	....
Quad exclusive-OR gate	.....	....	MC10113L	.80	.75	MC10513L	3.48	2.98
Triple line receiver	2.4	145	MC10114L	.80	.75	MC10514L	3.48	2.98
Quad line receiver	2.0	100	MC10115L	.75	.70	MC10515L	2.80	2.40
Triple line receiver	2.0	75	MC10116L	.75	.70	MC10516L	2.80	2.40
Dual 2-wide 2-3-input OR-AND/ OR-AND-INVERT gate	2.3	100	MC10117L	.75	.70	MC10517L	3.48	2.98
Dual 2-wide 3-input OR-AND gate	2.3	100	MC10118L	.75	.70	MC10518L	4.48	2.98
4-wide 4-3-3-3-input OR-AND gate	2.3	100	MC10119L	.80	.75	MC10519L	3.48	2.98
4-wide OR-AND/OR-AND-INVERT gate	2.3	100	MC10121L	.80	.75	MC10521L	3.48	2.98
Triple 4-3-3 bus driver	.....	....	MC10123L	1.63	1.45	.....	....	....
MTTL to MECL translator	5.0	340	MC10124L	2.05	1.82	MC10524L	5.31	4.55
MECL to MTTL translator	5.0	360	MC10125L	2.05	1.82	MC10525L	5.31	4.55
Bus driver	12.0	700	MC10128L	6.47	5.72	.....	....	....
Bus receiver	10.0	725	MC10129L	6.47	5.72	.....	....	....
Dual latch	2.5	160	MC10130L	2.05	1.82	MC10530L	4.99	4.27
Dual type D master-slave flip-flop	*	225	MC10131L	2.48	2.20	MC10531L	6.82	5.83
Dual multiplexer with latch and common reset	3.0	225	MC10132L	2.39	2.12	.....	....	....
Quad latch	4.0	300	MC10133L	2.39	2.12	MC10533L	8.07	6.90
Multiplexer with latch	3.0	225	MC10134L	2.39	2.12	.....	....	....
Dual J-K master-slave flip-flop	†	250	MC10135L	2.56	2.27	MC10535L	8.07	6.90
Universal hexadecimal counter	‡	585	MC10136L	10.30	8.85	.....	....	....
Universal decade counter	‡	585	MC10137L	10.30	8.85	.....	....	....
Bi-quinary counter	.....	....	MC10138L	6.48	5.73	MC01538L	12.39	10.57
32 x 8 Field PROM	.....	....	MCM10139L	12.10	10.45	.....	....	....
Four-bit universal shift register	§	400	MC10141L	6.65	5.88	MC10541L	20.10	17.15
8 x 2 multiport RAM	.....	....	MCM10143L•	14.70	12.75	.....	....	....
256-bit RAM	.....	....	MCM10144L	9.70	8.40	.....	....	....
64-bit RAM	.....	....	MCM10145L	7.70	6.65	.....	....	....
1024-bit RAM	.....	....	MCM10146L	15.40	13.35	.....	....	....
128-bit RAM	.....	....	MCM10147L	11.45	9.95	.....	....	....
Hex inverter with enable	.....	....	MC10189L	2.23	1.98	.....	....	....
1024-bit PROM	.....	....	MCM10149L	14.70	12.75	.....	....	....
256 x 1 RAM	.....	....	MCM10152L	13.25	11.45	.....	....	....
Quad latch	.....	....	MC10153L	2.48	2.20	MC10553L	8.01	6.84
Quad 2-input multiplexer	.....	....	MC10158L	3.25	2.88	MC10558L	8.01	6.84
Quad 2-input multiplexer	.....	....	MC10159L	3.25	2.88	.....	....	....
12-bit parity generator checker	4.0	320	MC10160L	3.25	2.88	MC10560L	7.81	6.84
Binary to 1-of-8 decoder (low)	4.0	315	MC10161L	3.25	2.88	MC10561L	8.01	6.84
Binary to 1-of-8 decoder (high)	4.0	315	MC10162L	3.25	2.88	MC10562L	8.01	6.84
IBM code error detector	.....	....	MC10163L	6.65	5.88	MC10563L	12.87	10.98
8-line multiplexer	3.0	300	MC10164L	3.67	3.25	MC10564L	8.01	6.84
8-input priority encoder	7.0	580	MC10165L	5.20	4.60	MC10565L	16.14	13.77
5-bit magnitude comparator	.....	....	MC10166L	5.37	4.75	.....	....	....
Quad latch	.....	....	MC10168L	2.48	2.20	MC10568L	8.63	7.37
9 + 2-bit parity generator	.....	....	MC10170L	4.10	3.63	MC10570L	8.01	6.84
Binary to 1-of-4 decoder	4.0	340	MC10171L	3.25	2.88	MC10571L	8.01	6.84
Dual binary to 1-4 decoder	.....	....	MC10172L	3.25	2.88	MC10572L	8.01	6.84
Quad 2-input multiplexer/latch	2.5	260	MC10173L	3.67	3.25	.....	....	....
Dual 4-to-1 multiplexer	3.5	325	MC10174L	3.67	3.25	MC10574L	8.01	6.84
Quint latch	2.5	385	MC10175L	3.08	2.73	MC10575L	8.77	7.49
Hex D master-slave flip-flop	.....	....	MC10176L	4.61	4.08	MC10576L	12.79	10.91
Triple MECL-NMO's translator	.....	....	MC10177L	5.20	4.60	.....	....	....
Binary counter	.....	....	MC10178L	6.48	5.73	MC10578L	10.77	9.20
Look-ahead carry block	.....	285	MC10179L	4.13	3.65	MC10579L	9.01	7.69
Dual high speed adder/subtractor	4.5	340	MC10180L	7.75	6.85	MC10580L	24.08	20.53
4-bit ALU/function generator	.....	575	MC10181L•	12.63	11.18	MC10581L	40.45	34.50
2-bit arithmetic logic unit	.....	....	MC10182L	15.40	13.60	MC10582L	31.85	27.15
4 x 2 multiplier	.....	....	MC10183L•	33.88	29.93	.....	....	....
Hex D master-slave flip-flop	.....	....	MC10186L	4.52	4.00	MC10586L	18.73	15.97
64 x 1 bit random access memory	.....	....	MCM10148L	11.45	9.95	.....	....	....
Quad MST to MECL-10,000 gen.	.....	....	MC10190L	4.78	4.23	MC10590L	9.17	7.83
Hex MECL-10,000 to MST gen.	.....	....	MC10191L	4.78	4.23	MC10591L	9.17	7.83
Motorola code error detector	.....	....	MC10193L	6.82	6.03	MC10593L	12.87	10.98
Dual simul. bus transceiver	.....	....	MC10194L	2.65	2.35	MC10594L	6.18	5.28
Hex inverter/buffer	.....	....	MC10195L	1.72	1.53	MC10595L	6.18	5.28
Hex AND gate	.....	....	MC10197L	1.72	1.53	MC10597L	6.18	5.28
One-shot multivibrator	.....	....	MC10198L	16.25	14.35	.....	....	....
Dual 3-input 3-output OR gate	1.5	150	MC10210L	1.25	1.15	MC10610L	4.49	3.84
Dual 3-input 3-output NOR gate	1.5	150	MC10211L	1.25	1.15	MC10611L	4.49	3.84
Or/Nor dual line driver	.....	....	MC10212L	1.25	1.15	MC10612L	4.49	3.84
Triple line receiver	1.8	100	MC10216L	1.25	1.15	MC10616L	4.49	3.84
Dual type D master-slave flip-flop	▲	285	MC10231L	4.35	3.85	MC10631L	10.52	8.98
2 x 1-bit array mult. block	.....	....	MC10287L	19.65	17.35	MC10687L	38.93	33.18

*f = 160 MHz; †f = 140 MHz. ‡f = 150 MHz. §f = 200 MHz. #Access time = 10. •In dual inline ceramic package (Case 623); also available in dual inline plastic package (Case 649). ▲f = 225 MHz.

SEE OTHER MOTOROLA IC PAGES FOR CASE ILLUSTRATIONS

DIGITAL IC's QUALIFIED TO MIL-M-38510

JAN No. JM38510/	Motorola Standard Number	Net Each, Lots of 100-999
00101BAB	MC5430F	$ 4.10
00101BCB	MC5430L	2.95
00102BAB	MC5420F	4.10
00102BCB	MC5420L	2.95
00103BAB	MC5410F	4.10
00103BCB	MC5410L	2.95
00104BAB	MC5400F	4.10
00104BCB	MC5400L	2.95
00105BAB	MC5404F	4.10
00105BCB	MC5404L	2.95
00107BAB	MC5401F	4.10
00107BCB	MC5401L	2.95
00108BAB	MC5405F	4.10
00108BCB	MC5405L	2.95
00109BCB	MC5403L	2.95
00202BAB	MC5473F	5.26
00202BCB	MC5473L	4.60
00203BCB	MC54107L	4.60
00206BAB	MC5470F	5.50
00206BCB	MC5470L	4.75
00207BAB	MC5479F	5.26
00207BCB	MC5479L	4.60
00301BAB	MC5440F	4.10
00301BCB	MC5440L	2.95
00302BAB	MC5437F	4.30
00302BCB	MC5437L	3.05
00303BAB	MC5438F	4.30
00303BCB	MC5438L	3.05
00401BAB	MC5402F	4.10
00401BCB	MC5402L	2.95
00402BEB	MC5423L	3.05
00402BFB	MC5423F	4.30
00403BAB	MC5425F	4.10
00403BCB	MC5425L	3.05
00404BAB	MC5427F	4.10
00404BCB	MC5427L	2.95
00501BAB	MC5450F	4.10
00501BCB	MC5450L	2.95
00502BAB	MC5451F	4.10
00502BCB	MC5451L	2.95
00503BAB	MC5453F	4.10
00503BCB	MC5453L	2.95
00504BAB	MC5454F	4.10
00504BCB	MC5454L	2.95
00601BAB	MC15482F	8.20
00601BCB	MC15482L	5.70
00602BEB	MC5483L	7.80
00602BFB	MC5483F	10.60
00603BEB	MC9304L	7.00
00603BFB	MC9304F	9.90
00604BAB	MC5480F	6.30
00604BCB	MC5480L	4.80
00701BAB	MC5486F	4.90
00701BCB	MC5486L	4.18
00801BAB	MC5406F	11.15
00801BCB	MC5406L	7.80
00802BAB	MC5416F	8.45
00802BCB	MC5416L	6.25
00803BAB	MC5407F	11.30
00803BCB	MC5407L	7.80
00804BAB	MC5417F	$ 8.60
00804BCB	MC5417L	6.75
00901BAB	MC5495F	11.00
00901BCB	MC5495L	7.70
00902BEB	MC5496L	7.15
00902BFB	MC5496F	10.00
00904BEB	MC54165L	8.20
00904BFB	MC54165F	11.55
00905BEB	MC54194L	7.95
00905BFB	MC54194F	11.30
00906BEB	MC54195L	7.95
00906BFB	MC54195F	11.30
01001BEB	MC5442L	7.50
00101BFB	MC5442F	10.10
01002BEB	MC5443L	7.80
01002BFB	MC5443F	11.20
01003BEB	MC5444L	7.90
01003BFB	MC5444F	11.25
01004BEB	MC5445L	9.90
01004BFB	MC5445F	13.90
01005BEB	MC54145L	8.03
01005BFB	MC54145F	13.90
01008BEB	MC5448L	8.40
01008BFB	MC5448F	11.90
01009BAB	MC5449F	11.70
01009BCB	MC5449L	8.30
01101BJB	MC5418L	13.50
01101BKB	MC54181F	19.45
01102BEB	MC54182L	18.95
01102BFB	MC54182F	26.50
01201BAB	MC54121F	5.70
01201BCB	MC54121L	4.35
01202BAB	MC54122F	9.65
01202BCB	MC54122L	7.50
01203BEB	MC54123L	7.80
01203BFB	MC54123F	11.20
01204BAB	MC9601F	8.40
01204BCB	MC9601L	6.40
01205BEB	MC9602L	7.80
01205BFB	MC9602F	11.20
01301BAB	MC5492F	10.10
01301BCB	MC5492L	7.50
01302BAB	MC5493F	10.10
01302BCB	MC5493L	7.50
01303BEB	MC54160L	8.40
01303BFB	MC54160F	11.90
01304BEB	MC54163L	8.40
01304BFB	MC54163F	11.90
01305BEB	MC54162L	8.40
01305BFB	MC54162F	11.90
01306BEB	MC54161L	8.40
01306BFB	MC54161F	11.90
01307BAB	MC5490F	6.90
01307BCB	MC5490L	7.50
01308BEB	MC54192L	8.40
01308BFB	MC54192F	11.90
01309BEB	MC54193L	8.40
01309BFB	MC54193F	11.90
01401BJB	MC54150AL	13.50
01401BKB	MC54150AF	19.45
01402BEB	MC9312L	$ 6.90
01402BFB	MC9312F	9.30
01403BEB	MC54153L	7.03
01403BFB	MC54153F	9.85
01404BEB	MC9309L	8.00
01404BFB	MC9309F	8.95
01405BEB	MC9322L	6.00
01405BFB	MC9322F	9.75
01406BEB	MC54151L	6.60
01406BFB	MC54151F	9.30
01501BEB	MC5475L	7.15
01501BFB	MC5475F	10.00
01502BAB	MC5477F	10.00
01504BEB	MC9314L	7.15
01504BFB	MC9314F	10.00
01601BAB	MC5408F	4.31
01601BCB	MC5408L	3.00
01602BAB	MC5409F	4.31
01602BCB	MC5409L	3.00
01701BEB	MC54174L	8.15
01701BFB	MC54174F	11.45
01702BEB	MC54175L	8.15
01702BFB	MC54175F	11.45
01901BAB	MC54180F	10.90
01901BCB	MC54180L	7.60
02201BAB	MC54H72F	5.43
02201BCB	MC54H72L	4.43
02202BAB	MC54H73F	5.43
02202BCB	MC54H73L	4.43
02205BAB	MC54H101F	5.43
02205BCB	MC54H101L	4.43
02206BAB	MC54H103F	5.50
02206BCB	MC54H103L	4.75
02301BAB	MC54H30F	4.45
02301BCB	MC54H30L	3.15
02302BAB	MC54H20F	4.45
02302BCB	MC54H20L	3.15
02303BAB	MC54H10F	4.45
02303BCB	MC54H10L	3.15
02304BAB	MC54H00F	4.45
02304BCB	MC54H00L	3.15
02305BAB	MC54H04F	4.45
02305BCB	MC54H04L	3.15
02306BAB	MC54H01F	4.45
02306BCB	MC45H01L	3.15
02307BAB	MC54H22F	4.45
02307BCB	MC54H22L	3.15
02401BAB	MC54H40F	4.45
02401BCB	MC54H40L	3.15
04001BAB	MC54H50F	4.45
04001BCB	MC54H50L	3.15
04002BAB	MC54H51F	4.45
04002BCB	MC54H51L	3.15
04003BAB	MC54H53F	4.45
04003BCB	MC54H53L	3.15
04004BAB	MC54H54F	4.45
04004BCB	MC54H54L	3.15
04005BAB	MC54H55F	4.45
04005BCB	MC54H55L	3.15

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ARE CONSTANTLY BEING ADDED TO OUR COMPLETE STOCK.

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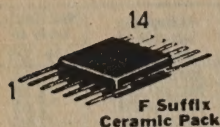
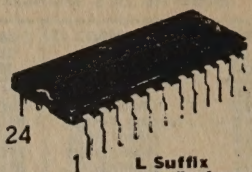


F Suffix
Ceramic Package
CASE 607

L Suffix
Ceramic Package
Case 620



L Suffix
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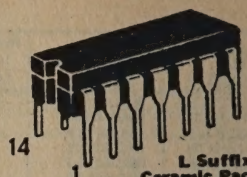
CASE 623



L Suffix
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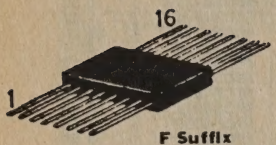
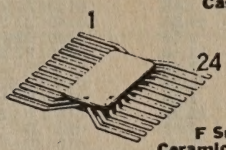
Case 632



F Suffix
Ceramic Package
CASE 650



F Suffix
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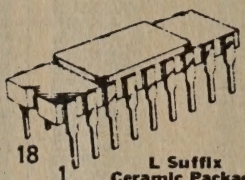
Case 667



L Suffix
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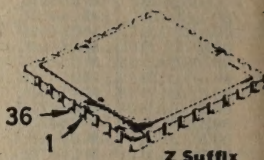
CASE 680



Z Suffix
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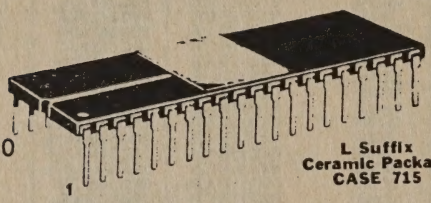
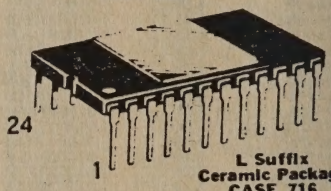
CASE 703



L Suffix
Ceramic Package
CASE 715



L Suffix
Ceramic Package
CASE 716

MTTL II™ MC2000 AND MC2100 SERIES

MC2100 Series −55° C to +125° C; fan out=11. MC2000 Series 0° C to +75° C; fan out=6. V_{CC}=5.0 volts, T_A=25° C. **L** suffix ceramic dual inline pkg. (Case 632, TO-116) **F** flat ceramic pkg. (Case 607, TO-86), and **P** dual inline plastic pkg. (Case 646, TO-116)

Function	Typical t_{pd} nsec	Typical P_D mW	Case 607 (−55° C to +125° C) Motorola Type	Net Each, Lots of 1-99	Net Each, Lots of 100-999	Case 607 (0° C to +75° C) Motorola Type	Net Each, Lots of 1-99	Net Each, Lots of 100-999
Expandable 2-wide 4-input AND-OR-INVERT gate	7.0	27	MC2100F	$2.98	$2.50	MC2000P	$1.33	$1.11
Quad 2-input NAND gate	6.0	88	MC2101F	2.98	2.50	MC2001P	1.33	1.11
4-wide 3-2-2-3-input expander for AND-OR-INVERT gates	.....	28	MC2102F	2.98	2.50	MC2002P	1.33	1.11
Dual 4-input NAND gate	6.0	44	MC2103F	2.98	2.50	MC2003P	1.33	1.11
Expandable 4-wide 2-2-2-3-input AND-OR-INVERT gate	7.0	36	MC2104F	2.98	2.50	MC2004P	1.33	1.11
Single 8-input NAND gate	8.0	22	MC2105F	2.98	2.50	MC2005P	1.33	1.11
Dual 4-input expander for AND-OR-INVERT gate	.....	14	MC2106F	2.98	2.50	MC2006P	1.33	1.11
Triple 3-input NAND gate	6.0	66	MC2107F	2.98	2.50	MC2007P	1.33	1.11
Expandable 8-input NAND gate	11	22	MC2111F	2.98	2.50	MC2011P	1.33	1.11
Expandable 3-wide 3-input AND-OR-INVERT gate	6.0	39	MC2112F	2.98	2.50	MC2012P	1.33	1.11
Expandable dual 2-wide 2-input AND-OR-INVERT gate	7.0	58	MC2113F	2.98	2.50	MC2013P	1.33	1.11
Hex inverter	6.0	132	MC2116F	3.16	2.65	MC2016P	1.42	1.19
Quad 2-input line driver	10	90	MC2118F	3.07	2.58	MC2018P	1.37	1.15
Dual J-K flip-flop—separate clock	f= 70 MHz	110	MC2123F	3.73	3.13	MC2023P	1.81	1.51
Dual J-K flip-flop—common clock	f= 70 MHz	110	MC2124F	3.73	3.13	MC2024P	1.81	1.51
AND J-K flip-flop	f= 50 MHz	50	MC2125F	3.73	3.13	MC2025P	1.81	1.51
OR J-K flip-flop	f= 50 MHz	60	MC2126F	3.73	3.13	MC2026P	1.81	1.51
OR J-K flip-flop	f= 35 MHz	60	MC2128F	3.73	3.13	MC2028P	1.81	1.51
Quad 2-input lamp driver	20.0	90	MC2165F	3.07	2.58	MC2065P	1.37	1.15

Additional package types that are available.

Motorola Type	Net Ea., Lots of 1-99	Net Ea., Lots of 100-999	Motorola Type	Net Ea., Lots of 1-99	Net Ea., Lots of 100-999	Motorola Type	Net Ea., Lots of 1-99	Net Ea., Lots of 100-999	Motorola Type	Net Ea., Lots of 1-99	Net Ea., Lots of 100-999
MC2100L	$1.72	$1.45	MC2105L	$1.72	$1.45	MC2113L	$1.72	$1.45	MC2125L	$2.29	$1.93
MC2101L	1.72	1.45	MC2106L	1.72	1.45	MC2116L	1.89	1.59	MC2126L	2.29	1.93
MC2102L	1.72	1.45	MC2107L	1.72	1.45	MC2118L	1.80	1.51	MC2128L	2.29	1.93
MC2103L	1.72	1.45	MC2111L	1.72	1.45	MC2123L	2.29	1.93	MC2165L	1.80	1.51
MC2104L	1.72	1.45	MC2112L	1.72	1.45	MC2124L	2.29	1.93			

SEE OTHER MOTOROLA IC PAGES FOR CASE ILLUSTRATIONS

MTTL™ COMPLEX FUNCTIONS
SERIES MC4000 AND MC4300

Designed for digital applications in the medium to high-speed range. Provide significant reduction in package count and increased logic per function over devices in the basic MTTL and MDTL™ families. V_{CC} = 5.0 V; T_A = 25° C. **F** suffix denotes flat ceramic package (Case 607, 650, 667), **L** suffix denotes dual inline ceramic package (Case 632, 620, 623) and **P** suffix denotes dual inline plastic package (Case 646, 648, 649).

Function	Typical t_{pd} ns	Typical P_D mW	Case 646 (0° C to +75° C) Motorola Type	Case 646 Net Each, Lots of 1-99	Case 646 Net Each, Lots of 100-999	Case 607 (−55° C to +125° C) Motorola Type	Case 607 Net Each, Lots of 1-99	Case 607 Net Each, Lots of 100-999
Dual 4-channel data selector	18*	150	MC4000P	$ 5.83	$ 4.48	MC4300F	$11.46	$ 8.82
BCD-to-binary/binary-to-BCD	45	300	MC4001P‡	11.31	8.70	.....	.....	.....
Dual data distributor	10.5	175	MC4002P	5.68	4.37	MC4302F	11.46	8.82
16-bit scratch pad memory cell	25†	250	MC4004P	3.67	2.83	MC4304F	7.79	5.99
16-bit scratch pad memory cell	25†	250	MC4005P	3.63	2.79	MC4305F	7.70	5.92
Binary to one-of-eight line decoder	14	100	MC4006P	6.84	5.26	MC4306F	12.58	9.68
Dual binary to one-of-four line decoder	14	125	MC4007P‡	6.84	5.26	MC4307F■	12.58	9.68
8-bit parity tree	15–30	150	MC4008P	4.84	3.72	MC4308F	9.55	7.34
Dual 4-bit parity tree	9.5–22	125	MC4010P	6.56	5.04	MC4310F	12.56	9.66
4-bit shift register	22/bit	180	MC4012P	8.23	6.33	MC4312F	14.87	11.44
Quad type D flip-flop	16	190	MC4015P‡	6.62	5.09	MC4315F■	12.54	9.65
Programmable Modulo-N decade counter	50‡	250	MC4016P‡	7.90	6.08	MC4316F■	15.58	11.98
MC4016 except hexadecimal counter	50‡	250	MC4017P‡	7.90	6.08	MC4317F■	15.58	11.98
Prog. Modulo-N hexadecimal counter	50‡	250	MC4018P‡	7.90	6.08	MC4318F■	15.58	11.98
Dual prog. Modulo 4 counters	50‡	250	MC4019P‡	7.90	6.08	MC4319F■	15.55	11.96
Dual 4-bit comparator—open collector	20	250	MC4021P‡	6.16	4.74	MC4321F■	11.92	9.17
Dual 4-bit comparator	20	250	MC4022P‡	6.16	4.74	MC4322F■	11.92	9.17
4-bit universal counter	16/bit	200	MC4023P	8.93	6.87	MC4323F	15.91	12.24
Dual voltage controlled multivibrator	§	150	MC4024P	4.49	3.45	MC4324F	7.59	5.84
Full adder (12 fan out)	25/13#	90	MC4026P	2.99	2.30	MC4326F	6.09	4.69
Adder (dependent carry) 12 fan out	25/13#	125	MC4028P	2.84	2.18	MC4328F	5.90	4.54
Adder (independent carry) 12 fan out	25/13#	125	MC4030P	2.84	2.18	MC4330F	5.90	4.54
Carry decoder	•	20	MC4032P	2.84	2.18	MC4332F	5.90	4.54
Quad latch (open collector)	25	140	MC4035P	2.95	2.27	MC4335F	6.05	4.65
Quad latch	25	150	MC4037P	2.95	2.27	MC4337F	6.05	4.65
Inverting/non-inverting one-of-eight decoder	45	240	MC4038P‡	11.31	8.70	.....	.....	.....
7 segment character generator	45	240	MC4039P‡	11.42	8.78	.....	.....	.....
Binary to two-of-eight decoder	45	200	MC4040P‡	11.31	8.70	.....	.....	.....
Single-error hamming code detector and generator	45	240	MC4041P‡	11.31	8.70	.....	.....	.....
Quad predriver	15	120	MC4042P	5.10	3.93	MC4342F	10.47	8.06
Dual line selector	20	70	MC4043P	5.08	3.91	MC4343F	10.47	8.06
Phase frequency detector	9.0	85	MC4044P	4.49	3.45	MC4344F	7.63	5.87
Non-inverting one-of-eight decoder	50	240	MC4048P‡	11.31	8.70	.....	.....	.....
Counter-latch decoder	40 MHz‡	450	MC4050P‡	14.06	10.81	MC4350F■	23.98	18.45
Counter-latch decoder	35 MHz‡	450	MC4051P‡	14.06	10.81	MC4351F■	23.98	18.45
Dual decade counter	40 MHz‡	350	MC4052P‡	14.41	11.08	MC4352F■	15.88	12.22
Dual hexadecimal counter	40 MHz‡	350	MC4053P‡	14.39	11.07	MC4353F■	15.88	12.22
Dual decade counter	12 MHz‡	600	MC4054P‡	24.62	18.94	MC4354F♦	34.87	26.82
NBCD adder	30	300	MC4056P‡	11.57	8.90	MC4356F■	14.89	11.46
Nines comp./zero element	30	200	MC4058P	4.64	3.57	MC4358F	10.16	7.82
Bus transfer switch	25	350	MC4060P‡	6.07	4.67	MC4360F■	12.03	9.26
Dual majority logic gate	Z=20 Z=11	75	MC4062P	3.92	3.01	MC4362F	8.87	6.82

*Control line; data line = 11 ns. †Write mode; sense mode = 15 ns. ‡Clock to Q3; clock to bus = 35 ns. §f_{max} = 30 MHz. #Add delay/carry delay. •Δt_{pd} = 4.0/decoder. ■Case 650. ♦Case 667. ‡Case 648. ‡Case 649.

Additional package types that are available.

Motorola Type	Net Each, Lots of 1-99	Net Each, Lots of 100-999
MC4000F♦	$10.16	$ 7.82
MC4000L	8.36	6.43
MC4300L	9.39	7.23
MC4001L•	11.97	9.21
MC4301L▲	15.49	11.91
MC4002F♦	10.16	7.82
MC4002L	8.36	6.43
MC4302L	9.39	7.23
MC4004L	4.05	3.11
MC4304L	4.60	3.54
MC4005L‡	3.96	3.05
MC4305L‡	4.51	3.47
MC4006L	9.55	7.34
MC4306L	10.36	7.97
MC4007L▲	9.72	7.48
MC4307L▲	10.54	8.11
MC4008L	7.06	5.43
MC4308L	7.83	6.02
MC4010L	9.31	7.16
MC4310L	10.34	7.95
MC4012L	10.93	8.41
MC4312L	12.23	9.41
MC4015L▲	9.48	7.29
MC4315L▲	10.41	8.00
MC4016L▲	11.57	8.90
MC4316L▲	13.11	10.09

Motorola Type	Net Each, Lots of 1-99	Net Each, Lots of 100-999
MC4017L▲	$11.57	$ 8.90
MC4317L▲	13.11	10.09
MC4018L▲	11.57	8.90
MC4318L▲	13.11	10.09
MC4019L▲	11.57	8.90
MC4319L▲	13.11	10.09
MC4021L▲	8.71	6.70
MC4321L▲	9.92	7.63
MC4022L▲	8.71	6.70
MC4322L▲	9.92	7.63
MC4023L	11.51	8.85
MC4323L	13.05	10.04
MC4024L	5.52	4.25
MC4324L	6.29	4.84
MC4026L	3.41	2.62
MC4326L	3.78	2.91
MC4028L	3.21	2.47
MC4328L	3.56	2.74
MC4030L	3.21	2.47
MC4330L	3.56	2.47
MC4032L	3.21	2.47
MC4332L	3.56	2.74
MC4035L	3.37	2.59
MC4335L	3.74	2.88
MC4037L	3.37	2.59

Motorola Type	Net Each, Lots of 1-99	Net Each, Lots of 100-999
MC4337L	$ 3.74	$ 2.88
MC4042L	8.25	6.35
MC4342L	8.60	6.62
MC4043L	8.25	6.35
MC4343L	8.60	6.62
MC4044L	5.52	4.52
MC4344L	6.29	4.84
MC4050L	17.42	13.40
MC4350L	19.76	15.20
MC4051L▲	17.42	13.40
MC4351L▲	19.76	15.20
MC4052L▲	17.34	13.34
MC4352L▲	13.13	10.10
MC4053L▲	17.34	13.34
MC4353L▲	13.13	10.10
MC4054L	27.13	20.87
MC4354L	28.69	22.07
MC4056L▲	15.62	12.02
MC4356L▲	12.34	9.49
MC4058L	7.41	5.70
MC4358L	8.45	6.50
MC4060L▲	8.71	6.70
MC4360L▲	10.01	7.70
MC4062L	6.29	4.84
MC4362L	7.44	5.72

▲Case 620. ♦Case 607. •Case 650. ‡Case 632.

SEE OTHER MOTOROLA IC PAGES FOR CASE ILLUSTRATIONS

MTTL™ SN54LS AND SN74LS SERIES

The LS Low power Schottky TTL family combines a current and power reduction by a factor of 5 (compared to Series 7400 TTL with anti-saturation Schottky diode clamping and advanced processing, using shallower diffusions and higher sheet resistivity, to achieve circuit performance better than conventional TTL.

Function	Motorola Number SN54LS-	Net Each, Lots of 1-99	Net Each, Lots of 100-999	Motorola Number SN74LS-	Net Each, Lots of 1-99	Net Each, Lots of 100-999	Motorola Number SN74LS-	Net Each, Lots of 1-99	Net Each, Lots of 100-999
Quad 2-input NAND gate	00J	$0.80	$0.64	00J	$0.58	$0.47	00N	$0.40	$0.32
Quad 2-input NAND gate w/OC	01J	.80	.64	01J	.58	.47	01N	.40	.32
Quad 2-input NOR gate	02J	.80	.64	02J	.58	.47	02N	.40	.32
Quad 2-input NOR gate w/OC	03J	.80	.64	03J	.58	.47	03N	.40	.32
Hex inverter	04J	.81	.66	04J	.60	.48	04N	.42	.34
Hex inverter w/OC	05J	.81	.66	05J	.60	.48	05N	.42	.34
Quad 2-input AND gate	08J	.80	.64	08J	.58	.47	08N	.40	.32
Quad 2-input AND gate w/OC	09J	.80	.64	09J	.58	.47	09N	.40	.32
Triple 3-input NAND gate	10J	.81	.66	10J	.60	.48	10N	.42	.34
Triple 3-input AND gate	11J	.81	.66	11J	.60	.48	11N	.42	.34
Triple 3-input NAND gate w/OC	12J	.81	.66	12J	.60	.48	12N	.42	.34
Dual 4-input Schmitt trigger	13J	1.01	.82	13J	.74	.60	13N	.53	.43
Hex Schmitt trigger	14J	1.21	.98	14J	.89	.71	14N	.67	.54
Triple 3-input AND gate w/OC	15J	.81	.66	15J	.60	.48	15N	.42	.34
Dual 4-input NAND gate	20J	.80	.64	20J	.58	.47	20N	.40	.32
Dual 4-input AND gate	21J	.80	.64	21J	.58	.47	21N	.40	.32
Dual 4-input NAND gate w/OC	22J	.80	.64	22J	.58	.47	22N	.40	.32
Quad 2-input NAND gate, high voltage	26J	.81	.66	26J	.60	.48	26N	.42	.34
Triple 3-input NOR gate	27J	.81	.66	27J	.60	.48	27N	.42	.34
Quad 2-input NOR buffer	28J	.81	.66	28J	.60	.48	28N	.42	.34
8-input NAND gate	30J	.80	.64	30J	.58	.47	30N	.40	.32
Quad 2-input OR gate	32J	.80	.64	32J	.58	.47	32N	.40	.32
Quad 2-input NOR gate w/OC	33J	.81	.66	33J	.60	.48	33N	.42	.34
Quad 2-input NAND buffer	37J	.81	.66	37J	.60	.48	37N	.42	.34
Quad 2-input NAND buffer w/OC	38J	.81	.66	38J	.60	.48	38N	.42	.34
Dual 4-input NAND buffer	40J	.81	.66	40J	.60	.48	40N	.42	.34
1-of-10 decoder	42J	1.52	1.22	42J	1.12	.90	42N	.83	.67
Dual AND-OR-INVERT gate	51J	.80	.64	51J	.58	.47	51N	.40	.32
2-3-3-2-input AND-OR-INVERT gate	54J	.80	.64	54J	.58	.47	54N	.40	.32
2-wide, 4-input AND-OR-INVERT gate	55J	.80	.64	55J	.58	.47	55N	.40	.32
Dual J-K flip-flop	73AJ	1.10	.89	73AJ	.81	.66	73AN	.60	.48
Dual D type flip-flop	74AJ	1.08	.87	74AJ	.80	.64	74AN	.58	.47
4-bit bistable latch	75J	1.35	1.09	75J	.99	.80	75N	.71	.60
Dual J-K flip-flop	76AJ	1.14	.92	76AJ	.83	.67	76AN	.62	.50
4-bit bistable latch	77J	1.35	1.09	77J	.99	.80	77N	.71	.57
Dual J-K flip-flop w/preset	78AJ	1.16	.93	78AJ	.85	.69	78AN	.63	.51
4-bit full adder	83AJ	1.59	1.28	83AJ	1.17	.95	83AN	.89	.72
4-bit magnitude comparator	85J	1.66	1.34	85J	1.23	.99	85N	.94	.76
Quad Exclusive-OR gate	86J	.98	.79	86J	.72	.58	86N	.53	.43
Decade counter	90J	1.23	.99	90J	.90	.73	90N	.67	.54
Divide-by-12 counter	92J	1.23	.99	92J	.90	.73	92N	.67	.54
4-bit binary counter	93J	1.23	.99	93J	.90	.73	93N	.67	.54
4-bit shift register	95BJ	1.71	1.38	95BJ	1.26	1.02	95BN	.98	.79
Dual J-K flip-flop w/enable	107AJ	1.10	.89	107AJ	.81	.66	107AN	.62	.50
Dual J-K edge-triggered flip-flop	109AJ	1.07	.86	109AJ	.78	.63	109AN	.58	.47
Dual J-K edge-triggered flip-flop	112AJ	1.10	.89	112AJ	.81	.66	112AN	.62	.50
Dual J-K edge-triggered flip-flop	113AJ	1.10	.89	113AJ	.81	.66	113AN	.62	.50
Dual J-K edge-triggered flip-flop	114AJ	1.10	.89	114AJ	.81	.66	114AN	.62	.50
Dual retriggerable monostable multivibrator	122J	1.44	1.16	122J	1.07	.86	122N	.78	.63
Dual retriggerable monostable multivibrator	123J	1.93	1.56	123J	1.43	1.15	123N	.96	.77
Quad 3-state buffer, low enable	125AJ	1.39	1.12	125AJ	1.03	.83	125AN	.74	.60
Quad 3-state buffer, high enable	126AJ	1.39	1.12	126AJ	1.03	.83	126AN	.74	.60
Input Schmitt trigger	132J	1.28	1.03	132J	.94	.76	132N	.71	.57
13-input NAND gate	133J	.98	.79	133J	.72	.58	133N	.53	.43
Quad Exclusive-OR gate w/OC	136J	.98	.79	136J	.72	.58	136N	.53	.43
1-of-8 decoder/demultiplexer	138J	1.44	1.16	138J	1.07	.86	138N	.76	.61
Dual 1-of-4 decoder/demultiplexer	139J	1.44	1.16	139J	1.07	.86	139N	.76	.61
8-input multiplexer	151J	1.17	.95	151J	.87	.70	151N	.65	.53
Dual 4-input multiplexer	153J	1.17	.95	153J	.87	.70	153N	.65	.53
Dual 1-of-4 decoder	155J	1.50	1.21	155J	1.10	.89	155N	.83	.67
Dual 1-of-4 decoder w/OC	156J	1.50	1.21	156J	1.10	.89	156N	.83	.67
Quad 2-input multiplexer (non-inv.)	157J	1.17	.95	157J	.87	.70	157N	.65	.53
Quad 2-input multiplexer (inv.)	158J	1.17	.95	158J	.87	.70	158N	.65	.53
BCD decade counter, asynch. reset	160AJ	1.52	1.22	160AJ	1.12	.90	160AN	.89	.71
4-bit binary counter, asynch. reset	161AJ	1.50	1.21	161AJ	1.10	.89	161AN	.87	.70
BCD decade counter, synch. reset	162AJ	1.52	1.22	162AJ	1.12	.90	162AN	.89	.71
4-bit binary counter, synch. reset	163AJ	1.52	1.22	163AJ	1.12	.90	163AN	.89	.71
8-bit serial in/parallel out shift register	164J	1.50	1.21	164J	1.10	.89	164N	.87	.70
8-bit parallel in/serial out shift register	165J	2.04	1.64	165J	1.50	1.21	165N	1.21	.98
8-bit parallel in/serial out shift register	166J	2.78	2.24	166J	2.06	1.66	166N	1.77	1.43
Up/down decade counter	168J	3.30	2.66	168J	2.43	1.96	168N	2.16	1.74
Up/down decade counter	169J	3.30	2.66	169J	2.43	1.96	169N	2.16	1.74
4 x 4 register file w/OC	170J	3.03	2.44	170J	2.24	1.80	170N	1.95	1.57
4-bit D register, 3-state	173J	1.50	1.21	173AJ	1.10	.89	173AN	.87	.70
Hex D flip-flop w/clear	174J	1.30	1.05	174J	.96	.77	174N	.74	.60
Quad D flip-flop w/clear	175J	1.30	1.05	175J	.96	.77	175N	.74	.60
4-bit arithmetic logic unit	181J	5.93	4.77	181J	3.95	3.18	181N	2.67	2.15
Up/down binary counter	190J	1.71	1.38	190J	1.26	1.02	190N	.98	.79
Up/down binary counter	191J	1.71	1.38	191J	1.26	1.02	191N	.98	.79
Up/down decade counter	192J	1.71	1.38	192J	1.26	1.02	192N	.98	.79
Up/down binary counter	193J	1.80	1.45	193J	1.34	1.08	193N	1.05	.85
4-bit shift register	194AJ	1.71	1.38	194AJ	1.26	1.02	194AN	.98	.79
4-bit shift register	195AJ	1.71	1.38	195AJ	1.26	1.02	195AN	.98	.79

LISTING CONTINUED ON FOLLOWING PAGE

MTTL™ SN54LS AND SN74LS SERIES (CONT'D)

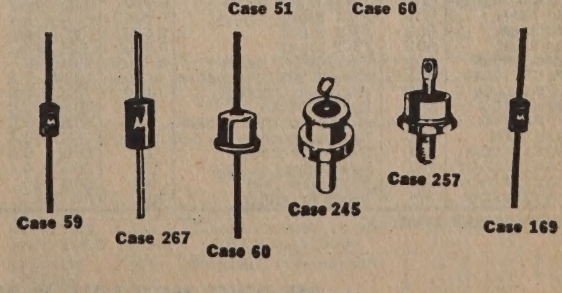
Function	Motorola Number SN54LS-	Net Each, Lots of 1-99	Net Each, Lots of 100-999	Motorola Number SN74LS-	Net Each, Lots of 1-99	Net Each, Lots of 100-999	Motorola Number SN74LS-	Net Each, Lots of 1-99	Net Each, Lots of 100-999
Decade counter	196J	$1.88	$1.51	....	....	....	196N	$1.16	$0.93
4-bit binary counter	197J	1.88	1.51	197J	$1.34	$1.04	197N	1.05	.85
Dual one-shot multivibrator	221J	1.91	1.54	221J	1.41	1.14	221N	1.12	.90
Octal inv. bus/line driver	240J	3.46	2.79	240J	2.56	2.06	240N	1.57	1.27
Octal bus/line driver, 3-state	241J	3.46	2.79	241J	2.56	2.06	241N	1.57	1.27
Quad bus transceiver, inverting	242J	2.52	2.03	242J	1.86	1.50	242N	1.57	1.27
Quad bus transceiver, non-inverting	243J	2.52	2.03	243J	1.86	1.50	243N	1.57	1.27
Octal 3-state driver, non-inverting	244J	3.46	2.79	244J	2.56	2.06	244N	1.57	1.27
Octal bus transceiver, non-inverting	245J	4.07	3.28	245J	3.01	2.43	245N	2.02	1.63
8-input multiplexer, 3-state	251J	1.21	.98	251J	.89	.72	251N	.67	.54
Dual 4-input multiplexer, 3-state	253J	1.21	.98	253J	.89	.72	253N	.67	.54
Dual 4-input add latch	256J	2.34	1.89	256J	1.73	1.40	256N	1.44	1.16
Quad 2-input multiplexer, 3-state	257AJ	1.21	.98	257AJ	.89	.72	257AN	.67	.54
Quad 2-input multiplexer, 3-state	258AJ	1.21	.98	258AJ	.89	.72	258AN	.67	.54
8-bit addressable latch	259J	2.06	1.66	259J	1.52	1.22	259N	1.23	.99
Dual 5-input NOR gate, 3-state	260J	.98	.79	260J	.72	.58	260N	.53	.43
Quad Exclusive-NOR gate w/OC	266J	.98	.79	266J	.72	.58	266N	.53	.43
Octal flip-flop w/MR	273J	3.46	2.79	273J	2.56	2.06	273N	1.57	1.27
Quad set-reset latch	279J	1.21	.98	279J	.89	.72	279N	.63	.51
4-bit full adder	283J	1.59	1.28	283J	1.17	.95	283N	.89	.72
Decade counter	290J	1.62	1.31	290J	1.19	.96	290N	.90	.73
4-bit binary counter	293J	1.66	1.34	293J	1.23	.99	293N	.94	.76
4-bit shift register, 3-state	295AJ	1.84	1.48	295AJ	1.35	1.09	295AN	1.10	.89
Quad 2-input multiplexer with output latches	298J	1.59	1.28	298J	1.17	.95	298N	.89	.72
Hex buffer, 3-state, common enable	365AJ	1.37	1.11	365AJ	1.01	.82	365AN	.74	.60
Hex inverter, 3-state, common enable	366AJ	1.37	1.11	366AJ	1.01	.82	366AN	.74	.60
Hex buffer, 4- and 2-bit, 3-state	367AJ	1.37	1.11	367AJ	1.01	.82	367AN	.74	.60
Hex inverter, 4- and 2-bit, 3-state	368AJ	1.37	1.11	368AJ	1.01	.82	368AN	.74	.60
Octal transparent latch	373J	3.51	2.83	373J	2.60	2.09	373N	1.70	1.37
Octal D flip-flop, 3-state	374J	3.51	2.83	374J	2.60	2.09	374N	1.70	1.37
Quad latch	375J	1.35	1.09	375J	.99	.78	375N	.71	.57
Octal D flip-flop with enable	377J	3.46	2.79	377J	2.56	2.06	377N	1.57	1.27
Hex D flip-flop with enable	378J	1.59	1.28	378J	1.17	.95	378N	.92	.74
4-bit D flip-flop with enable	379J	1.59	1.28	379J	1.17	.95	379N	.92	.74
Quad adder/subtractor	385J	7.13	5.75	385J	4.76	3.83	385N	3.68	2.96
Quad Exclusive-OR gate	386J	.98	.79	386J	.72	.58	386N	.53	.43
Dual decade counter	390J	2.27	1.83	390J	1.68	1.35	390N	1.39	1.12
Dual 4-bit binary counter	393J	2.15	1.73	393J	1.59	1.28	393N	1.30	1.05
Shift register, 3-state	395J	2.04	1.64	395J	1.50	1.21	395N	1.21	.98
Quad 2-input multiplexer with output regulator	398J	4.70	3.79	398J	3.14	2.53	398N	2.22	1.79
LS398 with Q and Q outputs	399J	2.07	1.67	399J	1.53	1.24	399N	1.28	1.03
Dual decade counter	490J	3.66	2.95	490J	2.70	2.18	490N	2.42	1.95
Decade up/down counter, 3-state	568J	7.55	6.08	568J	5.03	4.05	568N	4.13	3.33
Binary up/down counter, 3-state	569J	7.55	6.08	569J	5.03	4.05	569N	4.13	3.33
Octal inverting bus transceiver	640J	3.98	3.21	640J	2.96	2.38	640N	2.06	1.66
Octal non-inverting bus transceiver	641J	3.98	3.21	641J	2.96	2.38	641N	2.06	1.66
Octal inverting bus transceiver	642J	3.98	3.21	642J	2.96	2.38	642N	2.06	1.66
Octal true/inverting bus transceiver	643J	3.98	3.21	643J	2.96	2.38	643N	2.06	1.66
Octal true/inverting bus transceiver	644J	3.98	3.21	644J	2.96	2.38	644N	2.06	1.66
Octal non-inverting bus transceiver	645J	3.87	3.12	645J	2.87	2.31	645N	1.88	1.51
4 x 4 register file, 3-state	670J	3.51	2.83	670J	2.60	2.09	670N	2.31	1.86

HOT-CARRIER POWER RECTIFIERS

Utilize Schottky barrier principle in a large area metal-to-silicon diode. Multi-Cell combinations providing increased capability available on request.

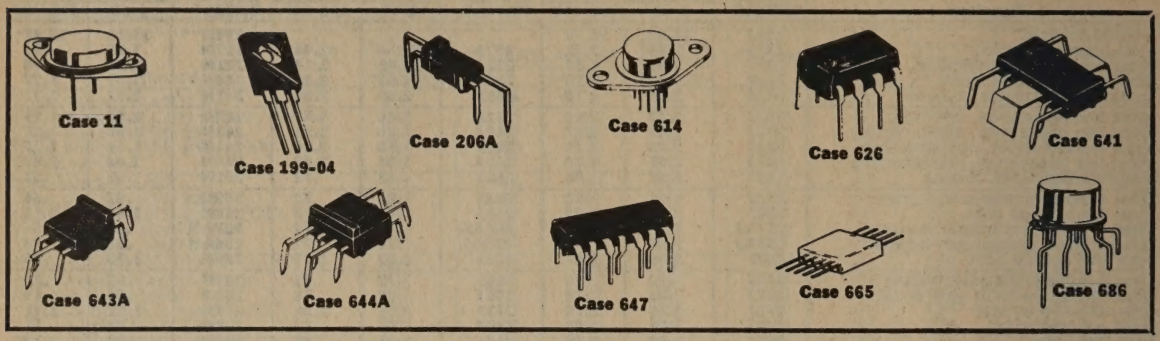
Motorola Type	Case	VRRM V	Io at Tc A	Io at Tc °C	VF at IF V	VF at IF A	Net Ea., Lots 1-99	Net Ea., Lots 100-999
1N5817	59	20	1.0	..	0.6	1.0	$0.82	$0.61
1N5818	59	30	1.0	..	0.6	1.0	.91	.67
1N5819	59	40	1.0	..	0.6	1.0	1.00	.74
MBR120P	59	20	1.0	..	0.65	1.0	.73	.54
MBR130P	59	30	1.0	..	0.65	1.0	.82	.61
MBR140P	59	40	1.0	..	0.65	1.0	.91	.67
1N5820	267	20	3.0	..	0.53	3.0	1.30	.95
1N5821	267	30	3.0	..	0.53	3.0	1.45	1.10
1N5822	267	40	3.0	..	0.53	3.0	2.00	1.50
MBR320P	267	20	3.0	..	0.6	3.0	1.10	.85
MBR330P	267	30	3.0	..	0.6	3.0	1.30	.95
MBR340P	267	40	3.0	..	0.6	3.0	1.85	1.35
1N5823	60	20	5.0	..	0.38	5.0	4.60	3.40
1N5824	60	30	5.0	..	0.38	5.0	5.00	3.70
1N5825	60	40	5.0	..	0.38	5.0	5.90	4.35
MBR320M	60	20	....	..	0.45	5.0	3.90	2.90
MBR330M	60	30	....	..	0.45	5.0	4.30	3.15
MBR335M	60	35	....	..	0.45	5.0	4.65	3.40
MBR340M	60	40	....	..	0.45	5.0	5.00	3.70
1N5826	245	20	15	85	0.5	15	4.60	3.40
1N5827	245	30	15	85	0.5	15	5.00	3.70
1N5828	245	40	15	85	0.5	15	5.90	4.35
MBR1520	245	20	15	80	0.55	15	3.90	2.90
MBR1530	245	30	15	80	0.55	15	4.30	3.15
MBR1535	245	35	15	80	0.55	15	4.65	3.40
MBR1540	245	40	15	80	0.55	15	5.00	3.70
1N5829	245	20	25	85	0.48	25	5.50	4.00
1N5830	245	30	25	85	0.48	25	6.00	4.40
1N5831	245	40	25	85	0.48	25	7.10	5.20
MBR2520	245	20	25	80	0.55	25	4.65	3.40
MBR2530	245	30	25	80	0.55	25	5.10	3.75
MBR2535	245	35	25	80	0.55	25	5.55	4.10
MBR2540	245	40	25	80	0.55	25	6.00	4.40

Motorola Type	Case	VRRM V	Io at Tc A	Io at Tc °C	VF at IF V	VF at IF A	Net Ea., Lots 1-99	Net Ea., Lots 100-999
1N6095	245	30	....	70	0.86	78.5	$4.65	$3.45
1N6096	245	40	....	70	0.86	78.5	5.10	3.75
SD41	245	30	....	90	0.7	78.5	4.20	2.80
MBR3535	245	35	....	90	0.7	78.5	5.50	3.70
MBR3545	245	45	....	90	0.7	78.5	5.90	3.95
1N5832	257	20	40	75	0.59	40	6.90	5.10
1N5833	257	30	40	75	0.59	40	7.65	5.60
1N5834	257	40	40	75	0.59	40	8.40	6.15
MBR4020	257	20	40	70	0.63	40	5.80	4.30
MBR4030	257	30	40	70	0.63	40	6.55	4.80
MBR4035	257	35	40	70	0.63	40	6.80	5.00
MBR4040	257	40	40	70	0.63	40	7.10	5.20
1N6097	257	30	....	70	0.86	157	6.00	5.45
1N6098	257	40	....	70	0.86	157	6.90	5.10
SD51	257	30	....	90	0.8	157	6.00	4.00
MBR6035	257	35	....	90	0.8	157	6.40	4.70
MBR6045	257	45	....	90	0.8	157	7.50	5.50
MBR7535	257	35	....	90	0.9	220	7.10	5.25
MBR7545	257	45	....	90	0.9	220	8.20	6.05



MIL-M-38510 MICROCIRCUITS AVAILABLE ON MANY DEVICE TYPES

CURRENT PRICES WILL APPLY ON ALL LINES



OPERATIONAL AMPLIFIERS

Non-encapsulated chip, flip-chip and beam-lead devices; flat ceramic beam-lead devices are also available. Types, data and pricing on request. Listed in order of increasing input bias current (I_{IB}) within temperature range.

NON-COMPENSATED

Military temperature range −55° C to +125° C.

Motorola Type	Case	Description	Max. I_{IB} μA	Min. A_{vol} V/V	S.R. V/μs Typ.	Net Each, Lots of 1-24	25-99	100-999
MC1539G	601	High slew rate	0.5	50K	4.2	$5.40	$4.52	$3.59
MC1709G	601	General purpose	0.5	25K	0.3	1.50	1.26	1.00
MC1748G	601	General purpose	0.5	50K	0.5	1.40	1.17	.93

Industrial temperature range 0° C to +70° C.

Motorola Type	Case	Description	Max. I_{IB} μA	Min. A_{vol} V/V	S.R. V/μs Typ.	Net Each, Lots of 1-24	25-99	100-999
LM301AN	626	General purpose	0.25	25K	0.5	$0.43	$0.36	$0.28
MC1748CG	601	General purpose	0.5	20K	0.5	.90	.76	.60
MC1439G	601	High slew rate	1.0	15K	4.2	3.57	2.99	2.37
MC1709CG	601	General purpose	1.5	15K	0.3	.97	.81	.64
LM308N	626	Precision	7.0	25K	0.3	.82	.68	.54
LM308AN	626	Precision	7.0	80K	0.3	3.25	2.72	2.16

INTERNALLY COMPENSATED

Military temperature range −55°C to +125° C.

Motorola Type	Case	Description	Max. I_{IB} μA	Min. A_{vol} V/V	S.R. V/μs Typ.	Net Each, Lots of 1-24	25-99	100-999
MC35001BG	601	TRIMFET input	0.0001	50K	13	$4.63	$3.87	$3.07
LF155H	601	FET input	0.0001	50K	5	5.72	4.79	3.80
LF156H	601	FET input	0.0001	50K	15	5.72	4.79	3.80
LF157H	601	FET input	0.0001	50K	75	5.72	4.79	3.80
MC1776G	601	μPower programmable	0.0075	200K	0.2	5.14	4.30	3.41
MC1556G	601	High performance	0.015	100K	2.5	2.04	1.71	1.36
MC1536G	601	High voltage	0.02	100K	2.0	16.34	13.68	10.94
MC1733G	603	Wideband diff. video amp.	0.2	90	.....	2.04	1.71	1.36
MC1741G	601	General purpose	0.5	50K	0.5	1.50	1.26	1.00
MC1741NG	601	Low noise	0.5	50K	0.5	1.65	1.38	1.10
MC1741SG	601	High slew rate	0.5	50K	10	2.13	1.78	1.41

Industrial temperature range 0° C to +70° C.

Motorola Type	Case	Description	Max. I_{IB} μA	Min. A_{vol} V/V	S.R. V/μs Typ.	Net Each, Lots of 1-24	25-99	100-999
MC34001AG	601	TRIMFET input	0.0001	50K	13	$2.92	$2.45	$1.95
LF355H	601	FET input	0.0002	50K	5	1.85	1.55	1.23
LF356H	601	FET input	0.0002	50K	15	1.85	1.55	1.23
LF357H	601	FET input	0.0002	50K	75	1.85	1.55	1.23
MC34001G	601	TRIMFET input	0.0002	25K	13	1.57	1.31	1.05
MC1776CG	601	μPower programmable	0.003	100K	0.2	1.76	1.47	1.17
MC1456G	601	High performance	0.03	70K	2.5	1.61	1.35	1.07
MC1436G	601	High voltage	0.04	70K	2.0	6.88	5.76	4.61
MC3476G	601	μPower programmable	0.05	50K	1.0	1.89	1.58	1.27
LM307H	601	General purpose	0.25	25K	0.5	1.07	.90	.71
MC1741CG	601	General purpose	0.5	20K	0.5	1.01	.85	.67
MC1741NCG	601	Low noise	0.5	20K	0.5	1.42	1.19	.94
MC1741SCG	601	High slew rate	0.5	20K	10	1.76	1.48	1.17
MC1733CG	601	Video amplifier	30	80	.....	1.50	1.26	1.00

★Prices on request.

Same as listed at the left, except additional case types that are available.

Motorola Type	Case	Net Each, Lots of 1-24	25-99	100-999
LM301AH	601	$0.97	$0.81	$0.64
LM308AH	601	4.41	3.69	2.93
LM308H	601	1.53	1.28	1.02
MC1436CG	601	4.09	3.71	2.74
MC1439L	632	3.31	2.77	2.20
MC1439P1	626	2.84	2.38	1.89
MC1439P2	626	2.95	2.47	1.96
MC1456CG	601	1.40	1.17	.93
MC1456CL	632	2.02	1.69	1.34
MC1456L	632	2.34	1.96	1.56
MC1456P1	626	1.40	1.18	.96
MC1456U	693	2.34	1.96	1.56
MC1539L	632	5.14	4.30	3.42
MC1556L	632	2.24	1.87	1.49
MC1556U	693	2.24	1.87	1.49
MC1709CL	632	1.03	.86	.68
MC1709CP1	626	.73	.61	.49
MC1709CP2	626	.77	.65	.51
MC1709L	632	1.46	1.22	.97
MC1733L	632	2.43	2.03	1.62
MC1741CL	632	★	★	★
MC1741CU	693	.98	.83	.66
MC1741L	632	★	★	★
MC1741NCL	632	1.40	1.17	.93
MC1741NCP1	626	.90	.76	.60
MC1741NCP2	626	1.05	.88	.70
MC1741NCU	693	1.40	1.17	.93
MC1741NL	632	★	★	★
MC1741NU	693	1.61	1.35	1.07
MC1741SCP1	626	1.35	1.13	.90
MC1741U	693	1.35	1.13	.90
MC1748CP1	626	.47	.40	.32
MC1776CP1	626	1.48	1.24	.98
MC3476P1	626	1.51	1.26	1.01
LM307N	626	.62	.52	.41

SEE OTHER MOTOROLA IC PAGES FOR CASE ILLUSTRATIONS

DUAL OPERATIONAL AMPLIFIERS

Listed in increasing order of input bias current (I_{IB}) within temperature range.

INTERNALLY COMPENSATED

Military temperature range −55° C to +125° C.

Motorola Type	Case	Description	Max. I_{IB} μA	Min. A_{vol} V/V	S.R. V/μs Typ.	Net Each, Lots of 1-24	25-99	100-999
LM158H	601	Single supply	0.15	50K	0.6	$3.55	$2.97	$2.38
MC1558G	601	Dual MC1741	0.5	50K	0.8	1.91	1.60	1.28
MC1558NG	601	Low noise	0.5	50K	0.8	6.13	5.13	4.08
MC1558SG	601	High slew rate	0.5	50K	10	6.15	5.15	4.09
MC1747G	601	Dual MC1741	0.5	50K	0.5	2.49	2.09	1.66
MC3558G	601	Single supply	0.5	50K	0.6	4.30	3.60	2.86
MC4558G	601	High frequency	0.5	50K	1.5	2.79	2.34	1.86

Industrial temperature range 0° C to +70° C.

Motorola Type	Case	Description	Max. I_{IB} μA	Min. A_{vol} V/V	S.R. V/μs Typ.	Net Each, Lots of 1-24	25-99	100-999
LM358H	601	Single supply	0.25	25K	0.6	$1.10	$0.92	$0.73
MC1458G	601	Dual MC1741	0.5	20K	0.8	1.08	.90	.72
MC1458NG	601	Low noise	0.5	20K	0.8	2.90	2.43	1.93
MC1458SG	601	High slew rate	0.5	20K	10	3.57	2.99	2.37
MC1747CG	603	Dual MC1741	0.5	25K	0.5	1.25	1.04	.83
MC3458G	601	Single supply low distortion	0.5	20K	0.6	1.40	1.17	.94
MC4558CG	601	Single supply	0.5	20K	1.5	2.79	2.34	1.86

NON-COMPENSATED

Military temperature range −55° C to +125° C.

Motorola Type	Case	Description	Max. I_{IB} μA	Min. A_{vol} V/V	S.R. V/μs Typ.	Net Each, Lots of 1-24	25-99	100-999
MC1537L	632	Dual MC1709	0.5	25K	0.25	$3.18	$2.66	$2.12

Industrial temperature range 0° C to +70° C.

Motorola Type	Case	Description	Max. I_{IB} μA	Min. A_{vol} V/V	S.R. V/μs Typ.	Net Each, Lots of 1-24	25-99	100-999
MC1437L	632	Dual MC1709	1.5	15K	0.25	$2.86	$2.39	$1.90

Same as listed at the left, except additional case types that are available.

Motorola Type	Case	Net Each, Lots of 1-24	25-99	100-999
MC1437P	626	$2.25	$1.87	$1.50
MC1458L	632	1.14	.95	.76
MC1458NL	632	2.86	2.39	1.90
MC1458NP1	626	2.40	2.00	1.60
MC1458NP2	626	2.62	2.18	1.75
MC1458NU	693	2.69	2.25	1.79
MC1458P1	626	.77	.64	.51
MC1458SL	632	3.53	2.95	2.35
MC1458SP1	626	2.40	2.00	1.60
MC1458SP2	626	2.60	2.15	1.75
MC1458SU	693	3.40	2.84	2.26
MC1458U	693	1.01	.85	.68
MC1558NL	632	6.08	5.09	4.05
MC1558NU	693	5.33	4.46	3.55
MC1558L	632	1.68	1.40	1.12
MC1558SL	632	6.11	5.11	4.06
MC1558SU	693	4.60	3.85	3.06
MC1558U	693	1.56	1.30	1.04
MC1747CL	632	1.27	1.06	.84
MC1747CP2	626	1.04	.86	.69
MC1747L	632	2.45	2.05	1.63
MC3558U	693	4.06	3.40	2.70
MC4558U	693	2.77	2.32	1.84
MC4558CP1	626	.80	.67	.53
MC4558CU	693	1.16	.97	.77
MC4558ACP1	626	2.40	2.00	1.60
LM158J	693	3.44	2.88	2.30
LM358N	626	.73	.61	.49
LM358J	693	1.08	.90	.72

QUAD OPERATIONAL AMPLIFIERS

INTERNALLY COMPENSATED

Military temperature range −55° C to +125° C.

Motorola Type	Case	Description	Max. I_{IB} μA	Min. A_{vol} V/V	S.R. V/μs Typ.	Net Each, Lots of 1-24	25-99	100-999
LM124J	632	Quad MC1741	0.15	50K	0.6	$ 3.72	$3.11	$2.47
MC3503L	632	General purpose	0.5	50K	0.6	13.33	11.16	8.87
MC4741L	632	Quad MC1741	0.5	50K	0.5	6.08	5.09	4.05

Industrial temperature range 0° C to +70° C.

LM324J	632	Low power	0.5	20K	0.6	$1.62	$1.35	$1.08
MC3401L	632	Low cost	0.3	1K	0.6	1.63	1.37	1.09
MC3403L	632	No crossover distortion	0.5	20K	0.6	1.89	1.58	1.26
MC4741CL	632	Quad MC1741	0.5	20K	0.5	3.40	2.84	2.26

Automotive temperature range −40° C to +85° C.

MC3301P	646	Quad mirror gain	0.3	1K	0.6	$0.88	$0.74	$0.59
MC3303L	632	Differential gen. purpose	0.5	20K	0.6	4.54	3.80	3.02
LM2902N	646	Low power differential	0.5	.....	0.6	1.40	1.20	1.00

Same as listed at the left, except additional case types.

Motorola Type	Case	Net Each, Lots of 1-24	25-99	100-999
MC3303P	646	$4.15	$3.47	$2.76
MC3401P	646	.86	.72	.57
MC3403P	646	1.27	1.06	.84
MC4741CP	646	1.40	1.20	.93
LM324N	646	.97	.81	.65

HIGH FREQUENCY AMPLIFIERS

Temperature −55° C to +75° C.

Motorola Type	Case	Bandwidth at Av MHz	Bandwidth at Av dB	V_{OS} p-p V	Net Each, Lots of 1-24	25-99	100-999
MC1545G†	602A				$10.64	$8.91	$7.08
MC1445G†‡	602A				3.01	2.52	2.00
MC1550G	602B				3.44	2.86	2.29
MC1590G	601	100 60	4 25	7.0	6.99	5.85	4.65
MC1733G	603-02	40	52	4.0	2.04	1.71	1.36
MC1733L	632	90	40		2.43	2.03	1.62
MC1733CG‡	603-02	120	20		1.50	1.26	1.00
MC1733CL‡	632				1.35	1.13	.90

*Bandwidth value only. †Case 632 (suffix L) available at same price. ‡Temperature, 0° C to +75° C.

DIGITAL-TO-ANALOG CONVERTERS

Temperature 0° C to +70° C. MDTL, MTTL compatible.
Temperature −55° C to +125° C. available.

Motorola Type	Case	Function	Net Each, Lots 1-24	25-99	100-999
MC1406L	632	6-bit D/A converter	$ 7.29	$6.10	$4.85
MC1408L6	620	8-bit D/A converter	2.75	2.30	1.83
MC1408L7	620		3.40	2.84	2.26
MC1408L8	620		4.69	3.92	3.12
MC3410L	690	10-bit D/A converter	14.92	12.49	9.92
MC3410CL	690		10.40	8.70	6.92
MC3510L	690		23.85	19.95	15.89

RECEIVERS

Temperature 0° C to +70° C; MTTL compatible.

MC75107L*	632	Dual line receiver with strobe inputs	$1.85	$1.54	$1.23
MC75107P*	646		1.46	1.21	.97
MC75108L†	632		1.85	1.54	1.23
MC75108P†	646		1.46	1.21	.97

Temperature 0° C to +75° C. MDTL, MTTL compatible.

MC1489L	632	Quad line receiver	$1.20	$0.95	$0.80
MC1489AL	632		1.35	1.13	.90

*Active pullup. †Open collector output.

COMPARATORS

Temperature 0° C to +75° C. A_{vol} = 1,000 V/V min. except MC1711, 700V/V min. Temperature −55° C to +125° C. avail.

MC1711G	603	Dual comparators with strobe capability	$1.79	$1.48	$1.19
MC1711CG	603-2		1.18	.99	.79
LM111H	601	Precision comparators	8.73	7.31	5.81
LM211H	601		4.43	3.71	2.95
LM311H	601		1.30	1.08	.87

INTERFACE CIRCUITS

Interface circuits fit in the gray area between the linear and digital realms. Usually these ICs perform the necessary translation between an analog signal input and the required digital logic levels or vice versa.

LINE DRIVERS, RECEIVERS AND TRANSCEIVERS

Motorola Type	Case	Function	Net Each, Lots of 1-24	25-99	100-999
MC8T13L	620	Open-emitter dual line driver TTL compatible	$2.67	$2.22	$1.78
MC8T13P	648		1.60	1.33	1.07
MC8T14L	620	Hysteresis-equipped line rec. TTL compatible	2.67	2.22	1.78
MC8T14P	648		1.60	1.33	1.07
MC8T23L	620	Open-emitter dual line driver IBM system compatible	2.67	2.22	1.78
MC8T23P	648		1.60	1.33	1.07
MC8T24L	620	Hysteresis-equipped line rec. IBM system compatible	2.67	2.22	1.78
MC8T24P	648		1.60	1.33	1.07
MC8T26AL	620	Quad bidirectional data bus extender	1.73	1.43	1.15
MC8T26AP	648		1.50	1.25	1.00
MC8T28L	620		1.73	1.43	1.15
MC8T95P	648	Non-inv. Hex unidirectional address and control bus extender with 3-state outputs	1.43	1.18	.95
MC8T96P	648	Inv.	1.43	1.18	.95
MC8T97P	648	Non-inv.	1.43	1.18	.95
MC8T98P	648	Inv.	1.43	1.18	.95
MC26S10L	620	Quad bus transceiver	2.70	2.23	1.79
MC26S10P	648		2.15	1.79	1.43
MC75S110L	632	Dual differential line driver	2.47	2.05	1.64
MC75S110P	646		1.83	1.52	1.21
MC1411P	648	G.P. Seven Darlington transistor array with output clamp diodes	1.20	1.01	.80
MC1412P	648	PMOS	1.20	1.01	.80
MC1413P	648	CMOS	1.20	1.01	.80
MC1416P	648	MOS	1.20	1.01	.80
MC1472P1	626	Dual peripheral driver	1.66	1.39	1.10
MC1488L	632	Quad, output current	1.20	.95	.80
MC1489L	632	Quad, low hysteresis,	1.20	.95	.80
MC1489AL	632	line receiver	1.35	1.13	.90
MC3437L	620	Hex line receiver hysteresis equipped	3.10	2.59	2.06
MC3437P	648		2.73	2.29	1.82
MC3438L	620	Quad line transceiver with open collectors	3.10	2.59	2.06
MC3438P	648		2.70	2.25	1.80
MC3440AP	648	Quad line transceiver	3.20	2.70	2.15
MC3441AP	648		3.20	2.70	2.15
MC3443AP	648		3.20	2.70	2.15
MC3446AP	648		3.15	2.81	2.23
MC3447L	623	Octal line transceiver	6.75	5.62	4.50
MC3447P	724		5.35	4.46	3.57
MC3448AL	620	Quad line transceiver	4.92	4.12	3.27
MC3448AP	648		4.15	3.30	2.75
MC3450L	620	Quad line receiver	4.80	4.00	3.20
MC3450P	648		4.09	3.42	2.74
MC3452P	648		4.09	3.42	2.74
MC3453L	620	Quad line driver	5.25	4.37	3.50
MC3453P	648		4.56	3.80	3.04
MC3481L	620	Quad line driver	5.20	4.15	3.45
MC3481P	648		4.75	3.78	3.15
MC3482AL	732	Octal unidirectional bus extender	$4.39	$3.67	$2.92
MC3482BL	732		4.54	3.80	3.02
MC3485L	620	Quad line driver	5.20	4.15	3.45
MC3485P	648		4.75	3.78	3.15
MC3486L	620	Quad line receiver	3.05	2.54	2.03
MC3486P	648		2.52	2.09	1.67
MC3487L	620	Quad line driver	3.05	2.54	2.03
MC3487P	648		2.52	2.09	1.67
MC3490P	648	High level gas discharge drivers	3.15	2.62	2.10
MC3491P	701		3.27	2.72	2.18
MC3492P	701		3.74	3.11	2.49
MC3494P	648		3.15	2.62	2.10
MC6880AL	620	Quad bus transceiver	1.73	1.43	1.15
MC6880AP	648		1.50	1.25	1.00
MC6882AL	732	Octal bus extender	4.39	3.67	2.92
MC6882BL	738		4.54	3.80	3.02
MC6885L	620	Non-inv. Hex unidirectional address and control bus extenders	1.65	1.37	1.10
MC6885P	648	Non-inv.	1.43	1.18	.95
MC6886L	620	Inv.	1.65	1.37	1.10
MC6886P	648	Inv.	1.43	1.18	.95
MC6887L	620	Non-inv.	1.65	1.37	1.10
MC6887P	648	Non-inv.	1.43	1.18	.95
MC6888L	620	Inv.	1.65	1.37	1.10
MC6888P	648	Inv.	1.43	1.18	.95
MC6889L	620	Quad bus transceiver	1.73	1.43	1.15
MC6889P	648		1.50	1.25	1.00
MC10177L	620	Triple line driver	5.20	5.20	4.60
MC55107L	632	Dual line receivers	5.53	4.46	3.55
MC55108L	632		5.53	4.46	3.55
MC55325L	620	Core driver	7.53	6.25	5.00
MC75107L	632	Dual line receivers	1.85	1.54	1.23
MC75107P	646		1.46	1.21	.97
MC75108L	632		1.85	1.54	1.23
MC75108P	646		1.46	1.21	.97
MC75125L	620	7-channel line receivers	3.75	3.13	2.49
MC75125P	648		2.80	2.20	1.85
MC75127L	620		3.75	3.13	2.49
MC75127P	648		2.80	2.20	1.85
MC75128L	620	8-channel line receivers	4.58	3.83	3.05
MC75128P	648		3.40	2.84	2.26
MC75129L	620		4.58	3.83	3.05
MC75129P	648		3.40	2.84	2.26
MC75325L	620	Core driver	3.31	2.77	2.20
MC75491P	646	Quad LED segment driver	.92	.77	.61
MC75492P	646	Hex LED digit driver	1.20	1.00	.80
MMH0026G	601	Dual clock drivers	14.75	12.35	9.81
MMH0026L	632		14.71	12.31	9.78
MMH0026CG	601		4.63	3.84	3.07
MMH0026CL	632		3.55	2.95	2.36
MMH0026CP1	626		1.87	1.57	1.24

WRITE US FOR INFORMATION AND PRICING ON ALL NEW OR

UNLISTED ITEMS. NO SPECIAL ORDER NUMBERS NECESSARY,

JUST USE THE MANUFACTURER'S MODEL NUMBERS.

FIXED OUTPUT VOLTAGE REGULATORS

T_J = 0° C to +150° C.

Motorola Type	Case	Output V	Output Tol. ±V	Max. I_O mA	Net Ea., Lots of 1-24	25-99	100-999
POSITIVE OUTPUT							
MC78L05CG	79	5.0	0.5	100	$1.29	$1.08	$0.85
MC78M05CT	313	5.0	0.25	500	1.05	.88	.70
LM309H	11	5.0	0.25	3000	3.01	2.52	2.02
MC78M06CT	313	6.0	0.3	500	1.05	.88	.70
MC78M08CT	313	8.0	0.4	500	1.05	.88	.70
MC78L12CG	79	12	1.2	100	1.29	1.08	.85
MC78M12CT	313	12	0.6	500	1.05	.88	.70
MC78L15CG	79	15	1.5	100	1.29	1.08	.85
MC78M15CT	313	15	0.75	500	1.05	.88	.70
MC78L18CG	79	18	1.8	100	1.29	1.08	.85
MC78M18CT	313	18	0.9	500	1.05	.88	.70
MC78M20CT	313	20	1.0	500	1.05	.88	.70
MC78L24CG	79	24	2.4	100	1.29	1.08	.85
NEGATIVE OUTPUT							
MC7902CK	1	2.0	0.1	1500	$3.01	$2.52	$2.00
MC7902CT	221A	2.0	0.1	1500	1.50	1.26	1.00
MC79L03CG	79	3.0	0.3	100	1.61	1.35	1.07
MC79L03CP	29	3.0	0.3	100	.80	.67	.53
MC79L03ACG	79	3.0	0.15	100	2.22	1.86	1.47
MC79L03ACP	29	3.0	0.15	100	1.25	1.04	.83
MC79L05CG	79	5.0	0.5	100	1.61	1.35	1.07
MC79L05ACG	79	5.0	0.25	100	2.22	1.86	1.47
MC7905CK	11	5.0	0.25	1500	3.01	2.52	2.00
MC7905.2CK	11	5.2	0.26	1500	3.16	2.63	2.15
MC7906CK	11	6.0	0.3	1500	3.01	2.52	2.00
MC7908CK	11	8.0	0.4	1500	3.01	2.52	2.00
MC79L12CG	79	12	1.2	100	1.61	1.35	1.07
MC79L15CG	79	15	1.5	100	1.61	1.35	1.07
MC79L15ACG	79	15	0.75	100	2.22	1.86	1.47
MC7915CK	11	15	0.75	1500	3.01	2.52	2.00
MC79L18CG	79	18	1.8	100	1.61	1.35	1.07
MC79L18ACG	79	18	0.9	100	2.22	1.86	1.47
MC7918CK	11	18	0.9	1500	3.01	2.52	2.00
MC79L24CG	79	24	2.4	100	1.61	1.35	1.07
MC79L24ACG	79	24	1.2	100	2.22	1.86	1.47
MC7924CK	11	24	1.2	1500	3.01	2.52	2.00

VARIABLE OUTPUT VOLTAGE REGULATORS

P_D at 25° C.

Motorola Type	Case	V_O VDC	Maximum I_O mA	Maximum P_D W	Net Ea., Lots of 1-24	25-99	100-999
POSITIVE OUTPUT							
MC1723G	603C	2.0–37	150	0.65	$2.11	$1.76	$1.40
MC1469G	603	2.5–32	250	0.68	4.30	3.60	2.86
MC1569G	603	2.5–32	250	0.68	6.88	5.76	4.58
NEGATIVE OUTPUT							
MC1463G	603	3.8–32	250	0.68	$4.32	$3.62	$2.87
MC1563G	603	3.6–33	250	0.68	8.08	6.77	5.38

SPECIAL REGULATORS

FLOATING REGULATORS

Designed for laboratory type power supplies, these regulators can deliver hundreds of volts—limited only by the breakdown voltage of associated, external, series-pass transistors.

Motorola Type	Case	Volts	I_O mA	Max. P_D W	Net Each, Lots of 1-24	25-99	100-999
MC1466L	632	‡	§	0.75	10.08	$8.44	$6.71
MC1566L	632	‡	#	0.75	13.09	10.96	8.71

‡Limited only by the characteristics of the external series-pass elements. §Current regulation 0.2%; #0.1%.

DUAL ±15 V TRACKING REGULATORS

Dual polarity regulators designed to provide balanced positive and negative output voltages. Internally, the devices are set for ±15 V output; but an external adjustment can change both outputs simultaneously from 8 to 20 V.

MC1468G	603C	14.8–15.2	±100	0.8	$5.27	$4.41	$3.50
MC1468L	632	14.8–15.2	±100	1.0	5.33	4.46	3.55
MC1468R	614	14.8–15.2	±100	2.4	7.46	6.25	4.96
MC1568G	603C	14.8–15.2	±100	0.8	6.49	5.44	4.32
MC1568L	632	14.8–15.2	±100	1.0	6.08	5.09	4.05
MC1568R	614	14.8–15.2	±100	2.4	9.61	8.05	6.39
LOW TEMPERATURE DRIFT, LOW VOLTAGE REFERENCE							
MC1403U	693	2.5	10	.....	$2.71	$2.27	$1.80
MC1403AU	693	2.5	10	.....	6.24	5.22	4.18
MC1503U	693	2.5	10	.....	7.61	6.37	5.06
MC1503AU	693	2.5	10	.....	14.25	11.93	9.55

SWITCHING TYPES

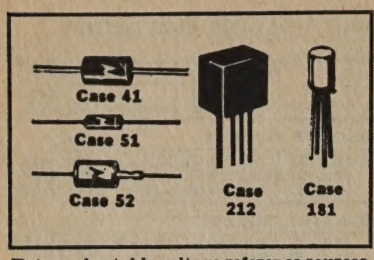
Motorola Type	Case	Min.—Max. V_{CC} Volts	Min.—Max. f_O kHz	Max. I_O ± mA	Net Each, Lots of 1-24	25-99	100-999
MC3420L	620	10–30	2–100	40	$7.22	$6.05	$4.80
MC3420P	648	10–30	2–100	40	6.79	5.69	4.52

TELEVISION CIRCUITS

Motorola Type	Case	Function	Net Each, Lots of 1-24	25-99	100-999
MC1351P	646	Sound IF, detector, limiter, preamp	$1.43	$1.43	$1.10
MC1357P	646	Sound IF detector	1.49	1.49	1.15
MC1358P	646	Sound IF detector, DC volume control, preamp	1.30	1.30	1.00
MC1349P	626	1st and 2nd video IF	1.17	1.17	.90
MC1350P	626	1st and 2nd video IF	.98	.98	.75
MC1352P	646	1st and 2nd video IF, AGC, keyer and amp.	1.37	1.37	1.05
MC1330A1P	626	3rd video IF, detector, video amp and AFC buffer	1.50	1.50	1.15
MC1330A2P	626	3rd video IF, detector, video amp and AFC buffer	1.50	1.50	1.15
MC1398P	646	Chrome IF amplifier and subcarrier system	2.82	2.82	2.17
MC1324P	646	Dual chroma demod.	1.82	1.82	1.40
MC1391P	626	Horizontal processor	.98	.98	.75
MC1394P	626	Horizontal processor	.98	.98	.75
MC1393AP	648	Vertical processor	1.76	1.76	1.35

RADIO CIRCUITS

Motorola Type	Case	Function	Net Each, Lots of 1-24	25-99	100-999
MC1350P	626	IF amplifier	$0.98	$0.98	$0.75
MC1355P	646	Limiting FM IF amplifier	1.43	1.43	1.10
MC1356P	646	Limiting FM IF amplifier with quadrature detector	1.56	1.56	1.20
MC1357P	646	Limiting FM IF amplifier with quadrature detector	1.49	1.49	1.15
MC1310P	646	FM multiplex stereo	4.29	4.29	3.30
AUDIO CIRCUITS					
MC1306P	626	Audio power amplifier	$1.27	$1.06	$0.84



Extremely stable voltage reference sources. Diffused junction units combine smallest size with tight stability.

400-mW SUBMINIATURE

6.2 VOLT (CASE 51)

Temperature Range: −55° C to +100° C. **Voltage Range:** 5.9–6.5 volts at 7.5 mA. **Dynamic Impedance:** 15 ohms max.; 10 ohms suffix A.

Motorola Type	Avg. TC %/° C	Net Each, Lots of 1-99	Net Each, Lots of 100-999
1N821*	.01	$ 0.95	$ 0.50
1N821A	.01	1.25	.87
1N823*	.005	1.25	.87
1N823A	.005	1.55	1.20
1N825*	.002	1.65	1.34
1N825A	.002	1.90	1.64
1N827*	.001	4.08	3.78
1N827A	.001	6.30	5.95
1N829*	.0005	14.05	11.25
1N829A	.0005	16.85	13.50

*JAN, JTX, JTXV available to MIL-S-19500/159.

8.4 VOLT (CASE 51)

Temperature Range: −55° C to +100° C; −55° C to +150° C (suffix A). **Voltage Range:** 7.98–8.8 volts at 10 mA. **Dynamic Impedance:** 15 ohms maximum.

1N3154*	.01	$ 2.60	$2.25
1N3154A	.01	3.60	3.10
1N3155*	.005	3.55	3.05
1N3155A	.005	4.35	3.75
1N3156*	.002	6.15	5.30
1N3156A	.002	7.10	6.10
1N3157*	.001	7.60	6.55
1N3157A	.001	11.10	9.55

*JAN, JTX available to MIL-S-19500/158.

500-mW SUBMINIATURE

9.0 VOLT (CASE 51)

Temperature Range: 0° C to +75° C; −55° C to +100° C (suffix A); −55° C to +150° C (suffix B). **Voltage Range:** 8.55–9.45 volts at 7.5 mA, 25° C ambient. **Dynamic Impedance:** 20 ohms max.

1N935	.01	$ 1.85	$ 1.40
1N935A	.01	2.10	1.55
1N935B*	.01	2.85	2.15
1N936	.005	2.20	1.65
1N936A	.005	2.85	2.15
1N936B	.005	3.35	2.50
1N937	.002	4.30	3.70
1N937A	.002	4.90	3.70
1N937B*	.002	5.70	4.25
1N938	.001	6.00	5.83
1N938A	.001	6.50	6.31
1N938B*	.001	8.60	8.39
1N939	.0005	15.50	15.06
1N939A	.0005	21.85	21.26
1N939B*	.0005	23.55	22.89

*JAN, JTX, JTXV available to MIL-S-19500/156.

11.7 VOLT (CASE 51)

Temperature Range: 0° C to +75° C; −55° C to +100° C (suffix A); −55° C to +150° C (suffix B). **Voltage Range:** 11.12–12.29 volts at 7.5 mA. **Dynamic Impedance:** 30 ohms max.

1N941	.01	$ 2.75	$ 2.67
1N941A	.01	2.90	2.84
1N941B*	.01	3.10	3.04
1N942	.005	3.00	2.91
1N942A	.005	3.75	3.64
1N942B	.005	4.25	4.13
1N943	.002	5.95	5.77
1N943A	.002	6.00	5.83
1N943B*	.002	6.20	6.01
1N944	.001	8.75	8.50
1N944A	.001	11.25	10.93
1N944B*	.001	14.95	14.58

*JAN, JTX available to MIL-S-19500/157.

250-mW LOW LEVEL SUBMINIATURE

Temperature Range: 0° C to +75° C; −55° C to +100° C (suffix A).

6.4 VOLT (CASE 51)

Test Current: 0.5 mA. **Dynamic Impedance:** 200 ohms maximum.

Motorola Type	Avg. TC %/° C	Net Each, Lots of 1-99	Net Each, Lots of 100-999
1N4565	.01	$ 2.90	$ 2.00
1N4565A	.01	3.40	2.20
1N4566	.005	3.60	2.50
1N4566A	.005	4.30	2.60
1N4567	.002	6.65	3.20
1N4567A	.002	8.03	4.10
1N4568	.001	12.40	9.90
1N4568A	.001	18.50	14.80
1N4569	.0005	24.00	19.30
1N4569A	.0005	36.20	28.90

Test Current: 1.0 mA. **Dynamic Impedance:** 100 ohms maximum.

1N4570	.01	$ 1.90	$ 1.50
1N4570A	.01	2.30	1.80
1N4571	.005	2.40	1.90
1N4571A	.005	2.90	2.30
1N4572	.002	4.45	2.40
1N4572A	.002	5.40	2.60
1N4573	.001	8.20	6.50
1N4573A	.001	12.30	8.50
1N4574	.0005	16.10	12.90
1N4574A	.0005	24.60	19.70

Test Current: 2.0 mA. **Dynamic Impedance:** 50 ohms maximum.

1N4575	.01	$ 1.20	$ 0.75
1N4575A	.01	1.50	.85
1N4576	.005	1.60	.90
1N4576A	.005	1.95	1.15
1N4577	.002	2.95	1.50
1N4577A	.002	3.55	1.75
1N4578	.001	5.45	2.85
1N4578A	.001	8.20	3.25
1N4579	.0005	10.70	8.00
1N4579A	.0005	16.00	9.40

Test Current: 4.0 mA. **Dynamic Impedance:** 25 ohms maximum.

1N4580	.01	$ 0.82	$0.65
1N4580A	.01	1.00	.80
1N4581	.005	1.05	.85
1N4581A	.005	1.30	1.00
1N4582	.002	1.95	1.55
1N4582A	.002	2.35	1.75
1N4583	.001	3.65	2.90
1N4583A	.001	5.50	3.65
1N4584	.0005	7.10	5.70
1N4584A	.0005	10.70	8.55

8.5 VOLT (CASE 51)

Test Current: 0.5 mA. **Dynamic Impedance:** 200 ohms maximum.

Motorola Type	Avg. TC %/° C	Net Each, Lots of 1-99	Net Each, Lots of 100-999
1N4775	.01	$ 8.65	$ 6.50
1N4775A	.01	9.70	7.30
1N4776	.005	11.70	8.80
1N4776A	.005	13.05	9.80
1N4777	.002	23.80	17.90
1N4777A	.002	26.46	19.90
1N4778	.001	41.10	30.90
1N4778A	.001	45.75	34.40
1N4779	.0005	89.50	67.30
1N4779A	.0005	99.50	74.80

Test Current: 1.0 mA. **Dynamic Impedance:** 100 ohms maximum.

1N4780	.01	$ 5.85	$ 5.28
1N4780A	.01	6.50	6.00
1N4781	.005	7.30	6.71
1N4781A	.005	8.10	7.43
1N4782	.002	13.25	12.14
1N4782A	.002	14.75	13.43
1N4783	.001	24.25	18.25
1N4783A	.001	27.00	20.30
1N4784	.0005	56.50	42.50
1N4784A	.0005	63.15	47.50

750-mW MINIATURE

9.4 VOLT (CASE 52)

Temperature Range: 1N2163–1N2169A, 0° C to +70° C; 1N2164–1N2170A, −55° C to +125° C; 1N2165–1N2171A, −55° C to +185° C. **Voltage:** V_Z = 9.4 volts ±0.4 V; ±0.2 V (suffix A). **Dynamic Impedance:** 15 ohms maximum.

Motorola Type	Avg. TC %/° C	Net Each, Lots of 1-99	Net Each, Lots of 100-999
1N2163	.005	$ 4.13	$ 3.44
1N2163A	.005	4.31	3.62
1N2166	.001	8.50	7.07
1N2166A	.001	10.13	8.55
1N2169	.0005	21.19	17.79
1N2169A	.0005	31.25	26.29
1N2164	.005	5.62	4.76
1N2164A	.005	6.88	5.76
1N2167	.001	10.81	9.05
1N2167A	.001	13.81	11.67
1N2170	.0005	29.95	25.15
1N2170A	.0005	46.19	38.77
1N2165	.005	7.06	5.92
1N2165A	.005	9.13	7.72
1N2168	.001	14.88	12.49
1N2168A	.001	19.94	16.76
1N2171	.0005	43.56	36.65
1N2171A	.0005	55.63	46.83

PRECISION REFERENCE DIODES (CASE 51)

Designed, manufactured and tested for ultra-high stability of voltage with time and temperature change. Calibration is directly traceable to National Bureau of Standards.

Motorola Type	Nom. V_Z Volts	ΔV_Z* mV	Net Ea., Lots of 1-10	Net Ea., Lots of 11-99
MZ605	6.2 ± 5%	2.5	$54.55	$47.15
MZ610	6.2 ± 5%	2.5	27.80	24.05
MZ620	6.2 ± 5%	2.5	20.95	18.10
MZ640	6.2 ± 5%	2.5	18.55	16.05

*Over temperature range of +25° C to +100° C.

SURMETIC™ FORWARD REFERENCE DIODES GLASS PACKAGE

I_R = 10 μA max. at V_R = 5.0 V.

Motorola Type	V_F at I_F V	V_F at I_F mA	Net Ea., Lots of 1-99	Net Ea., Lots of 100-999
MZ2360*	0.63–0.71	10	$0.28	$0.19
MZ2361†	1.24–1.38	10	.57	.38

*Case 59. †Case 51.

FIELD EFFECT CURRENT REGULATOR DIODES (CASE 51)

Motorola Type	Reg. mA	Net Ea., Lots of 1-99	Net Ea., Lots of 100-999
1N5283	0.22	$5.50	$5.34
1N5284	0.24	5.50	5.34
1N5285	0.27	3.30	2.67
1N5286	0.30	3.30	2.67
1N5287	0.33	3.30	2.67
1N5288	0.39	3.30	2.67
1N5289	0.43	3.30	2.67
1N5290	0.47	5.50	5.35
1N5291	0.56	2.30	1.90
1N5292	0.62	2.30	1.90
1N5293	0.68	2.30	1.90
1N5294	0.75	2.30	1.90
1N5295	0.82	2.30	1.90
1N5296	0.91	2.30	1.90
1N5297	1.00	5.50	5.36
1N5298	1.10	2.30	1.90
1N5299	1.20	2.30	1.90
1N5300	1.30	2.30	1.90
1N5301	1.40	2.30	1.90
1N5302	1.50	2.30	1.90
1N5303	1.60	2.30	1.90
1N5304	1.80	2.30	1.90
1N5305	2.00	5.50	5.36
1N5306	2.20	2.30	1.90
1N5307	2.40	2.30	1.90
1N5308	2.70	2.30	1.90
1N5309	3.00	2.30	1.90
1N5310	3.30	2.30	1.90
1N5311	3.60	3.30	2.69
1N5312	3.90	3.30	2.69
1N5313	4.30	3.30	2.69
1N5314	4.70	5.50	5.36
MCL1300	0.5	2.30	1.55
MCL1301	1.0	2.30	1.55
MCL1302	2.0	2.30	1.55
MCL1303	3.0	2.30	1.55
MCL1304	4.0	2.30	1.55

MOTOROLA Semiconductors — Zener Diodes

Nom. Zener Volts	Case 51 250 mW	Case 51 400 mW	Case 51 500 mW	Case 51 500 mW	Case 59 1 W	Case 52 1 W	Case 59 1.5 W	Case 55 1.5 W	Case 17 5 W	Case 56 10 W	Case 54 50 W	Case 58 50 W
2.4	.....	.....	1N4370	1N5221	.....	.....	.....	.....	.....	.....	.....	.....
2.7	.....	.....	1N4371	1N5223	.....	.....	.....	.....	.....	.....	.....	.....
3.0	.....	.....	1N4372	1N5225	.....	.....	.....	.....	.....	.....	.....	.....
3.3	.....	1N5518	1N746	1N5226	1N4728	1N3821	1N5913	.....	1N5333	.....	.....	.....
3.6	.....	1N5519	1N747	1N5227	1N4729	1N3822	1N5914	.....	1N5334	.....	.....	.....
3.9	.....	1N5520	1N748	1N5228	1N4730	1N3823	1N5915	.....	1N5335	1N3993	1N4557	1N4549
4.3	.....	1N5521	1N749	1N5229	1N4731	1N3824	1N5916	.....	1N5336	1N3994	1N4558	1N4550
4.7	.....	1N5522	1N750	1N5230	1N4732	1N3825	1N5917	.....	1N5337	1N3995	1N4559	1N4551
5.1	.....	1N5523	1N751	1N5231	1N4733	1N3826	1N5918	.....	1N5338	1N3996	1N4560	1N4552
5.6	.....	1N5524	1N752	1N5232	1N4734	1N3827	1N5919	.....	1N5339	1N3997	1N4561	1N4553
6.2	.....	1N5525	1N753	1N5234	1N4735	1N3828	1N5920	.....	1N5341	1N3998	1N4562	1N4554
6.8	1N4099	1N5526	1N754 1N957	1N5235	1N4736	1N3829	1N5921	1N3785	1N5342	1N3999	1N4563	1N4555
7.5	1N4100	1N5527	1N755 1N958	1N5236	1N4737	1N3830 1N3017	1N5922	1N3786	1N5343	1N4000 1N2971	1N4564 1N2805	1N4556 1N3306
8.2	1N4101	1N5528	1N756 1N959	1N5237	1N4738	1N3018	1N5923	1N3787	1N5344	1N2972	1N2806	1N3307
8.7	1N4102	.....	.....	1N5238	.....	.....	.....	.....	1N5345	.....	.....	.....
9.1	1N4103	1N5529	1N757 1N960	1N5239	1N4739	1N3019	1N5924	1N3788	1N5346	1N2973	1N2807	1N3308
10	1N4104	1N5530	1N758 1N961	1N5240	1N4740	1N3020	1N5925	1N3789	1N5347	1N2974	1N2808	1N3309
11	1N4105	1N5531	1N962	1N5241	1N4741	1N3021	1N5926	1N3790	1N5348	1N2975	1N2809	1N3310
12	1N4106	1N5532	1N759 1N963	1N5242	1N4742	1N3022	1N5927	1N3791	1N5349	1N2976	1N2810	1N3311
13	1N4107	1N5533	1N964	1N5243	1N4743	1N3023	1N5928	1N3792	1N5350	1N2977	1N2811	1N3312
14	1N4108	1N5534	.....	1N5244	.....	.....	.....	.....	1N5351	1N2978	1N2812	1N3313
15	1N4109	1N5535	1N965	1N5245	1N4744	1N3024	1N5929	1N3793	1N5352	1N2979	1N2813	1N3314
16	1N4110	1N5536	1N966	1N5246	1N4745	1N3025	1N5930	1N3794	1N5353	1N2980	1N2814	1N3315
17	1N4111	1N5537	.....	1N5247	.....	.....	.....	.....	1N5354	.....	1N2815	1N3316
18	1N4112	1N5538	1N967	1N5248	1N4746	1N3026	1N5931	1N3795	1N5355	1N2982	1N2816	1N3317
19	1N4113	1N5539	.....	1N5249	.....	.....	.....	.....	1N5356	1N2983	1N2817	1N3318
20	1N4114	1N5540	1N968	1N5250	1N4747	1N3027	1N5932	1N3796	1N5357	1N2984	1N2818	1N3319
22	1N4115	1N5541	1N969	1N5251	1N4748	1N3028	1N5933	1N3797	1N5358	1N2985	1N2819	1N3320
24	1N4116	1N5542	1N970	1N5252	1N4749	1N3029	1N5934	1N3798	1N5359	1N2986	1N2820	1N3321
25	1N4117	1N5543	1N971	1N5253	.....	.....	.....	.....	1N5360	.....	1N2821	1N3322
27	1N4118	.....	1N971	1N5254	1N4750	1N3030	1N5935	1N3799	1N5361	1N2988	1N2822	1N3323
28	1N4119	1N5544	.....	1N5255	.....	.....	.....	.....	1N5362	.....	.....	.....
30	1N4120	1N5545	1N972	1N5256	1N4751	1N3031	1N5936	1N3800	1N5363	1N2989	1N2823	1N3324
33	1N4121	1N5546	1N973	1N5257	1N4752	1N3032	1N5937	1N3801	1N5364	1N2990	1N2824	1N3325
36	1N4122	.....	1N974	1N5258	1N4753	1N3033	1N5938	1N3802	1N5365	1N2991	1N2825	1N3326
39	1N4123	.....	1N975	1N5259	1N4754	1N3034	1N5939	1N3803	1N5366	1N2992	1N2826	1N3327
43	1N4124	.....	1N976	1N5260	1N4755	1N3035	1N5940	1N3804	1N5367	1N2993	1N2827	1N3328
47	1N4125	.....	1N977	1N5261	1N4756	1N3036	1N5941	1N3805	1N5368	1N2996	1N2929	1N3330
51	1N4126	.....	1N978	1N5262	1N4757	1N3037	1N5942	1N3806	1N5369	1N2997	1N2831	1N3332
56	1N4127	.....	1N979	1N5263	1N4758	1N3038	1N5943	1N3807	1N5370	1N2999	1N2832	1N3334
60	1N4128	.....	.....	1N5264	.....	.....	.....	.....	1N5371	.....	.....	.....
62	1N4129	.....	1N980	1N5265	1N4759	1N3039	1N5944	1N3808	1N5372	1N3000	1N2833	1N3335
68	1N4130	.....	1N981	1N5266	1N4760	1N3040	1N5945	1N3809	1N5373	1N3001	1N2834	1N3336
75	1N4131	.....	1N982	1N5267	1N4761	1N3041	1N5946	1N3810	1N5374	1N3002	1N2835	1N3337
82	1N4132	.....	1N983	1N5268	1N4762	1N3042	1N5947	1N3811	1N5375	1N3003	1N2836	1N3338
87	1N4133	.....	.....	1N5269	.....	.....	.....	.....	1N5376	.....	.....	.....
91	1N4134	.....	1N984	1N5270	1N4763	1N3043	1N5948	1N3812	1N5377	1N3004	1N2837	1N3339
100	1N4135	.....	1N985	1N5271	1N4764	1N3044	1N5949	1N3813	1N5378	1N3005	1N2838	1N3340
110	.....	.....	1N986	1N5272	1M110ZS10	1N3045	1N5950	1N3814	1N5379	1N3007	1N2840	1N3342
120	.....	.....	1N987	1N5273	1M120ZS10	1N3046	1N5951	1N3815	1N5380	1N3008	1N2841	1N3343
130	.....	.....	1N988	1N5274	1M130ZS10	1N3047	1N5952	1N3816	1N5381	1N3009	1N2841	1N3344
140	.....	.....	.....	1N5275	.....	.....	.....	.....	.....	.....	.....	.....
150	.....	.....	1N989	1N5276	1M150ZS10	1N3048	1N5953	1N3817	1N5383	1N3011	1N2843	1N3346
160	.....	.....	1N990	1N5277	1M160ZS10	1N3049	1N5954	1N3818	1N5384	1N3012	1N2844	1N3347
170	.....	.....	.....	1N5278	1M170ZS10	.....	.....	.....	1N5385	.....	.....	.....
180	.....	.....	1N991	1N5279	1M180ZS10	1N3050	1N5955	1N3819	1N5386	1N3014	1N2845	1N3349
200	.....	.....	1N992	1N5281	1M200ZS10	1N3051	1N5956	1N3820	1N5388	1N3015	1N2846	1N3350

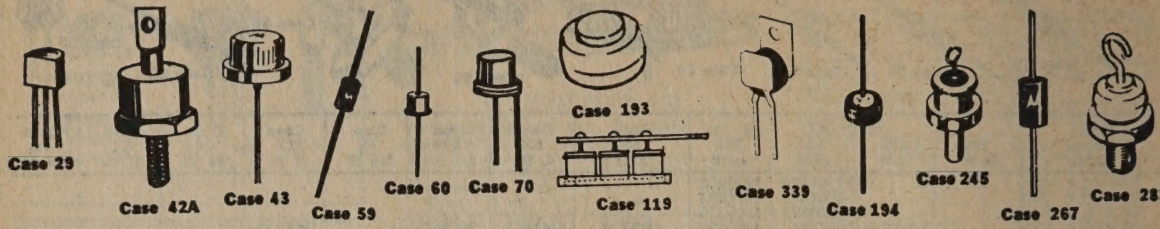
Motorola Type	Tol. ± %	Net Ea., Lots 1-99	Net Ea., Lots 100-999
1N746-1N759	10	$ 0.54	$ 0.25
1N746A-1N759A	5	.54	.25
1N957A-1N978A	10	.54	.25
1N979A-1N986A	10	.75	.38
1N987A-1N992A	10	1.45	.73
1N957B-1N978B	5	.54	.25
1N979A-1N986A	5	.75	.38
1N987A-1N992A	5	1.45	.73
1N2804A-1N2838A	10	7.65	7.00
1N2839A-1N2846A	10	11.30	10.29
1N2804B-1N2838B	5	10.65	9.72
1N2839B-1N2846B	5	17.95	16.43
1N2970A-1N3012A	10	5.85	5.29
1N3013A-1N3015A	10	9.00	8.14
1N2970B-1N3012B	5	7.30	6.72
1N3013B-1N3015B	5	13.75	12.57
1N3016A-1N3044A	10	3.20	2.85
1N3045A-1N3051A	10	3.25	3.00
1N3016B-1N3044B	5	3.70	3.43
1N3045B-1N3051B	5	4.65	4.28
1N3305A-1N3340A	10	7.65	7.00
1N3341A-1N3350A	10	11.30	10.29
1N3305B-1N3340B	5	10.65	9.70
1N3341B-1N3350B	5	17.95	16.43
1N3785A-1N3813A	10	6.63	6.07

Motorola Type	Tol. ± %	Net Ea., Lots 1-99	Net Ea., Lots 100-999
1N3814A-1N3816A	10	$ 8.06	$ 6.74
1N3817A-1N3820A	10	8.81	7.38
1N3785B-1N3813B	5	8.69	7.38
1N3814B-1N3816B	5	10.44	8.87
1N3817B-1N3820B	5	11.00	9.20
1N3821-1N3830	10	2.10	2.00
1N3821A-1N3830A	5	2.65	2.43
1N3993-1N4000	10	5.65	5.14
1N3993A-1N4000A	5	7.70	7.00
1N4099-1N4135	5	1.26	.90
1N4370-1N4372	10	.95	.43
1N4370A-1N4372A	5	.95	.43
1N4549A-1N4564A	10	8.00	7.29
1N4549B-1N4564B	5	11.50	10.50
1N4728-1N4752	10	.80	.45
1N4753-1N4757	10	.85	.50
1N4758-1N4764	10	.95	.60
1N4728A-1N4752A	5	.80	.45
1N4753A-1N4757A	5	.95	.58
1N4758A-1N4764A	5	1.05	.68
1N5221-1N5225	10	.60	.40
1N5226-1N5261	10	.42	.27
1N5262-1N5270	10	.80	.42
1N5271-1N5281	10	1.05	.53
1N5221A-1N5225A	10	.80	.54

Motorola Type	Tol. ± %	Net Ea., Lots 1-99	Net Ea., Lots 100-999
1N5226A-1N5261A	10	$ 0.42	$ 0.27
1N5262A-1N5270A	10	.95	.50
1N5271A-1N5281A	10	1.20	.60
1N5221B-1N5225B	5	.93	.63
1N5226B-1N5261B	5	.42	.27
1N5262B-1N5270B	5	1.13	.55
1N5271B-1N5281B	5	1.44	.72
1N5333A-1N5377A	10	1.75	1.17
1N5378A-1N5388A	10	2.00	1.25
1N5333B-1N5377B	5	1.80	1.25
1N5378B-1N5388B	5	2.10	1.34
1N5518A-1N5539A	10	2.00	1.80
1N5518B-1N5539B	5	2.93	1.90
1N5540A-1N5546A	0	2.95	2.71
1N5540B-1N5546B	0	4.20	3.86
1N5913A-1N5925A	10	2.70	2.05
1N5926A-1N5948A	10	2.40	1.80
1N5949A-1N5956A	10	2.60	1.95
1N5913B-1N5925B	5	3.50	2.40
1N5926B-1N5948B	5	2.80	2.10
1N5949B-1N5956B	5	3.70	2.80
1M110ZS10-1M200ZS10	10	2.26	1.70
1M110ZS5-1M200ZS5	5	2.26	1.70

MOTOROLA Semiconductors — Silicon Rectifiers

GENERAL PURPOSE RECTIFIERS



Motorola Type	Case	Io Amps	VRRM Volts	IFSM Amps	Net Each, Lots 1-99	Net Each, Lots 100-999
1N4001	59	1.0	50	30	$0.25	$0.19
1N4002	59	1.0	100	30	.26	.20
1N4003	59	1.0	200	30	.27	.22
1N4004	59	1.0	400	30	.30	.24
1N4005	59	1.0	600	30	.35	.31
1N4006	59	1.0	800	30	.44	.36
1N4007	59	1.0	1000	30	.55	.42
1N5391	59	1.5	50	50	.24	.18
1N5392	59	1.5	100	50	.26	.19
1N5393	59	1.5	200	50	.30	.21
1N5395	59	1.5	400	50	.36	.26
1N5397	59	1.5	600	50	.46	.32
1N5398	59	1.5	800	50	.56	.40
1N5399	59	1.5	1000	50	.76	.54
1N4719, R	60	3.0	50	300	1.22†	1.03*
1N4720, R	60	3.0	100	300	1.12†	.92*
1N4721, R	60	3.0	200	300	1.22†	.99*
1N4722, R	60	3.0	400	300	1.32†	1.08*
1N4723, R	60	3.0	600	300	1.43†	1.17*
1N4724, R	60	3.0	800	300	2.12†	1.73*
1N4725, R	60	3.0	1000	300	3.80†	3.22*
1N4997, R	70	3.0	50	300	1.22†	1.03*
1N4998, R	70	3.0	100	300	1.33†	1.12*
1N4999, R	70	3.0	200	300	1.44†	1.22*
1N5000, R	70	3.0	400	300	1.56†	1.32*
1N5001, R	70	3.0	600	300	1.69†	1.43*
1N5002, R	70	3.0	800	300	2.51†	2.12*
1N5003, R	70	3.0	1000	300	3.80†	3.22*
MR500	267	3.0	50	100	.22	.19
MR501	267	3.0	100	100	.26	.22
MR502	267	3.0	200	100	.30	.25
MR504	267	3.0	400	100	.33	.28
MR506	267	3.0	600	100	.40	.34
MR508	267	3.0	800	100	.48	.40
MR510	267	3.0	1000	100	.66	.56
1N5400	267	3.0	50	200	.29	.25
1N5401	267	3.0	100	200	.35	.29
1N5402	267	3.0	200	200	.38	.32
1N5404	267	3.0	400	200	.44	.37
1N5406	267	3.0	600	200	.60	.51
MR750	194	6.0	50	400	.60†	.50*
MR751	194	6.0	100	400	.76†	.63*
MR752	194	6.0	200	400	.80†	.67*
MR754	194	6.0	400	400	.90†	.75*
MR756	194	6.0	600	400	1.50†	1.25*
MR758	194	6.0	800	400	1.90†	1.58*
MR760	194	6.0	1000	400	2.30†	1.92*
1N1199B, RB	245	12	50	300	1.00†	.85*
1N1200B, RB	245	12	100	300	1.09†	.92*
1N1202B, RB	245	12	200	300	1.18†	1.00*
1N1204B, RB	245	12	400	300	1.23†	1.00*
1N1206B, RB	245	12	600	300	2.55†	2.15*
MR1120, R	245	12	50	300	1.22†	.94*
MR1121, R	245	12	100	300	1.40†	1.17*
MR1122, R	245	12	200	300	1.50†	1.25*
MR1124, R	245	12	400	300	1.86†	1.55*
MR1126, R	245	12	600	300	3.30†	2.75*
MR1128, R	245	12	800	300	6.27†	5.23*
MR1130, R	245	12	1000	300	8.89†	7.40*

Motorola Type	Case	Io Amps	VRRM Volts	IFSM Amps	Net Each, Lots 1-99	Net Each, Lots 100-999
1N3208, R	42A	15	50	250	$1.31†	$1.03*
1N3209, R	42A	15	100	250	1.60†	1.25*
1N3210, R	42A	15	200	250	2.05†	1.61*
1N3212, R	42A	15	400	250	2.91†	2.28*
1N3214, R	42A	15	600	250	4.18†	3.29*
1N248C, RC	42A	20	50	350	1.45†	1.23*
1N249C, RC	42A	20	100	350	1.76†	1.49*
1N250C, RC	42A	20	200	350	2.69†	2.28*
1N1191, R	42A	20	50	350	1.84†	1.56*
1N1192, R	42A	20	100	350	2.16†	1.83*
1N1194, R	42A	20	200	350	2.89†	2.45*
1N1196, R	42A	20	400	350	3.62†	3.06*
1N1196A, RA	42A	20	400	350	3.90†	3.30*
1N1198, R	42A	20	600	350	5.99†	5.08*
1N1198A, RA	42A	20	600	350	6.36†	5.38*
MR2000S, SR	283	20	50	400	1.02	.75
MR2001S, SR	283	20	100	400	1.08	.79
MR2002S, SR	283	20	200	400	1.14	.84
MR2004S, SR	283	20	400	400	1.20	.88
MR2006S, SR	283	20	600	400	1.80	1.32
MR2008S, SR	283	20	800	400	2.40	1.76
MR2010S, SR	283	20	1000	400	3.00	2.20
MR2400	339	24	50	400	1.19†	1.00*
MR2401	339	24	100	400	1.28†	1.08*
MR2402	339	24	200	400	1.37†	1.16*
MR2404	339	24	400	400	1.46†	1.24*
MR2406	339	24	600	400	1.82†	1.54*
MR2500	193	25	50	400	.46	.31
MR2501	193	25	100	400	.50	.34
MR2502	193	25	200	400	.54	.36
MR2504	193	25	400	400	.60	.40
MR2506	193	25	600	400	.72	.48
MR2508	193	25	800	400	.86	.58
MR2510	193	25	1000	400	1.30	.87
1N3491, R	43	25	50	300	.91†	.77*
1N3492, R	43	25	100	300	1.09†	.92*
1N3493, R	43	25	200	300	1.27†	1.08*
1N3495, R	43	25	400	300	1.73†	1.46*
MR328, R	43	25	600	300	2.58†	1.99*
MR330, R	43	25	800	300	3.58†	2.75*
MR331, R	43	25	1000	300	5.58†	4.29*
1N3659, R	43	30	50	400	1.27†	1.08*
1N3660, R	43	30	100	400	1.36†	1.15*
1N3661, R	43	30	200	400	1.45†	1.23*
1N3663, R	43	30	400	400	1.73†	1.46*
1N1183, R	42A	35	50	400	1.84†	1.56*
1N1183A, RA	42A	35	50	400	1.93†	1.63*
1N1184, R	42A	35	100	400	2.16†	1.83*
1N1184A, RA	42A	35	100	400	2.25†	1.91*
1N1186, R	42A	35	200	400	2.89†	2.45*
1N1186A, RA	42A	35	200	400	3.20†	2.71*
1N1188, R	42A	35	400	400	3.62†	3.06*
1N1188A, RA	42A	35	400	400	3.80†	3.22*
1N1190, R	42A	35	600	400	5.99†	5.08*
1N1190A, RA	42A	35	600	400	6.36†	5.38*
MR5005, R	43	50	50	600	2.50†	1.92*
MR5010, R	43	50	100	600	2.70†	2.08*
MR5020, R	43	50	200	600	2.90†	2.23*
MR5040, R	43	50	400	600	3.80†	2.92*

MULTI-CELL RECTIFIER DIODES

Motorola Type	Case	VRRM Volts	IFSM Amps	Net Each, Lots 1-99	Net Each, Lots 100-999
50 AMP RATING					
MR1205FL, R	100	300	800	$10.20	$ 7.55
MR1209FL, R	100	600	800	13.95	10.30
100 AMP RATING					
MR1215SL, R	167	300	2000	$12.00	$ 8.85
MR1219SL, R	167	600	2000	17.85	13.15
MR1815SL, R	189	300	2000	15.65†	13.25*
MR1819SL, R	189	600	2000	19.70†	16.65*

Motorola Type	Case	VRRM Volts	IFSM Amps	Net Each, Lots 1-99	Net Each, Lots 100-999
450 AMP RATING					
MR1245FL, R	128	300	8000	$49.50	$42.90
MR1249FL, R	128	600	8000	53.90	46.90
MR1245SL, R	135	300	8000	50.90	44.25
MR1249SL, R	135	600	8000	55.50	48.25
700 AMP RATING					
MR1265FL, R	136	300	12000	$83.50	$72.50
MR1269FL, R	136	600	12000	90.90	79.50

†Lots of 1–24. *Lots of 25–99.

PRICES LISTED ARE FOR GUIDANCE ONLY

MOTOROLA Semiconductors — Silicon Rectifiers

Case 56

Case 257

Case 109

Case 312

Case 117

Case 309A

Case 100

Case 167
Case 189

Case 128

Case 135
Case 136

FAST RECOVERY RECTIFIERS

Motorola Type	Case	VRRM Volts	IFSM Amps	Net Each, Lots 1-99	Net Each, Lots 100-999
1 AMP RATING					
1N4933	59	50	30	$0.30†	$0.25*
1N4934	59	100	30	.33†	.28*
1N4935	59	200	30	.38†	.32*
1N4936	59	400	30	.41†	.34*
1N4937	59	600	30	.46†	.39*
MR810	59	50	30	.31	.27
MR811	59	100	30	.33	.28
MR812	59	200	30	.35	.30
MR814	59	400	30	.39	.33
MR816	59	600	30	.40	.34
MR817	59	800	30	.42	.36
MR818	59	1000	30	.53	.45
MR830, R	60	50	100	1.80†	1.39*
MR831, R	60	100	100	2.00†	1.54*
MR832, R	60	200	100	2.40†	1.85*
MR834, R	60	400	100	3.60†	2.77*
MR836, R	60	600	100	4.40†	3.38*
3 AMP RATING					
MR800	70	50	100	$1.80†	$1.39*
MR801	70	100	100	2.00†	1.54*
MR802	70	200	100	2.40†	1.85*
MR804	70	400	100	3.60†	2.77*
MR806	70	600	100	4.40†	3.38*
MR850	267	50	100	.55	.40
MR851	267	100	100	.62	.46
MR852	267	200	100	.69	.51
MR854	267	400	100	.84	.62
MR856	267	600	100	.98	.72
MR910	267	50	100	.53	.39
MR911	267	100	100	.62	.46
MR912	267	200	100	.68	.50
MR914	267	400	100	.79	.58
MR916	267	600	100	.93	.68
MR917	267	800	100	1.26	.92
MR918	267	1000	100	1.62	1.19
5 AMP RATING					
MR820	194	50	300	$1.15	$0.84
MR821	194	100	300	1.19	.87
MR822	194	200	300	1.33	.98
MR824	194	400	300	1.64	1.20
MR826	194	600	300	1.91	1.40
6 AMP RATING					
1N3879, R	245	50	150	$1.90	$1.30
1N3879A, RA	245	50	150	1.50	1.00
1N3880, R	245	100	150	2.20	1.50
1N3880A, RA	245	100	150	1.70	1.15
1N3881, R	245	200	150	2.60	1.75
1N3881A, RA	245	200	150	1.90	1.30
1N3883, R	245	400	150	3.40	2.30
1N3883A, RA	245	400	150	2.70	1.80
MR1366, R	56	600	150	4.50	3.00
12 AMP RATING					
1N3889, R	245	50	200	$2.30	$1.55
1N3889A, RA	245	50	200	1.70	1.15
1N3890, R	245	100	200	2.70	1.80
1N3890A, RA	245	100	200	1.90	1.30
1N3891, R	245	200	200	3.10	2.10
1N3891A, RA	245	200	200	2.10	1.40
1N3893, R	56	400	200	4.30	2.90
MR1376, R	56	600	200	5.80	3.90
20 AMP RATING					
1N3899, R	42A	50	250	$3.30	$2.45
1N3900, R	42A	100	250	3.45	2.55
1N3901, R	42A	200	250	3.85	2.85
1N3903, R	257	400	250	4.55	3.35
MR1386, R	257	600	250	5.10	3.80
24 AMP RATING					
MR2400F	339	50	300	$1.45†	$1.23*
MR2401F	339	100	300	1.64†	1.39*
MR2402F	339	200	300	2.00†	1.70*
MR2404F	339	400	300	2.25†	2.15*
MR2406F	339	600	300	2.91†	2.46*
30 AMP RATING					
1N3909, R	257	50	300	$3.55	$2.65
1N3910, R	257	100	300	3.75	2.75
1N3911, R	257	200	300	4.10	3.05
1N3913, R	257	400	300	4.85	3.60
MR1396, R	257	600	300	5.40	4.00
40 AMP RATING					
MR860, R	42A	50	350	$4.09†	$3.46*
MR861, R	42A	100	350	4.55†	3.85*
MR862, R	42A	200	350	5.00†	4.23*
MR864, R	42A	400	350	7.18†	6.08*
MR866, R	42A	600	350	9.55†	8.07*

†Lots of 1–24. *Lots of 25–99.

FAST RECOVERY RECTIFIERS (Cont.)

Motorola Type	Case	VRRM Volts	IFSM Amps	Net Each, Lots 1-99	Net Each, Lots 100-999
50 AMP RATING					
MR870, R	42A	50	400	$4.45†	$3.77*
MR871, R	42A	100	400	4.90†	4.15*
MR872, R	42A	200	400	5.36†	4.54*
MR874, R	42A	400	400	7.73†	6.54*
MR876, R	42A	600	400	10.18†	8.62*

RECTIFIER BRIDGES

Motorola Type	Case	VRRM Volts	IFSM Amps	Net Each, Lots 1-99	Net Each, Lots 100-999
1 AMP RATING					
MDA920A2	109	50	32	$1.87†	$1.58*
MDA920A3	109	100	32	2.16†	1.83*
MDA920A4	109	200	32	2.58†	2.18*
MDA920A6	109	400	32	2.75†	2.32*
MDA920A7	109	600	32	3.58†	3.03*
MDA100A	312	50	45	1.40	1.03
MDA101A	312	100	45	1.51	1.11
MDA102A	312	200	45	1.62	1.19
MDA104A	312	400	45	1.73	1.28
MDA106A	312	600	45	1.93	1.42
MDA108A	312	800	45	2.26	1.66
MDA110A	312	1000	45	2.59	1.90
3N246	312	50	45	1.40	1.03
3N247	312	100	45	1.51	1.11
3N248	312	200	45	1.62	1.19
3N249	312	400	45	1.73	1.28
3N250	312	600	45	1.93	1.42
3N251	312	800	45	2.26	1.66
3N252	312	1000	45	2.59	1.90
2 AMP RATING					
MDA200	312	50	60	$1.51	$1.11
MDA201	312	100	60	1.62	1.19
MDA202	312	200	60	1.73	1.28
MDA204	312	400	60	1.82	1.34
MDA206	312	600	60	2.04	1.59
MDA208	312	800	60	2.48	1.82
MDA210	312	1000	60	2.79	2.05
3N253	312	50	60	1.51	1.11
3N254	312	100	60	1.62	1.19
3N255	312	200	60	1.73	1.28
3N256	312	400	60	1.82	1.34
3N257	312	600	60	2.04	1.50
3N258	312	800	60	2.48	1.52
3N259	312	1000	60	2.79	2.05
4 AMP RATING					
MDA970A1	117	50	100	$3.15	$2.30
MDA970A2	117	100	100	3.55	2.65
MDA970A3	117	200	100	4.00	2.95
MDA970A5	117	400	100	5.00	3.70
8 AMP RATING					
MDA800	321	50	400	$5.60†	$4.30*
MDA801	321	100	400	6.20†	4.77*
MDA802	321	200	400	6.80†	5.23*
MDA804	321	400	400	8.00†	6.15*
MDA806	321	600	400	10.00†	7.69*
12 AMP RATING					
MDA980-1	309A	50	300	$2.30	$1.70
MDA980-2	309A	100	300	2.55	1.90
MDA980-3	309A	200	300	3.40	2.50
MDA980-5	309A	400	300	3.45	2.55
MDA980-6	309A	600	300	4.75	3.50
MDA1200	321	50	400	5.55†	4.70*
MDA1201	321	100	400	5.80†	4.90*
MDA1202	321	200	400	6.35†	5.40*
MDA1204	321	400	400	7.20†	6.10*
MDA1206	321	600	400	8.35†	7.10*
25 AMP RATING					
MDA2500	309A	50	400	$2.91†	$2.46*
MDA2501	309A	100	400	3.00†	2.54*
MDA2502	309A	200	400	3.09†	2.62*
MDA2504	309A	400	400	3.28†	2.77*
MDA2506	309A	600	400	4.37†	3.70*
35 AMP RATING					
MDA3500	309A	50	400	$3.19†	$2.70*
MDA3501	309A	100	400	3.28†	2.78*
MDA3502	309A	200	400	3.37†	2.85*
MDA3504	309A	400	400	3.46†	2.93*
MDA3506	309A	600	400	4.74†	4.00*
MDA3508	309A	800	400	5.64†	4.78*
MDA3510	309A	1000	400	7.20†	6.08*

MOTOROLA Semiconductors

SILICON CONTROLLED RECTIFIERS (THYRISTORS)

Case 22, TO-52

Case 29

Case 54

Case 61

Case 63

Case 77

Case 79

Case 86

Case 87L

Case 263

Case 310

Case 311

Case 174

Case 175

Case 90

Case 221

Case 182

SILICON CONTROLLED RECTIFIERS—IN PLASTIC CASE

Listed in order of on-state (rms) current.

Motorola Type	Case	V_{FOM} V_{ROM} V	I_T rms A	At 25° C V_{GT} V	At 25° C I_{GT} mA	Net Ea., Lots 1-99	Net Ea., Lots 100-999
MCR101	29	15	0.8	0.8	0.2	$0.34	$0.30
MCR102	29	30	0.8	0.8	0.2	.51	.45
MCR103	29	60	0.8	0.8	0.2	.54	.48
MCR104	29	100	0.8	0.8	0.2	.61	.54
MCR115	29	150	0.8	0.8	0.2	.66	.58
MCR120	29	200	0.8	0.8	0.2	.69	.60
MCR100-5	29	300	0.8	0.8	0.2	.39	.34
MCR100-6	29	400	0.8	0.8	0.2	.49	.43
MCR100-7	29	500	0.8	0.8	0.2	.60	.53
MCR100-8	29	600	0.8	0.8	0.2	.74	.65
2N5060	29	30	0.8	0.8	0.2	.40	.35
2N5061	29	60	0.8	0.8	0.2	.41	.36
2N5062	29	100	0.8	0.8	0.2	.47	.41
2N5063	29	150	0.8	0.8	0.2	.50	.44
2N5064	29	200	0.8	0.8	0.2	.57	.50
2N6236	77	30	4.0	0.8	0.2	.64	.56
2N6237	77	50	4.0	0.8	0.2	.69	.60
2N6238	77	100	4.0	0.8	0.2	.70	.61
2N6239	77	200	4.0	0.8	0.2	.79	.69
2N6240	77	400	4.0	0.8	0.2	1.10	.96
2N6241	77	600	4.0	0.8	0.2	1.87	1.63
MCR106-1	77	30	4.0	1.0	0.5	.64	.56
MCR106-2	77	60	4.0	1.0	0.5	.69	.60
MCR106-3	77	100	4.0	1.0	0.5	.70	.61
MCR106-4	77	200	4.0	1.0	0.5	.79	.69
MCR106-5	77	300	4.0	1.0	0.5	.96	.84
MCR106-6	77	400	4.0	1.0	0.5	1.10	.96
MCR106-7	77	500	4.0	1.0	0.5	1.80	1.57
MCR106-8	77	600	4.0	1.0	0.5	1.87	1.63
C106Y1	77	25	4.0	0.8	0.2	.36	.31
C106F1	77	50	4.0	0.8	0.2	.37	.33
C106A1	77	100	4.0	0.8	0.2	.39	.34
C106B1	77	200	4.0	0.8	0.2	.41	.36
C106C1	77	300	4.0	0.8	0.2	.46	.40
C106D1	77	400	4.0	0.8	0.2	.56	.49
C106E1	77	500	4.0	0.8	0.2	.70	.61
C106M1	77	600	4.0	0.8	0.2	.84	.74
MCR3000-1	90	25	8.0	1.5	30.0	1.53	1.41
2N4441	90	50	8.0	1.5	30.0	1.55	1.46
MCR3000-3	90	100	8.0	1.5	30.0	1.60	1.50
2N4442	90	200	8.0	1.5	30.0	1.67	1.55
MCR3000-5	90	300	8.0	1.5	30.0	1.82	1.68
2N4443	90	400	8.0	1.5	30.0	2.28	2.14
MCR3000-7	90	500	8.0	1.5	30.0	2.61	2.43
2N4444	90	600	8.0	1.5	30.0	3.58	3.33
MCR3000-9	90	700	8.0	1.5	30.0	3.94	3.67
MCR3000-10	90	800	8.0	1.5	30.0	4.75	4.43

Motorola Type	Case	V_{FOM} V_{ROM} V	I_T rms A	At 25° C V_{GT} V	At 25° C I_{GT} mA	Net Ea., Lots 1-99	Net Ea., Lots 100-999
C122F1	221	50	8.0	1.5	25.0	$0.81	$0.65
C122A1	221	100	8.0	1.5	25.0	.89	.72
C122B1	221	200	8.0	1.5	25.0	.96	.78
C122C1	221	300	8.0	1.5	25.0	1.21	.98
C122D1	221	400	8.0	1.5	25.0	1.36	1.11
C122E1	221	500	8.0	1.5	25.0	1.60	1.30
C122M1	221	600	8.0	1.5	25.0	2.00	1.63
S2800A	221	100	8.0	1.5	25.0	.89	.68
S2800B	221	200	8.0	1.5	25.0	.97	.76
S2800D	221	400	8.0	1.5	25.0	1.37	1.11
S2800M	221	600	8.0	1.5	25.0	2.06	1.58
S2800S	221	700	8.0	1.5	25.0	3.42	2.50
MCR72-1	221	25	8.0	1.5	0.2	.79	.61
MCR72-2	221	50	8.0	1.5	0.2	.81	.63
MCR72-3	221	100	8.0	1.5	0.2	.93	.67
MCR72-4	221	200	8.0	1.5	0.2	1.05	.75
MCR72-5	221	300	8.0	1.5	0.2	1.19	.85
MCR72-6	221	400	8.0	1.5	0.2	1.29	.92
MCR72-7	221	500	8.0	1.5	0.2	1.62	1.24
MCR72-8	221	600	8.0	1.5	0.2	2.03	1.45
2N6394	221	50	12.0	1.5	30.0	1.25	.82
2N6395	221	100	12.0	1.5	30.0	1.30	.85
2N6396	221	200	12.0	1.5	30.0	1.35	.94
2N6397	221	400	12.0	1.5	30.0	1.80	1.25
2N6398	221	600	12.0	1.5	30.0	2.81	2.37
2N6399	221	800	12.0	1.5	30.0	3.95	2.86
MCR220-5	221	300	12.0	1.5	30.0	1.65	1.18
MCR220-7	221	500	12.0	1.5	30.0	2.44	1.75
MCR220-9	221	700	12.0	1.5	30.0	3.45	2.50
2N6400	221	50	16.0	1.5	30.0	1.60	1.04
2N6401	221	100	16.0	1.5	30.0	1.80	1.15
2N6402	221	200	16.0	1.5	30.0	1.90	1.22
2N6403	221	400	16.0	1.5	30.0	2.57	1.63
2N6404	221	600	16.0	1.5	30.0	3.90	2.50
2N6405	221	800	16.0	1.5	30.0	5.94	3.96
MCR221-5	221	300	16.0	1.5	30.0	2.28	1.52
MCR221-7	221	500	16.0	1.5	30.0	3.27	2.18
MCR221-9	221	700	16.0	1.5	30.0	4.95	3.30
2N6504	221	50	25.0	1.5	40.0	1.97	1.43
2N6505	221	100	25.0	1.5	40.0	2.50	1.82
2N6506	221	200	25.0	1.5	40.0	3.37	2.45
2N6507	221	400	25.0	1.5	40.0	3.71	2.69
2N6508	221	600	25.0	1.5	40.0	4.77	3.46
2N6509	221	800	25.0	1.5	40.0	7.42	4.95

TRIGGER DEVICES

Ideal SCR or triac complements. Plastic case except Case 22, metal.

SILICON BIDIRECTIONAL SWITCH—SBS

Motorola Type	Case	V_S VDC	Maximum I_S μADC	Maximum I_H mADC	Net Ea., Lots 1-99	Net Ea., Lots 100-999
MBS4991	29	6.0–10	500	1.5	$0.56	$0.50
MBS4992	29	7.5–9	120	0.5	1.21	1.06

BILATERAL TRIGGER DIACS (CASE 182)

Specifications given are for both directions.

Motorola Type	Nom. V_S V	Max. I_S μA	Min. ΔV V	Max. I_B μA	Net Each, Lots of 1-99	Net Each, Lots of 100-999
1N5758	20 ± 4.0	100	5.0	10	$0.47	$0.41
1N5758A	20 ± 2.0	25	5.0	10	.52	.45
1N5759	24 ± 4.0	100	5.0	10	.85	.74
1N5759A	24 ± 2.0	25	5.0	10	.92	.80
1N5760	28 ± 4.0	100	7.0	10	.47	.41
1N5760A	28 ± 2.0	25	7.0	10	.85	.75
1N5761	32 ± 4.0	100	7.0	10	.47	.41
1N5761A	32 ± 2.0	25	7.0	10	.52	.46
1N5762	36 ± 4.0	100	7.0	10	.47	.41
1N5762A	36 ± 2.0	25	7.0	10	.85	.75

LARGER QUANTITY PRICES AVAILABLE ON REQUEST.

PRICES LISTED ARE FOR GUIDANCE ONLY

SILICON CONTROLLED RECTIFIERS (SCRs)—IN METAL CASE

Listed in order of on-state (rms) current.

Motorola Type	Case	V_{FOM} V_{ROM} V	I_T rms A	At 25° C V_{GT} V	At 25° C I_{GT} mA	Net Ea., Lots 1-99	Net Ea., Lots 100-999
MCR201	22	15	0.5	1.0	0.2	$0.80	$0.70
MCR202	22	30	0.5	1.0	0.2	.88	.78
MCR203	22	60	0.5	1.0	0.2	1.03	.91
MCR204	22	100	0.5	1.0	0.2	1.10	.97
MCR205	22	150	0.5	1.0	0.2	1.17	.92
MCR206	22	200	0.5	1.0	0.2	1.25	1.11
2N1595	79	50	1.6	3.0	10	1.32	1.16
2N1596	79	100	1.6	3.0	10	1.84	1.62
2N1597	79	200	1.6	3.0	10	2.53	2.22
2N1598	79	300	1.6	3.0	10	2.97	2.61
2N1599	79	400	1.6	3.0	10	7.01	6.14
2N2322	79	25	1.6	0.8	0.1	1.72	1.50
2N2323	79	50	1.6	0.8	0.1	2.10	1.84
2N2324	79	100	1.6	0.8	0.1	2.94	2.31
2N2325	79	150	1.6	0.8	0.1	3.85	3.37
2N2326	79	200	1.6	0.8	0.1	4.92	4.30
2N2327	79	250	1.6	0.8	0.1	6.89	6.01
2N2328	79	300	1.6	0.8	0.1	7.59	6.64
2N2329	79	400	1.6	0.8	0.1	10.00	8.75
2N4212	79	25	1.6	0.8	0.1	1.57	1.38
2N4213	79	50	1.6	0.8	0.1	1.88	1.65
2N4214	79	100	1.6	0.8	0.1	2.20	1.93
2N4215	79	150	1.6	0.8	0.1	2.90	2.54
2N4216	79	200	1.6	0.8	0.1	3.81	3.34
2N4217	79	250	1.6	0.8	0.1	4.30	3.76
2N4218	79	300	1.6	0.8	0.1	6.28	5.53
2N4219	79	400	1.6	0.8	0.1	9.24	8.20
MCR1906-1	79	25	1.6	1.0	1.0	1.35	1.18
MCR1906-2	79	50	1.6	1.0	1.0	1.43	1.25
MCR1906-3	79	100	1.6	1.0	1.0	1.63	1.43
MCR1906-4	79	200	1.6	1.0	1.0	1.77	1.56
MCR1906-5	79	300	1.6	1.0	1.0	3.74	3.28
MCR1906-6	79	400	1.6	1.0	1.0	5.58	4.88
2N4167	86	25	8.0	1.5	30	4.76	4.47
2N4168	86	50	8.0	1.5	30	4.83	4.53
2N4169	86	100	8.0	1.5	30	5.03	4.71
2N4170	86	200	8.0	1.5	30	5.16	4.84
2N4171	86	300	8.0	1.5	30	5.35	5.02
2N4172	86	400	8.0	1.5	30	5.68	5.34
2N4173	86	500	8.0	1.5	30	6.45	6.06
2N4174	86	600	8.0	1.5	30	7.79	7.32
2N4183	87L	25	8.0	1.5	30	4.74	4.46
2N4184	87L	50	8.0	1.5	30	4.80	4.49
2N4185	87L	100	8.0	1.5	30	4.98	4.69
2N4186	87L	200	8.0	1.5	30	5.13	4.81
2N4187	87L	300	8.0	1.5	30	5.32	5.01
2N4188	87L	400	8.0	1.5	30	5.67	5.32
2N4189	87L	500	8.0	1.5	30	6.44	6.05
2N4190	87L	600	8.0	1.6	30	7.76	7.28
2N3668	54	100	12.5	2.0	40	3.89	2.77
2N3669	54	200	12.5	2.0	40	5.15	3.10
2N3670	54	400	12.5	2.0	40	7.59	5.40
2N4103	54	600	12.5	2.0	40	10.71	7.29
2N1842	263	25	16	2.0	80	2.90	1.90
2N1843	263	50	16	2.0	80	3.00	1.95
2N1844	263	100	16	2.0	80	3.25	2.35
2N1845	263	150	16	2.0	80	3.79	2.75
2N1846	263	200	16	2.0	80	4.41	3.20
2N1847	263	250	16	2.0	80	5.05	3.65
2N1848	263	300	16	2.0	80	5.46	3.95
2N1849	263	400	16	2.0	80	6.49	4.70
2N1850	263	500	16	2.0	80	7.51	5.45
2N1842A	263	25	16	2.0	80	2.95	1.95
2N1843A	263	50	16	2.0	80	3.05	2.00
2N1844A	263	100	16	2.0	80	3.30	2.40
2N1845A	263	150	16	2.0	80	3.84	2.80
2N1846A	263	200	16	2.0	80	4.46	3.25
2N1847A	263	250	16	2.0	80	5.10	3.70
2N1848A	263	300	16	2.0	80	5.51	4.00
2N1849A	263	400	16	2.0	80	6.54	4.75
2N1850A	263	500	16	2.0	80	7.56	5.50
2N5164	310	50	20	1.5	40	2.60	1.79
2N5165	310	200	20	1.5	40	2.85	2.07
2N5166	310	400	20	1.5	40	3.75	2.72
2N5167	310	600	20	1.5	40	4.95	3.60
2N5168	263	50	20	1.5	40	2.94	2.15
2N5169	263	200	20	1.5	40	3.23	2.35
2N5170	263	400	20	1.5	40	4.08	2.96
2N5171	263	600	20	1.5	40	5.28	3.84
2N6167	311	100	20	1.5	40	3.83	2.75
2N6168	311	200	20	1.5	40	3.96	2.88
2N6169	311	400	20	1.5	40	5.23	3.80
2N6170	311	600	20	1.5	40	6.44	4.68
MCR649AP-1	54	25	20	3.5	40	4.09	2.86
MCR649AP-2	54	50	20	3.5	40	4.95	3.33
MCR649AP-3	54	100	20	3.5	40	6.20	4.13
MCR649AP-4	54	200	20	3.5	40	6.61	6.35
MCR649AP-5	54	300	20	3.5	40	8.00	5.72
MCR649AP-6	54	400	20	3.5	40	9.42	6.60
MCR649AP-7	54	500	20	3.5	40	11.13	7.87
MCR649AP-8	54	600	20	3.5	40	12.80	8.81
MCR649AP-9	54	700	20	3.5	40	14.05	9.69
MCR649AP-10	54	800	20	3.5	40	14.69	10.13

Motorola Type	Case	V_{FOM} V_{ROM} V	I_T rms A	At 25° C V_{GT} V	At 25° C I_{GT} mA	Net Ea., Lots 1-99	Net Ea., Lots 100-999
MCR3818-1	174	25	20	1.5	40	$2.17	$1.44
MCR3818-2	174	50	20	1.5	40	2.26	1.56
MCR3818-3	174	100	20	1.5	40	2.34	1.70
MCR3818-4	174	200	20	1.5	40	2.48	1.80
MCR3818-5	174	300	20	1.5	40	3.15	2.28
MCR3818-6	174	400	20	1.5	40	3.75	2.83
MCR3818-7	174	500	20	1.5	40	4.50	3.26
MCR3818-8	174	600	20	1.5	40	4.95	3.60
MCR3818-9	174	700	20	1.5	40	5.70	4.13
MCR3818-10	174	800	20	1.5	40	7.00	5.08
MCR3918-1	175	25	20	1.5	40	2.50	1.80
MCR3918-2	175	50	20	1.5	40	2.56	1.87
MCR3918-3	175	100	20	1.5	40	2.67	1.94
MCR3918-4	175	200	20	1.5	40	2.81	2.04
MCR3918-5	175	300	20	1.5	40	3.47	2.53
MCR3918-6	175	400	20	1.5	40	4.08	2.96
MCR3918-7	175	500	20	1.5	40	4.82	3.52
MCR3918-8	175	600	20	1.5	40	5.28	3.84
MCR3918-9	175	700	20	1.5	40	6.11	4.46
MCR3918-10	175	800	20	1.5	40	7.42	5.42
2N2573	61	25	25	3.5	40	4.13	3.33
2N2574	61	50	25	3.5	40	4.92	3.86
2N2575	61	100	25	3.5	40	6.00	5.09
2N2576	61	200	25	3.5	40	6.36	5.31
2N2577	61	300	25	3.5	40	7.57	6.03
2N2578	61	400	25	3.5	40	8.00	5.92
2N2579	61	500	25	3.5	40	9.35	6.97
MCR649-8	61	600	25	3.5	40	12.99	8.87
MCR649-9	61	700	25	3.5	40	14.28	9.76
MCR649-10	61	800	25	3.5	40	14.88	10.19
2N681	263	25	25	3.0	40	2.34	1.70
2N682	263	50	25	3.0	40	2.82	2.05
2N683	263	100	25	3.0	40	3.57	2.60
2N684	263	150	25	3.0	40	4.19	3.05
2N685	263	200	25	3.0	40	4.81	3.50
2N686	263	250	25	3.0	40	5.36	3.90
2N687	263	300	25	3.0	40	5.77	4.20
2N688	263	400	25	3.0	40	6.74	4.90
2N689	263	500	25	3.0	40	8.05	5.85
2N690	263	600	25	3.0	40	9.44	7.55
2N691	263	700	25	3.0	40	11.80	7.85
2N692	263	800	25	3.0	40	13.50	9.00
MCR3835-1	174	25	35	1.6	40	2.80	1.80
MCR3835-2	174	50	35	1.6	40	3.07	2.04
2N3870	174	100	35	1.6	40	3.63	2.60
2N3871	174	200	35	1.6	40	4.54	3.30
MCR3835-5	174	300	35	1.6	40	5.50	4.00
2N3872	174	400	35	1.6	40	5.94	4.32
MCR3835-7	174	500	35	1.6	40	6.71	4.88
2N3873	174	600	35	1.6	40	7.34	5.34
MCR3935-1	175	25	35	1.6	40	3.00	2.17
MCR3935-2	175	50	35	1.6	40	3.32	2.41
2N3896	175	100	35	1.6	40	3.96	2.88
2N3897	175	200	35	1.6	40	4.87	3.54
MCR3935-5	175	300	35	1.6	40	5.90	4.28
2N3898	175	400	35	1.6	40	6.27	4.56
MCR3935-7	175	500	35	1.6	40	7.00	5.10
2N3899	175	600	35	1.6	40	7.67	5.58
2N6171	311	100	35	1.6	40	4.50	3.08
2N6172	311	200	35	1.6	40	5.54	3.75
2N6173	311	400	35	1.6	40	7.43	5.38
2N6174	311	600	35	1.6	40	8.85	6.42
MCR63-1	310	25	55	3.0	40	4.78	4.06
MCR63-2	310	50	55	3.0	40	5.05	4.29
MCR63-3	310	100	55	3.0	40	5.32	4.53
MCR63-4	310	200	55	3.0	40	5.50	4.68
MCR63-5	310	300	55	3.0	40	5.68	4.83
MCR63-6	310	400	55	3.0	40	6.21	5.28
MCR63-7	310	500	55	3.0	40	6.92	5.88
MCR63-8	310	600	55	3.0	40	7.91	6.72
MCR63-9	310	700	55	3.0	40	9.25	7.86
MCR63-10	310	800	55	3.0	40	10.83	9.21
MCR64-1	263	25	55	3.0	40	5.16	4.39
MCR64-2	263	50	55	3'0	40	5.42	4.61
MCR64-3	263	100	55	3.0	40	5.70	4.84
MCR64-4	263	200	55	3.0	40	5.87	4.99
MCR64-5	263	300	55	3.0	40	6.06	5.15
MCR64-6	263	400	55	3.0	40	6.58	5.59
MCR64-7	263	500	55	3.0	40	7.30	6.20
MCR64-8	263	600	55	3.0	40	8.53	7.25
MCR64-9	263	700	55	3.0	40	9.87	8.39
MCR64-10	263	800	55	3.0	40	11.21	9.53
MCR65-1	311	25	55	3.0	40	5.78	4.91
MCR65-2	311	50	55	3.0	40	6.05	5.14
MCR65-3	311	100	55	3.0	40	6.33	5.38
MCR65-4	311	200	55	3.0	40	6.50	5.53
MCR65-5	311	300	55	3.0	40	6.69	5.69
MCR65-6	311	400	55	3.0	40	7.21	6.13
MCR65-7	311	500	55	3.0	40	7.93	6.74
MCR65-8	311	600	55	3.0	40	9.16	7.79
MCR65-9	311	700	55	3.0	40	10.50	8.93
MCR65-10	311	800	55	3.0	40	11.83	10.06

SILICON BIDIRECTIONAL THYRISTORS (TRIACS)

METAL CASE

Motorola Type	Case	V_{BOM} V	I_T rms A	At 25° C I_{GT} mA	At 25° C V_{GT} V	Net Ea., Lots 1-99	Net Ea., Lots 100-999
SC246B	174	200	10	50	2.5	$2.80	$1.98
SC246D	174	400	10	50	2.5	3.35	2.37
SC246E	174	500	10	50	2.5	4.08	2.89
SC246M	174	600	10	50	2.5	4.40	2.98
SC245B	175	200	10	50	2.5	3.09	2.19
SC245D	175	400	10	50	2.5	3.65	2.59
SC245E	175	500	10	50	2.5	4.00	2.80
2N5567	174	200	10.0	40	2.5	3.05	2.22
2N5568	174	400	10.0	40	2.5	3.66	2.66
2N5569	175	200	10.0	40	2.5	3.38	2.46
2N5570	175	400	10.0	40	2.5	3.99	2.90
SC245M	175	600	10.0	40	2.5	4.73	3.19
T4121B	235	200	10.0	40	2.5	3.63	2.80
T4121D	235	400	10.0	40	2.5	4.12	3.17
T4121M	235	600	10.0	40	2.5	4.85	3.75
2N5571	174	200	15.0	50†	2.5†	3.25	2.36
2N5572	174	400	15.0	50†	2.5†	3.89	2.83
SC251B	174	200	15	50	2.5	2.97	2.10
SC251D	174	400	15	50	2.5	3.55	2.51
SC251E	174	500	15	50	2.5	4.33	3.06
SC251M	174	600	15.0	50†	2.5†	4.68	3.16
2N5573	175	200	15.0	50†	2.5†	3.58	2.60
2N5574	175	400	15.0	50†	2.5†	4.22	3.07
SC250B	175	200	15	50	2.5	3.28	2.32
SC250D	175	400	15	50	2.5	3.85	2.72
SC250E	175	500	15	50	2.5	3.94	2.78
SC250M	175	600	15.0	50†	2.5†	4.90	3.37
2N6145	311	200	15.0	50†	2.5†	4.73	3.44
2N6146	311	400	15.0	50†	2.5†	5.37	3.91
2N6147	311	600	15.0	50†	2.5†	6.35	4.62
T4120B	235	200	15	50	2.5	3.79	3.10
T4120D	235	400	15	50	2.5	4.30	3.32
T4120M	235	600	15	50	2.5	5.08	3.92
MAC20-4	326	200	25	50	2.0	6.07	5.31
MAC20-5	326	300	25	50	2.0	6.33	5.54
MAC20-6	326	400	25	50	2.0	6.78	5.94
MAC20-7	326	500	25	50	2.0	7.17	6.27
MAC20-8	326	600	25	50	2.0	7.57	6.62
MAC20-9	326	700	25	50	2.0	9.50	8.31
MAC20-10	326	800	25	50	2.0	11.76	10.29
MAC20A4	326	200	25	50	2.0	6.37	5.57
MAC20A5	326	300	25	50	2.0	6.78	5.94
MAC20A6	326	400	25	50	2.0	7.37	6.45
MAC20A7	326	500	25	50	2.0	7.55	6.61
MAC20A8	326	600	25	50	2.0	7.96	6.96
MAC20A9	326	700	25	50	2.0	9.90	8.66
MAC20A10	326	800	25	50	2.0	12.10	10.59
MAC25-4	326	200	25	70	2.0	6.78	5.94
MAC25-5	326	300	25	70	2.0	7.10	6.21
MAC25-6	326	400	25	70	2.0	7.43	6.50
MAC25-7	326	500	25	70	2.0	8.04	7.04
MAC25-8	326	600	25	70	2.0	8.35	7.31
MAC25-9	326	700	25	70	2.0	10.31	9.02
MAC25-10	326	800	25	70	2.0	12.57	11.00
MAC25A4	326	200	25	70	2.0	$7.10	$6.21
MAC25A5	326	300	25	70	2.0	7.43	6.50
MAC25A6	326	400	25	70	2.0	7.74	6.77
MAC25A7	326	500	25	70	2.0	8.36	7.31
MAC25A8	326	600	25	70	2.0	8.68	7.60
MAC25A9	326	700	25	70	2.0	10.64	9.31
MAC25A10	326	800	25	70	2.0	12.88	11.27
T6411B	263	200	30	50	2.5	3.88	3.00
T6411D	263	400	30	50	2.5	4.59	3.55
T6411M	263	600	30	50	2.5	5.68	4.38
T6421B	311	200	30	50	2.5	4.80	3.71
T6421D	311	400	30	50	2.5	5.52	4.26
T6421M	311	600	30	50	2.5	6.60	5.10
T6401B	310	200	30	50	2.5	3.61	2.79
T6401D	310	400	30	50	2.5	4.32	3.34
T6401M	310	600	30	50	2.5	5.41	4.18
T6400B	310	200	30	50	2.5	4.30	3.45
T6400D	310	400	30	50	2.5	5.30	3.98
T6400M	310	600	30	50	2.5	6.10	4.58
2N6157	310	200	30.0	60§	2.0§	3.29	2.74
2N6158	310	400	30.0	60§	2.0§	3.94	3.28
2N6159	310	600	30.0	60§	2.0§	5.00	4.17
2N6160	263	200	30.0	60§	2.0§	4.85	3.88
2N6161	263	400	30.0	60§	2.0§	5.74	4.59
2N6162	263	600	30.0	60§	2.0§	7.09	5.67
2N6163	311	200	30.0	60§	2.0§	6.00	4.80
2N6164	311	400	30.0	60§	2.0§	6.90	5.52
2N6165	311	600	30.0	60§	2.0§	8.25	6.60
T6410B	263	200	40	50	2.5	4.90	3.68
T6410D	263	400	40	50	2.5	5.60	4.20
T6410M	263	600	40	50	2.5	6.40	4.80
2N5441	310	200	40.0	70•	2.0•	5.64	4.10
2N5442	310	400	40.0	70•	2.0•	6.77	4.92
2N5443	310	600	40.0	70•	2.0•	8.46	6.16
2N5444	263	200	40.0	70•	2.0•	5.97	4.34
2N5445	263	400	40.0	70•	2.0•	7.10	5.16
2N5446	263	600	40.0	70•	2.0•	8.79	6.40
T6420B	311	200	40.0	70•	2.0•	5.70	4.40
T6420D	311	400	40.0	70•	2.0•	6.60	5.10
T6420M	311	600	40.0	70•	2.0•	7.96	6.15
T6420N	311	800	40	70	2.0	10.37	9.06
MAC50-4	326	200	40	70	2.0	7.16	6.26
MAC50-5	326	300	40	70	2.0	7.40	6.47
MAC50-6	326	400	40	70	2.0	7.86	6.87
MAC50-7	326	500	40	70	2.0	8.40	7.35
MAC50-8	326	600	40	70	2.0	8.71	7.62
MAC50-9	326	700	40	70	2.0	10.74	9.40
MAC50-10	326	800	40	70	2.0	13.00	11.37
MAC50A4	326	200	40	70	2.0	7.41	6.49
MAC50A5	326	300	40	70	2.0	7.64	6.69
MAC50A6	326	400	40	70	2.0	8.06	7.05
MAC50A7	326	500	40	70	2.0	8.71	7.62
MAC50A8	326	600	40	70	2.0	9.04	7.91
MAC50A9	326	700	40	70	2.0	11.07	9.69
MAC50A10	326	800	40	70	2.0	13.31	11.65

†I_{GT} = 80 mA, V_{GT} = 2.5 V. §I_{GT} = 70 mA, V_{GT} = 2.1 V; I_{GT} = 100 mA, V_{GT} = 2.5 V. •I_{GT} = 100 mA, V_{GT} = 2.5 V.

PULSE MODULATOR SCRs

I_{GT} = 50 mA, V_{GT} = 1.5 volts at 25° C.

100 A (PULSE)—CASE 63

Motorola Type	Case	V_{FOM} V_{ROM} V	At 25°C I_H mA	Net Each, Lots of 1-99	Net Each, Lots of 100-999
2N4199*	63	300	3†	$51.16	$47.96
2N4200*	63	400	3†	71.48	67.01
2N4201*	63	500	3†	88.75	83.26
2N4202*	63	600	3†	114.43	107.27
2N4203*	63	700	3†	133.72	125.36
2N4204*	63	800	3†	158.28	148.38
MCR729-5	63	300	25‡	40.34	37.82
MCR729-6	63	400	25‡	45.20	42.35
MCR729-7	63	500	25‡	56.51	52.93
MCR729-8	63	600	25‡	64.56	60.50
MCR729-9	63	700	25‡	72.60	63.52
MCR729-10	63	800	25‡	85.91	80.17

1000 A (PULSE)

Motorola Type	Case	V_{FOM} V_{ROM} V	At 25°C I_H mA	Net Each, Lots of 1-99	Net Each, Lots of 100-999
MCR1718-5	263	300	15‡	$29.32	$25.99
MCR1718-6	263	400	15‡	34.50	30.59
MCR1718-7	263	500	15‡	43.12	38.24
MCR1718-8	263	600	15‡	51.75	45.88

*JAN type available. †Minimum. ‡Typical.

HIGH VOLTAGE DIODES

Motorola Type	Case	V_{RRM} Volts	I_{FSM} Amps	Net Each, Lots of 1-24	Net Each, Lots of 25-99
1 AMP RATING					
MR1-1000	59	1000	30	$0.27	$0.23
MR1-1200	59	1200	30	.40	.34
MR1-1400	59	1400	30	.56	.48
MR1-1600	59	1600	30	.76	.65

Case 29

Case 77

Case 263

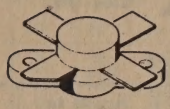
Case 310

Case 235

Case 311

Case 63

Case 174


Case 211-01

Case 175

SILICON BIDIRECTIONAL THYRISTORS (TRIACS)

PLASTIC CASE

Motorola Type	Case	V_{BOM} V	I_T rms A	At 25° C I_{GT} mA	At 25° C V_{GT} V	Net Ea., Lots 1-99	Net Ea., Lots 100-999
MAC92-1	29	30	0.6	5	2.0	$0.44	$0.39
MAC92-2	29	60	0.6	5	2.0	.47	.41
MAC92-3	29	100	0.6	5	2.0	.49	.43
MAC92-4	29	200	0.6	5	2.0	.51	.45
MAC92-5	29	300	0.6	5	2.0	.96	.84
MAC92-6	29	400	0.6	5	2.0	1.04	.91
MAC92-7	29	500	0.6	5	2.0	1.63	1.42
MAC92-8	29	600	0.6	5	2.0	2.47	2.16
MAC92A1	29	25	0.6	5	2.0	.50	.44
MAC92A2	29	50	0.6	5	2.0	.51	.45
MAC92A3	29	100	0.6	5	2.0	.54	.48
MAC92A4	29	200	0.6	5	2.0	.57	.50
MAC92A5	29	300	0.6	5	2.0	1.00	.88
MAC92A6	29	400	0.6	5	2.0	1.09	.95
MAC92A7	29	500	0.6	5	2.0	1.66	1.45
MAC92A8	29	600	0.6	5	2.0	2.51	2.20
T2300PF	77	50	2.5	3	2.2	.72	.61
T2300PA	77	100	2.5	3	2.2	.75	.65
T2300PB	77	200	2.5	3	2.2	.80	.69
T2300PC	77	300	2.5	3	2.2	.95	.82
T2300PD	77	400	2.5	3	2.2	.99	.86
T2300PE	77	500	2.5	3	2.2	1.64	1.42
T2300PM	77	600	2.5	3	2.2	1.99	1.73
T2301PF	77	50	2.5	4	2.2	.67	.57
T2301PA	77	100	2.5	4	2.2	.72	.62
T2301PB	77	200	2.5	4	2.2	.78	.68
T2301PC	77	300	2.5	4	2.2	.90	.78
T2301PD	77	400	2.5	4	2.2	.96	.83
T2301PE	77	500	2.5	4	2.2	1.57	1.36
T2301PM	77	600	2.5	4	2.2	1.93	1.68
T2302PF	77	50	2.5	10	2.2	.62	.54
T2302PA	77	100	2.5	10	2.2	.65	.56
T2302PB	77	200	2.5	10	2.2	.73	.63
T2302PC	77	300	2.5	10	2.2	.88	.76
T2302PD	77	400	2.5	10	2.2	.91	.80
T2302PE	77	500	2.5	10	2.2	1.53	1.33
T2302PM	77	600	2.5	10	2.2	1.53	1.34
SC136A	77	100	2.5	25	2.0	.64	.53
SC136B	77	200	2.5	25	2.0	.67	.54
SC136C	77	300	2.5	25	2.0	.74	.55
SC136D	77	400	2.5	25	2.0	.80	.60
SC136E	77	500	2.5	25	2.0	1.07	.80
SC136M	77	600	2.5	25	2.0	1.27	.95
2N6068	77	25	4.0	60	2.5*	.62	.50
2N6069	77	50	4.0	60	2.5*	.68	.55
2N6070	77	100	4.0	60	2.5*	.79	.64
2N6071	77	200	4.0	60	2.5*	.85	.69
2N6072	77	300	4.0	60	2.5*	.89	.73
2N6073	77	400	4.0	60	2.5*	.92	.75
2N6074	77	500	4.0	60	2.5*	1.42	1.15
2N6075	77	600	4.0	60	2.5*	1.71	1.39
2N6068A	77	25	4.0	5	2.0	.75	.61
2N6069A	77	50	4.0	5	2.0	.80	.65
2N6070A	77	100	4.0	5	2.0	.85	.69
2N6071A	77	200	4.0	5	2.0	.89	.73
2N6072A	77	300	4.0	5	2.0	1.11	.90
2N6073A	77	400	4.0	5	2.0	1.19	.97
2N6074A	77	500	4.0	5	2.0	1.96	1.59
2N6075A	77	600	4.0	5	2.0	2.42	1.96
2N6068B	77	25	4.0	3	2.5	.85	.69
2N6069B	77	50	4.0	3	2.5	.89	.73
2N6070B	77	100	4.0	3	2.5	1.05	.86
2N6071B	77	200	4.0	3	2.5	1.13	.92
2N6072B	77	300	4.0	3	2.5	1.24	1.08
2N6073B	77	400	4.0	3	2.5	1.39	1.14
2N6074B	77	500	4.0	3	2.5	2.30	1.87
2N6075B	77	600	4.0	3	2.5	2.79	2.27
SC141B	221	200	6.0	50	2.5	1.20	.85
SC141D	221	400	6.0	50	2.5	1.35	.98
SC141E	221	500	6.0	50	2.5	1.90	1.41
SC141M	221	600	6.0	50	2.5	2.50	1.83
T2500B	221	200	6.0	50	2.5	1.25	.88
T2500D	221	400	6.0	50	2.5	1.40	1.01
T2500E	221	500	6.0	50	2.5	$1.95	$1.44
T2500M	221	600	6.0	50	2.5	2.55	1.86
T2500S	221	700	6.0	50	2.5	3.40	2.80
T2500N	221	800	6.0	50	2.5	2.95	2.30
MAC222A-1	221	25	8.0	50	2.0	.80	.55
MAC222A-2	221	50	8.0	50	2.0	.89	.56
MAC222A-3	221	100	8.0	50	2.0	.99	.66
MAC222A-4	221	200	8.0	50	2.0	1.08	.73
MAC222A-5	221	300	8.0	50	2.0	1.14	.79
MAC222A-6	221	400	8.0	50	2.0	1.22	.86
MAC222A-7	221	500	8.0	50	2.0	1.72	1.25
MAC222A-8	221	600	8.0	50	2.0	2.25	1.64
MAC222A-9	221	700	8.0	50	2.0	2.60	2.10
MAC222A-10	221	800	8.0	50	2.0	3.10	2.70
MAC222-1	221	25	8.0	50	2.0	.78	.53
MAC222-2	221	50	8.0	50	2.0	.87	.54
MAC222-3	221	100	8.0	50	2.0	.97	.64
MAC222-4	221	200	8.0	50	2.0	1.06	.71
MAC222-5	221	300	8.0	50	2.0	1.12	.77
MAC222-6	221	400	8.0	50	2.0	1.20	.84
MAC222-7	221	500	8.0	50	2.0	1.70	1.22
MAC222-8	221	600	8.0	50	2.0	2.22	1.59
MAC222-9	221	700	8.0	50	2.0	2.56	2.00
MAC222-10	221	800	8.0	50	2.0	3.06	2.61
SC146B	221	200	8.0	50	2.5	1.42	1.06
SC146C	221	300	8.0	50	2.5	1.50	1.10
SC146D	221	400	8.0	50	2.5	1.75	1.30
SC146E	221	500	8.0	50	2.5	2.50	1.87
SC146M	221	600	8.0	50	2.5	3.10	2.32
MAC220-2	221	50	8.0	.....		.95	.91
MAC220-3	221	100	8.0	.....		1.00	.93
MAC220-5	221	300	8.0	.....		1.25	1.06
MAC220-7	221	500	8.0	.....		1.60	1.15
MAC220-9	221	700	8.0	.....		2.80	1.98
MAC221-2	221	50	8.0	.....		1.04	.93
MAC221-3	221	100	8.0	.....		1.10	.95
MAC221-5	221	300	8.0	.....		1.38	1.13
MAC221-7	221	500	8.0	.....		1.68	1.28
MAC221-9	221	700	8.0	.....		3.00	2.13
2N6342	221	200	8.0	50	2.0	1.10	1.00
2N6343	221	400	8.0	50	2.0	1.45	1.21
2N6344	221	600	8.0	50	2.0	2.00	1.70
2N6345	221	800	8.0	50	2.0	3.80	3.24
2N6346	221	200	8.0	75	2.5	1.30	1.11
2N6347	221	400	8.0	75	2.5	1.55	1.33
2N6348	221	600	8.0	75	2.5	2.10	1.85
2N6349	221	800	8.0	75	2.5	4.00	3.45
2N6342A	221	200	12.0	50	2.0	1.40	1.16
2N6343A	221	400	12.0	50	2.0	1.70	1.43
2N6344A	221	600	12.0	50	2.0	2.30	1.96
2N6345A	221	800	12.0	50	2.0	4.25	3.61
2N6346A	221	200	12.0	75	2.5	1.50	1.28
2N6347A	221	400	12.0	75	2.5	1.80	1.54
2N6348A	221	600	12.0	75	2.5	2.50	2.13
2N6349A	221	800	12.0	75	2.5	4.50	3.83
MAC15-4	221	200	25	50	2.0	2.18	1.68
MAC15-6	221	400	25	50	2.0	2.61	2.01
MAC15-8	221	600	25	50	2.0	3.12	2.40
MAC15-10	221	800	25	50	2.0	3.28	2.54
MAC15A4	221	200	25	50	2.0	2.29	1.76
MAC15A6	221	400	25	50	2.0	2.74	2.11
MAC15A8	221	600	25	50	2.0	3.28	2.53
MAC15A10	221	800	25	50	2.0	3.44	2.66

*I_{GT} = 75 mA, V_{GT} = 2.5 V.

MIL-M-38510 MICROCIRCUITS AVAILABLE ON MANY DEVICE TYPES

MOTOROLA Semiconductors

SILICON POWER TRANSISTORS

Case 11
Case 197

Case 80

Case 90

Case 31

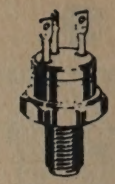
Case 77

Case 152

Case 221A

Case 306

Case 79


Case 160

SILICON POWER TRANSISTORS

Listed in order of I_C Cont. and BV_{CEO}. P_D at 25° C.

Motorola Type	Case	hFE at IC Min.-Max.	A	BVCEO Volts	PD W	Max. IC Cont. Amps	Net Each 1-99	Net Each 100-999
NPN								
D40N1	306	30–90	0.02	250	6.25	0.1	$0.82	$0.61
D40N2	306	60–180	0.02	250	6.25	0.1	.88	.65
D40N3	306	30–90	0.02	300	6.25	0.1	.95	.70
D40N4	306	60–180	0.02	300	6.25	0.1	1.01	.75
MJE3440	77	40–160	0.02	250	15	0.3	.76	.56
MJE3439	77	40–160	0.02	350	15	0.3	.90	.67
D40C1	306	10K–60K	0.2	30	6.25	0.5	.58	.43
D40C2	306	40K min.	0.2	30	6.25	0.5	.82	.61
D40C4	306	10K–60K	0.2	40	6.25	0.5	.66	.49
D40C5	306	40K min.	0.2	40	6.25	0.5	.95	.70
MPSU31	152	30 min.	0.03	65	10	0.5	1.01	.75
D40P1	306	40 min.	0.08	120	6.25	0.5	.86	.64
2N6591	306	40–200	0.1	150	10	0.5	.81	.60
D40P3	306	40 min.	0.08	180	6.25	0.5	.96	.71
MJE341	77	25–200	0.05	150	20.8	0.5	.85	.63
MJE344	77	30–300	0.05	200	20.8	0.5	.89	.66
2N6592	306	30–200	0.1	200	10	0.5	.90	.67
D40P5	306	40 min.	0.08	225	6.25	0.5	1.16	.86
2N5655	77	30–250	0.1	250	20	0.5	.95	.70
2N6557	306	40–180	0.03	250	10	0.5	1.31	.97
2N6593	306	30–200	0.1	250	10	0.5	1.00	.74
MDS20	306	40–250	0.03	250	10	0.5	.74	.55
MJE340	77	30–240	0.05	300	20.8	0.5	1.07	.79
MDS21	306	40–250	0.03	300	10	0.5	.81	.60
2N6558	306	40–180	0.03	300	10	0.5	.81	.60
MPSU10	152	30 min.	0.03	300	10	0.5	.84	.62
MJE340	77	30–240	0.05	300	20.8	0.5	1.07	.79
2N5656	77	30–250	0.1	300	20	0.5	1.11	.82
2N6559	306	40–180	0.03	350	10	0.5	.60	.42
2N5657	77	30–250	0.1	350	20	0.5	1.31	.97
MJE-2360T	221A	15 min.	0.1	350	30	0.5	1.08	.80
MJE-2361T	221A	40 min.	0.1	350	30	0.5	1.42	1.05
MPSU02	152	30 min.	0.5	40	10	0.8	.72	.53
D40D1	79	10 min.	1.0	30	10	1.0	.58	.43
D40D2	79	20 min.	1.0	30	10	1.0	.73	.54
TIP29	221A	15–75	1.0	40	30	1.0	.55	.41
2N4921	77	20–100	0.5	40	30	1.0	1.16	.86
D40D4	306	10 min.	1.0	45	10	1.0	.69	.51
D40D5	306	10 min.	1.0	45	10	1.0	.80	.59
D40D7	306	10 min.	1.0	60	10	1.0	.77	.57
D40D8	306	10 min.	1.0	60	10	1.0	.86	.64
2N6551	306	25 min.	0.5	60	10	1.0	.68	.50
TIP29A	221A	15–75	1.0	60	30	1.0	.59	.44
2N4922	77	20–100	0.5	60	30	1.0	1.35	1.00
D40D10	306	10 min.	1.0	75	10	1.0	.92	.68
D40D11	306	10 min.	1.0	75	10	1.0	.96	.71
D40D13	306	50–150	0.1	75	10	1.0	.77	.57
D40D14	306	50–150	0.1	75	10	1.0	.96	.71
2N4923	77	20–100	0.5	80	30	1.0	1.55	1.15
2N3019	79	50 min.	0.5	80	5	1.0	.73	.49
2N3020	79	30–100	0.5	80	5	1.0	3.80	2.70
2N4912	80	20–100	0.5	80	25	1.0	1.28	.85
2N6552	306	25 min.	0.5	80	10	1.0	.74	.55
TIP29B	221A	15–75	1.0	80	30	1.0	.64	.48
2N5681	79	40–150	0.25	100	10	1.0	1.20	.93
2N6553	306	25 min.	0.5	100	10	1.0	.81	.60
TIP29C	221A	15–75	1.0	100	30	1.0	.70	.52
MPSU03	152	40 min.	0.01	120	10	1.0	.81	.60
2N3583	80	40–200	0.5	175	35	1.0	1.09	.81
MPSU04	152	40 min.	0.01	180	10	1.0	.85	.63
2N3738	80	40–200	0.1	225	20	1.0	1.54	1.14
2N3440	79	40–160	0.02	250	5	1.0	.90	.60
TIP47	221A	30–150	0.3	250	40	1.0	.85	.63
TIP48	221A	30–150	0.3	300	40	1.0	.90	.67
2N3739	80	40–200	0.1	300	20	1.0	1.94	1.44
2N3439	79	40–160	0.02	350	5	1.0	1.09	.70
TIP49	221A	30–150	0.3	350	40	1.0	.95	.71
TIP50	221A	30–150	0.3	400	40	1.0	1.11	.82
2N3734	79	30–120	1.0	50	4	1.5	2.45	1.75
2N3735	79	20–80	1.0	75	4	1.5	.84	.60
MJ4360	80	5–25	1.0	300	40	1.5	1.28	.95
MJE13002	77	5–25	1.0	300	40	1.5	1.15	.85
MJ4361	80	5–25	1.0	400	40	1.5	1.55	1.15
MJE13003	77	5–25	1.0	400	40	1.5	1.44	1.07
MPSU01	152	50 min.	1.0	30	10	2.0	.68	.50
D40E1	306	10 min.	1.0	30	8	2.0	.62	.46
D40K1	306	1K min.	1.5	30	10	2.0	.76	.56
D40K3	306	1K min.	1.0	30	10	2.0	.78	.58
2N5859	79	30–120	0.5	40	5	2.0	1.08	.72
MPSU01A	152	50 min.	1.0	40	10	2.0	.74	.55

Motorola Type	Case	hFE at IC Min.-Max.	A	BVCEO Volts	PD W	Max. IC Cont. Amps	Net Each 1-99	Net Each 100-999
NPN CONTINUED								
MPSU45	152	4K min.	1.0	40	10	2.0	$0.85	$0.63
2N6548	306	5K min.	1.0	40	10	2.0	.92	.68
2N6549	306	3K min.	1.0	40	10	2.0	.78	.58
D40K2	306	1K min.	1.5	50	10	2.0	.86	.64
D40K4	306	1K min.	1.0	50	10	2.0	.88	.65
2N5861	79	25–120	0.5	60	5	2.0	1.75	1.17
MPSU05	152	60 min.	0.25	60	10	2.0	.68	.50
D40E5	306	10 min.	1.0	60	8	2.0	.80	.59
TIP110	221A	500 min.	2.0	60	50	2.0	.93	.69
MPSU06	152	60 min.	0.25	80	10	2.0	.74	.55
D40E7	306	10 min.	1.0	80	8	2.0	.96	.71
TIP111	221A	500 min.	2.0	80	50	2.0	.97	.72
MM3007	79	50–250	0.25	100	8	2.0	2.80	2.05
MPSU07	152	30 min.	0.25	100	10	2.0	.81	.60
TIP112	221A	500 min.	2.0	100	50	2.0	1.03	.77
2N5050	80	25–100	0.75	125	40	2.0	2.36	1.75
2N5051	80	25–100	0.75	150	40	2.0	3.04	2.25
2N5052	80	25–100	0.75	200	40	2.0	3.38	2.50
2N3584	80	25–100	1.0	250	35	2.0	1.60	1.17
2N3585	80	25–100	1.0	300	35	2.0	1.65	1.22
MJE-12007	221A	1.1 min.	2.0	750	65	2.5	3.04	2.55
BU204	11	2 min.	2.0	1300	36	2.5	2.70	2.00
BU205	11	2 min.	2.0	1500	36	2.5	3.85	2.85
MJ12002	11	1.1 min.	2.0	1500	75	2.5	3.31	2.45
MJE520	77	25 min.	1.0	30	25	3.0	.86	.64
MDS26	306	30 min.	1.0	40	10	3.0	.81	.60
MJE180	77	50–250	0.1	40	12.5	3.0	.70	.52
MJE31	77	25 min.	1.0	40	40	3.0	.69	.51
TIP31	221A	25 min.	1.0	40	40	3.0	.63	.47
2N3506	79	40–200	1.5	60	5	3.0	13.30	9.50
MDS27	306	30 min.	1.0	60	10	3.0	.88	.65
MJE181	77	50–250	0.1	60	12.5	3.0	.73	.54
MJE31A	77	25 min.	1.0	60	40	3.0	.72	.53
TIP31A	221A	25 min.	1.0	60	40	3.0	.67	.50
MJE182	77	50–250	0.1	80	12.5	3.0	.80	.59
MJE31B	77	25 min.	1.0	80	40	3.0	.77	.57
TIP31B	221A	25 min.	1.0	80	40	3.0	.72	.54
2N3507	79	40–200	1.5	80	5	3.0	15.05	10.75
2N3441	80	25–100	0.5	100	25	3.0	1.00	.75
MJE31C	77	25 min.	1.0	100	40	3.0	.82	.61
TIP31C	221A	25 min.	1.0	100	40	3.0	.78	.58
2N5838	11	8–40	3.0	250	100	3.0	1.96	1.45
2N5839	11	10–50	2.0	275	100	3.0	2.16	1.60
2N5840	11	10–50	2.0	350	100	3.0	2.43	1.80
2N3902	11	30–90	1.0	325	100	3.5	4.73	3.50
MJE3300	77	1K min.	1.0	40	15	4.0	1.08	.80
2N5190	77	25–100	1.5	40	40	4.0	1.04	.77
2N6037	77	750–18K	2.0	40	40	4.0	1.38	1.02
MJE521	77	40 min.	1.0	40	40	4.0	1.11	.82
2N6121	221A	25–100	1.5	45	40	4.0	.67	.50
2N3054	80	25–100	0.5	60	75	4.0	1.17	.87
2N3054A	80	25–100	0.5	60	75	4.0	1.15	.85
2N3766	80	40–160	0.5	60	20	4.0	1.49	1.10
MJE3301	77	1K min.	1.0	60	15	4.0	1.23	.91
2N5191	77	25–100	1.5	60	40	4.0	1.22	.90
MJE800	77	750 min.	1.5	60	40	4.0	1.20	.89
2N6122	221A	25–100	1.5	60	40	4.0	.74	.55
2N6294	80	750–18K	2.0	60	50	4.0	1.62	1.20
MJE801	77	750 min.	2.0	60	40	4.0	1.32	.98
2N6038	77	750–18K	2.0	60	40	4.0	1.53	1.13
MJE800T	221A	750 min.	1.5	60	40	4.0	1.04	.77
MJE801T	221A	750 min.	2.0	60	40	4.0	1.19	.88
2N6039	77	750–18K	2.0	80	40	4.0	1.78	1.32
MJE803	77	750 min.	2.0	80	40	4.0	1.59	1.18
MJE802T	221A	750 min.	1.5	80	40	4.0	1.22	.90
MJE803T	221A	750 min.	2.0	80	40	4.0	1.42	1.05
MJE241	77	40–120	0.2	80	15	4.0	1.23	.91
2N4912	80	20–100	0.5	80	25	4.0	1.28	.95
2N3767	80	40–160	0.5	80	20	4.0	1.70	1.25
MJE3302	77	1K min.	1.0	80	15	4.0	1.38	1.02
2N5192	77	25–100	1.5	80	40	4.0	1.42	1.05
MJE802	77	750 min.	1.5	80	40	4.0	1.39	1.03
2N6123	221A	20–80	1.5	80	40	4.0	.79	.59
2N6295	80	750–18K	2.0	80	50	4.0	1.76	1.30
MJE243	77	40–120	0.2	100	15	4.0	1.38	1.02
MJ4380	80	8–40	2.0	300	75	4.0	1.96	1.45
MJE-13004	221A	6–30	3.0	300	60	4.0	1.82	1.35

POWER TRANSISTOR LISTING CONTINUED ON NEXT PAGE

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SILICON POWER TRANSISTORS (Cont'd)

For illustrations, see previous page.

Motorola Type	Case	hFE at IC Min.-Max.	hFE at IC A	BVCEO Volts	PD W	Max. IC Cont. Amps	Net Each 1-99	Net Each 100-999
NPN (CONTINUED)								
MJ4381	80	8–40	2.0	400	75	4.0	$2.43	$1.80
MJE-13005	221A	6–30	3.0	400	60	4.0	2.30	1.70
MJE200	77	45–180	2.0	25	15	5.0	.95	.70
2N5067	11	20–180	1.0	40	87.5	5.0	1.08	.80
2N4231A	80	25–100	1.5	40	75	5.0	1.11	.82
2N5977	90	20–120	2.5	40	75	5.0	1.69	1.25
2N4904	11	25–100	2.5	40	87.5	5.0	1.69	1.25
MJE205	90	25–100	2.0	50	65	5.0	1.96	1.45
2N5068	11	20–180	1.0	60	87.5	5.0	1.22	.90
2N4232A	80	25–100	1.5	60	75	5.0	1.28	.95
2N5978	90	25–100	2.5	60	75	5.0	1.92	1.42
2N4914	11	25–100	2.5	60	87.5	5.0	1.42	1.05
MJE1100	90	750 min.	3.0	60	70	5.0	2.07	1.53
MJE1101	90	750 min.	4.0	60	70	5.0	2.23	1.65
TIP120	221A	1K min.	3.0	60	65	5.0	1.16	.86
TIP121	221A	1K min.	3.0	80	65	5.0	1.30	.96
2N5069	11	20–180	1.0	80	87.5	5.0	1.35	1.00
2N4233A	80	25–100	1.5	80	75	5.0	1.60	1.20
2N5336	79	30–120	2.0	80	10	5.0	4.86	3.60
2N5337	79	60–240	2.0	80	10	5.0	5.74	4.25
2N5979	90	20–120	2.5	80	75	5.0	2.30	1.70
2N4915	11	25–100	2.5	80	87.5	5.0	1.62	1.20
MJE1102	90	750 min.	3.0	80	70	5.0	2.46	1.82
MJE1103	90	750 min.	4.0	80	70	5.0	2.69	1.99
2N5338	79	30–120	2.0	100	10	5.0	6.21	4.60
2N5339	79	60–240	2.0	100	10	5.0	6.82	5.05
TIP122	221A	1K min.	3.0	100	75	5.0	1.49	1.10
2N4347	11	15–60	2.0	120	100	5.0	1.40	1.02
MJ410	11	30–90	1.0	200	100	5.0	2.50	1.85
2N6233	80	25–125	1.0	225	50	5.0	5.15	3.81
MJ3029	11	30 min.	0.4	250	125	5.0	2.45	1.81
MJ1800	11	40–120	0.4	250	100	5.0	3.00	2.23
2N6497	221A	10–75	2.5	250	80	5.0	2.00	1.47
MJE51T	221A	5 min.	5.0	250	80	5.0	1.95	1.45
2N6234	80	25–125	1.0	275	50	5.0	5.35	3.97
2N5838	11	8–40	3.0	250	100	5.0	1.96	1.45
2N5839	11	10–50	2.0	275	100	5.0	2.16	1.60
MJ411	11	30–90	1.0	300	100	5.0	2.75	2.05
2N6542	11	7–35	3.0	300	100	5.0	2.43	1.80
MJ4400	80	12–60	1.5	300	100	5.0	2.43	1.80
MJE52T	221A	5 min.	5.0	300	80	5.0	2.30	1.69
2N6498	221A	10–75	2.5	300	80	5.0	2.40	1.76
2N6235	80	25–125	1.0	325	50	5.0	5.55	4.12
MJ3030	11	4 min.	3.0	325	125	5.0	3.75	2.76
2N5241	11	15–35	2.5	325	125	5.0	12.15	9.00
2N5840	11	10–50	2.0	350	100	5.0	2.43	1.80
MJE53T	221A	5 min.	5.0	350	80	5.0	3.05	2.25
2N6499	221A	10–75	2.5	350	80	5.0	3.50	2.61
2N6543	11	7–35	3.0	400	100	5.0	2.97	2.20
BU207	11	2 min.	4.5	1300	125	5.0	3.78	2.80
BU208	11	2 min.	4 5	1500	125	5.0	5.20	3.85
MJ12004	11	2.5 min.	4.5	1500	100	5.0	4.19	3.10
TIP41	221A	15–75	3.0	40	65	6.0	.81	.60
TIP41A	221A	15–75	3.0	60	65	6.0	.88	.65
TIP41B	221A	15–75	3.0	80	65	6.0	.92	.68
TIP41C	221A	15–75	3.0	100	65	6.0	1.07	.79
2N5758	11	25–100	3.0	100	150	6.0	1.15	.85
2N5759	11	20–80	3.0	120	150	6.0	1.28	.95
2N5760	11	15–60	3.0	140	150	6.0	1.49	1.10
MJ15011	11	20–100	2.0	250	200	6.0	3.24	2.40
2N6288	221A	30–150	3.0	30	40	7.0	.69	.51
2N6290	221A	30–150	2.5	50	40	7.0	.73	.54
2N6315	80	20–100	2.5	60	90	7.0	1.20	.89
2N6292	221A	30–150	3.0	70	40	7.0	.73	.54
2N5427	80	30–120	2.0	80	40	7.0	2.97	2.20
2N5346	160	30–120	2.0	80	40	7.0	15.52	11.50
2N5428	80	60–240	2.0	80	40	7.0	3.11	2.30
2N5347	160	60–240	2.0	80	60	7.0	17.55	13.00
2N6316	80	20–100	2.5	80	90	7.0	1.34	.99
2N5429	80	30–120	2.0	100	40	7.0	3.24	2.40
2N5348	160	30–120	2.0	100	60	7.0	18.23	13.50
2N5430	80	60–240	2.0	100	40	7.0	3.38	2.50
2N5349	160	60–240	2.0	100	60	7.0	22.28	16.50
2N6078	80	12–70	1.2	250	45	7.0	3.71	2.75
2N6077	80	12–70	1.2	275	45	7.0	2.70	2.00
MJ3040	11	100 min.	2.5	300	100	7.0	5.25	3.90
MJ3041	11	250 min.	2.5	300	100	7.0	6.70	4.95
MJ3042	11	250 min.	2.5	350	100	7.0	8.25	6.10
2N3445	11	20–60	3.0	60	115	7.5	3.98	2.95
2N3447	11	40–120	5.0	60	115	7.5	5.06	3.75
2N3446	11	20–60	3.0	80	115	7.5	4.32	3.20
2N3448	11	40–120	5.0	80	115	7.5	5.40	4.00
2N5983	90	20–120	4.0	40	90	8.0	1.80	1.33
2N6386	221A	1K–20K	3.0	40	65	8.0	.95	.71
2N6043	221A	1K–10K	4.0	60	75	8.0	1.75	1.30
TIP100	221A	1K–20K	3.0	60	80	8.0	.99	.74
MJ1000	11	1K min.	3.0	60	90	8.0	1.49	1.10
TIP120	221A	1K min.	3.0	60	65	8.0	1.16	.86
2N5984	90	20–120	4.0	60	90	8.0	2.03	1.50
2N6300	80	750–18K	4.0	60	75	8.0	1.55	1.15
2N6055	11	750–18K	4.0	60	100	8.0	1.38	1.02
MJE6043	90	1K–20K	4.0	60	75	8.0	1.82	1.35
MJ1001	11	1K min.	3.0	80	90	8.0	1.76	1.30

Motorola Type	Case	hFE at IC Min.-Max.	hFE at IC A	BVCEO Volts	PD W	Max. IC Cont. Amps	Net Each 1-99	Net Each 100-999
NPN (CONTINUED)								
TIP121	221A	1K min.	3.0	80	65	8.0	$1.30	$ .96
2N5985	90	20–120	4.0	80	90	8.0	2.48	1.84
2N6301	80	750–1K	4.0	80	75	8.0	1.69	1.25
2N6056	11	750–1K	4.0	80	100	8.0	1.69	1.25
MJE6044	90	1K–20K	4.0	80	75	8.0	2.05	1.52
2N6056	11	750–18K	4.0	80	100	8.0	1.69	1.25
2N6044	221A	1K–10K	4.0	80	75	8.0	1.90	1.40
TIP101	221A	1K–20K	3.0	80	80	8.0	1.10	.82
2N6045	221A	1K–10K	3.0	100	75	8.0	2.05	1.50
TIP102	221A	1K–20K	3.0	100	80	8.0	1.30	.97
MJE6045	90	1K–20K	4.0	100	75	8.0	2.34	1.73
TIP122	221A	1K min.	3.0	100	75	8.0	1.49	1.10
MJE-15028	221A	20 min.	4.0	120	50	8.0	1.55	1.15
MJE-15030	221A	20 min.	4.0	150	50	8.0	1.76	1.30
2N6306	11	15–75	3.0	250	125	8.0	2.63	1.95
2N6307	11	15–75	3.0	300	125	8.0	3.24	2.40
2N6544	11	7–35	5.0	300	125	8.0	4.32	3.20
MJE-13006	221A	6–30	5.0	300	80	8.0	2.79	2.07
2N6308	11	12–60	3.0	350	125	8.0	4.66	3.45
MJE-13007	221A	6–30	5.0	400	80	8.0	3.51	2.60
2N6545	11	7–35	5.0	400	125	8.0	5.20	3.85
MJ10011	11	20 min.	4.0	1400	80	8.0	4.73	3.50
MJ12005	11	5 min.	5.0	1500	100	8.0	4.93	3.65
2N6383	11	1K–20K	5.0	40	100	10	1.51	1.12
MJE2801	90	25–100	3.0	60	90	10	1.80	1.33
2N3713	11	15 min.	3.0	60	150	10	1.42	1.05
2N3715	11	30 min.	3.0	60	150	10	1.42	1.05
MJE3055	90	20–70	4.0	60	90	10	1.80	1.33
2N5877	11	20–100	4.0	60	150	10	1.42	1.05
MJ3000	11	1K min.	5.0	60	150	10	2.77	2.05
2N6384	11	1K–20K	5.0	60	100	10	1.69	1.25
MJE-3055T	221A	25–100	3.0	60	75	10	.88	.65
2N6387	221A	1K–20K	5.0	60	65	10	1.05	.78
SE9300	221A	100 min.	4.0	60	70	10	1.75	1.30
2N6385	11	1K–20K	5.0	80	100	10	1.82	1.35
2N6388	221A	1K–20K	5.0	80	65	10	1.18	.88
D44H10	221A	20 min.	4.0	80	50	10	1.86	1.38
D44H11	221A	40 min.	4.0	80	50	10	2.03	1.50
SE9301	221A	100 min.	4.0	80	70	10	1.90	1.40
2N3714	11	15 min.	3.0	80	150	10	1.55	1.15
2N3716	11	30 min.	3.0	80	150	10	1.55	1.15
2N5878	11	20–100	4.0	80	150	10	1.75	1.29
MJ3001	11	1K min.	5.0	80	150	10	3.24	2.40
2N5632	11	25–100	5.0	100	150	10	2.03	1.50
SE9302	221A	100 min.	4.0	100	70	10	2.05	1.50
2N5633	11	20–80	5.0	120	150	10	2.43	1.80
2N5634	11	15–60	5.0	140	150	10	2.97	2.20
2N3442	11	20–70	4.0	140	200	10	1.49	1.10
MJ15011	11	20–100	2.0	250	200	10	3.24	2.40
MJ413	11	20–80	0.5	325	125	10	2.55	1.87
MJ423	11	30–90	1.0	325	125	10	4.15	3.06
MJ431	11	15–35	2.5	325	125	10	5.35	3.95
MJ9000	11	4 min.	6.0	325	125	10	7.30	5.40
MJ10002	11	30–300	5.0	350	150	10	4.39	3.25
MJ10006	11	30–300	5.0	350	150	10	5.40	4.00
MJ13014	11	8–20	5.0	350	150	10	5.80	4.30
MJ10003	11	30–300	5.0	400	150	10	5.40	4.00
MJ10007	11	30–300	5.0	400	150	10	6.41	4.75
MJ10012	11	100–2K	6.0	400	175	10	3.71	2.75
MJ13015	11	8–20	5.0	400	150	10	6.60	4.90
SDT13304	11	10–40	5.0	450	125	10	7.40	5.50
SDT13305	11	10–40	5.0	500	125	10	8.75	6.50
MJ12010	11	4.2	5.0	950	100	10	4.19	3.10
2N6569	11	15–200	4.0	40	100	12	.80	.59
2N5989	90	20–120	6.0	40	100	12	2.43	1.80
2N5990	90	20–120	6.0	60	100	12	2.70	2.00
2N6057	11	750–18K	6.0	60	150	12	2.50	1.85
2N5991	90	20–120	6.0	80	100	12	2.97	2.20
2N6058	11	750–18K	6.0	80	150	12	2.70	2.00
2N6059	11	750–18K	6.0	100	150	12	3.17	2.35
MJE1660	90	20–100	5.0	40	90	15	2.34	1.73
2N6486	221A	20–150	5.0	40	75	15	1.14	.85
2N6487	221A	20–150	5.0	60	75	15	1.33	.99
2N3055	11	20–70	4.0	60	115	15	1.03	.76
2N6576	11	2K–20K	4.0	60	120	15	1.16	.86
MJE1661	90	20–100	5.0	60	90	15	2.63	1.95
2N5881	11	20–100	6.0	60	160	15	1.69	1.25
2N3055A	11	20–70	4.0	60	115	15	1.49	.13
2N6488	221A	20–150	5.0	80	75	15	1.63	1.21
2N5882	11	20–100	6.0	80	160	15	1.89	1.40
2N6577	11	2K–20K	4.0	90	120	15	1.35	1.00
2N6578	11	2K–20K	4.0	120	120	15	1.55	1.13
MJ15015	11	20–70	4.0	120	180	15	1.66	1.23
MJ15001	11	25–150	4.0	140	200	15	2.97	2.20
2N6249	11	10–50	10	200	175	15	4.98	3.75

POWER TRANSISTOR LISTING CONTINUED ON NEXT PAGE

SILICON POWER TRANSISTORS (Cont'd)

For illustrations, see a previous page.

Motorola Type	Case	hFE at IC Min.-Max.	hFE at IC A	BVCEO Volts	PD W	Max. IC Cont. Amps	Net Each 1-99	Net Each 100-999
NPN (CONTINUED)								
2N6250	11	8–50	10	275	175	15	$5.90	$4.38
2N6546	11	6–30	10	300	175	15	6.95	5.15
2N6251	11	6–50	10	350	175	15	5.99	4.65
2N6547	11	6–30	10	400	175	15	8.51	6.30
MJ10013	11	10–250	10	550	175	15	8.10	6.00
MJ10014	11	10–250	10	600	175	15	10.13	7.50
MJ4033	11	1K min.	10	60	150	16	4.39	3.25
MJ4034	11	1K min.	10	80	150	16	4.86	3.60
2N5629	11	25–100	8.0	100	200	16	3.78	2.80
MJ4035	11	1K min.	10	100	150	16	5.67	4.20
2N5630	11	20–80	8.0	120	200	16	4.52	3.35
2N3773	11	15–60	8.0	140	150	16	2.88	2.30
2N5631	11	15–60	8.0	140	200	16	5.00	3.70
2N6257	11	15–75	8.0	40	150	20	1.76	1.30
2N3772	11	15–60	10	60	150	20	2.90	2.15
2N6282	11	750–18K	10	60	160	20	3.38	2.50
2N5303	11	15–60	10	80	200	20	2.63	1.95
2N6283	11	750–18K	10	80	160	20	3.65	2.70
2N5038	11	20–100	12	90	115	20	4.39	3.25
2N6284	11	750–18K	10	100	160	20	4.05	3.00
MJ15003	11	25–150	5.0	140	250	20	4.30	3.20
MJ13330	11	8–40	10	200	175	20	4.73	3.50
MJ13331	11	8–40	10	250	175	20	5.74	4.25
MJ10000	11	40–400	10	350	175	20	5.94	4.40
MJ10004	11	40–400	10	350	175	20	8.44	6.25
MJ13332	11	10–60	5.0	350	175	20	6.01	4.45
MJ13333	11	10–60	5.0	400	175	20	7.36	5.45
MJ10001	11	40–400	10	400	175	20	7.22	5.35
MJ10005	11	40–400	10	400	175	20	10.33	7.65
MJ13334	11	10–60	5.0	450	175	20	8.10	6.00
MJ10008	11	30–300	10	450	175	20	8.44	6.25
MJ10009	11	30–300	10	500	175	20	10.33	7.65
MJ13335	11	10–60	5.0	500	175	20	9.25	6.85
2N5885	11	20–100	10	60	200	25	2.90	2.15
2N5886	11	20–100	10	80	200	25	3.24	2.40
2N6338	11	30–120	10	100	200	25	6.01	4.45
2N6339	11	30–120	10	120	200	25	7.09	5.25
2N6340	11	30–120	10	140	200	25	12.89	9.55
2N6341	11	30–120	10	150	200	25	14.65	10.85
MJ15022	11	15–60	8.0	200	250	25	4.05	3.00
MJ15024	11	15–60	8.0	250	250	25	4.73	3.50
2N3771	11	15–60	15	40	150	30	2.67	1.99
2N5301	11	15–60	15	40	200	30	2.09	1.55
2N5302	11	15–60	15	60	200	30	2.36	1.75
2N6326	11	6–30	30	60	200	30	2.23	1.65
MJ11012	11	1K min.	20	60	200	30	5.40	4.00
2N6327	11	1K min.	20	80	200	30	2.50	1.85
MJ11014	11	1K min.	20	90	200	30	5.87	4.35
MJ802	11	25–100	7.5	100	200	30	3.04	2.25
2N6328	11	6–30	30	100	200	30	2.84	2.10
MJ11016	11	1K min.	20	120	200	30	6.68	4.95
2N5685	197	15–60	25	60	300	50	8.56	6.34
MJ11028	197	400 min.	50	60	300	50	6.75	5.00
2N5686	197	15–60	25	80	300	50	12.15	9.00
MJ11030	11	400 min.	50	90	300	50	7.22	5.35
2N6274	197	30–120	20	100	250	50	14.85	11.00
MJ11032	197	400 min.	50	120	300	50	8.10	6.00
2N6275	197	30–120	20	120	250	50	17.75	13.15
2N6276	197	30–120	20	140	250	50	23.49	17.40
2N6277	197	30–120	20	150	250	50	32.13	23.80
MJ10015	197	10 min.	40	400	250	50	18.63	13.80
MJ10016	197	10 min.	40	500	250	50	22.75	16.85
MJ14000	197	15–100	50	60	300	70	6.75	5.00
MJ14002	197	15–100	50	80	300	70	7.22	5.35
PNP								
2N4929	79	20 min.	0.05	150	5	0.5	$5.70	4.05
MJ4645	79	20 min.	0.5	200	5	0.5	10.26	7.60
2N4930	79	20 min.	0.05	200	20	0.5	6.72	5.17
MDS60	306	30 min.	0.03	300	10	0.5	1.55	1.15
MPSU60	152	30 min.	0.03	300	10	0.5	1.55	1.15
MJE350	77	30–250	0.1	300	20	0.5	1.49	1.10
MJ4646	79	20 min.	0.5	300	5	0.5	11.07	8.20
MJ4647	79	20 min.	0.5	400	5	0.5	13.57	10.05
MPSU52	152	30 min.	0.5	40	10	0.8	.74	.55
D41D1	306	10 min.	1.0	30	10	1.0	.61	.45
D41D2	306	20 min.	1.0	30	10	1.0	.82	.61
MJE370	306	10 min.	1.0	30	10	1.0	.96	.71
2N4918	77	20–100	0.5	40	30	1.0	1.05	.78
2N3244	79	50–150	0.5	40	5	1.0	17.95	12.80
2N3467	79	40–120	0.5	40	5	1.0	2.65	1.90
2N4898	80	20–100	0.5	40	25	1.0	1.28	.95
TIP30	221A	15–75	1.0	40	30	1.0	.59	.44
D41D4	306	10 min.	1.0	45	10	1.0	.76	.56
D41D5	306	10 min.	1.0	45	10	1.0	.93	.69
2N3245	79	30–90	0.5	50	5	1.0	17.95	12.80
2N3468	79	40–120	0.5	50	5	1.0	2.90	2.05
MM4030	79	25–40	0.5	60	7	1.0	1.05	.75
MM4032	79	70–100	0.5	60	7	1.0	1.20	.85
2N4899	80	20–100	0.5	60	25	1.0	1.42	1.05
2N6554	306	25 min.	0.5	60	10	1.0	.70	.52
D41D7	306	10 min.	1.0	60	10	1.0	.82	.61
D41D8	306	10 min.	1.0	60	10	1.0	1.07	.79
TIP30A	221A	15–75	1.0	60	30	1.0	.63	.47
2N4919	77	20–100	0.5	60	30	1.0	1.23	.91
MM4036	79	20–40	0.5	65	7	1.0	1.85	1.30
D41D10	306	10 min.	1.0	75	10	1.0	1.00	.74

Motorola Type	Case	hFE at IC Min.-Max.	hFE at IC A	BVCEO Volts	PD W	Max. IC Cont. Amps	Net Each 1-99	Net Each 100-999
PNP (CONTINUED)								
D41D11	306	10 min.	1.0	75	10	1.0	$1.13	$0.74
D41D13	306	50–150	0.1	75	10	1.0	.82	.61
D41D14	306	50–150	0.1	75	10	1.0	1.04	.77
MM4033	79	70–100	0.5	80	7	1.0	1.55	1.10
2N4900	80	20–100	0.5	80	25	1.0	1.60	1.20
2N6555	306	25 min.	0.5	80	10	1.0	.77	.57
TIP30B	221A	15–75	1.0	80	30	1.0	.68	.51
2N4920	77	20–100	0.5	80	30	1.0	1.42	1.05
2N5679	79	40–150	0.25	100	10	1.0	1.37	1.05
2N6556	306	25 min.	0.5	100	10	1.0	.84	.62
TIP30C	221A	15–75	1.0	100	30	1.0	.74	.55
2N5680	79	40–150	0.25	120	10	1.0	1.37	1.05
2N6420	80	40–200	0.5	175	35	1.0	1.27	.94
2N5415	79	30 min.	0.05	200	5	1.0	1.38	.95
2N6424	80	40–200	0.1	225	20	1.0	1.55	1.14
2N5344	80	25–100	0.5	250	40	1.0	7.09	5.25
2N6425	80	40–200	0.1	300	20	1.0	1.80	1.35
2N5345	80	25–100	0.5	300	40	1.0	8.64	6.40
2N5416	79	30 min.	0.05	300	5	1.0	1.87	1.25
2N3762	79	30–120	1.0	40	4	1.5	6.05	.30
2N3763	79	20–80	1.0	60	4	1.5	12.40	8.90
MPSU51	152	50 min.	1.0	30	10	2.0	.70	.52
D41E1	306	10 min.	1.0	30	8	2.0	.68	.50
D41K1	306	1K min.	1.5	30	10	2.0	.84	.62
D41K3	306	1K min.	1.0	30	10	2.0	.81	.60
MPSU51A	152	50 min.	1.0	40	10	2.0	.77	.57
D41K4	306	1K min.	1.5	50	10	2.0	.89	.66
D41K2	306	1K min.	1.0	50	10	2.0	.95	.70
D41E5	306	10 min.	1.0	60	8	2.0	.82	.61
TIP115	221A	500 min.	2.0	60	50	2.0	.98	.73
MPSU55	152	60 min.	0.25	60	10	2.0	.68	.50
MPSU56	152	60 min.	0.25	80	10	2.0	.74	.55
D41E7	306	10 min.	1.0	80	8	2.0	1.05	.78
TIP116	221A	500 min.	2.0	80	50	2.0	1.02	.76
MM5007	79	50–250	0.25	100	8	2.0	1.70	1.20
MPSU57	152	30 min.	0.25	100	10	2.0	.81	.60
2N6211	80	10–100	1.0	225	35	2.0	1.69	1.25
2N6421	80	25–100	1.0	250	35	2.0	1.58	1.17
2N6423	80	30–150	0.75	300	35	2.0	1.71	1.27
2N6422	80	25–100	1.0	300	35	2.0	1.65	1.22
2N6213	80	10–100	1.0	350	35	2.0	2.36	1.75
MJE370	77	25 min.	1.0	30	25	3.0	.96	.71
2N4234	79	30–150	0.25	40	6	3.0	1.25	.95
MDS76	306	30 min.	1.0	40	10	3.0	.85	.63
MJE170	77	50–250	0.1	40	12.5	3.0	.77	.57
MJE32	77	25 min.	1.0	40	40	3.0	.72	.53
TIP32	221A	25 min.	1.0	40	40	3.0	.67	.50
2N3719	31	25–180	1.0	40	6.0	3.0	5.13	3.80
2N3867	31	40–200	1.5	40	6.0	3.0	9.11	6.75
MJE171	77	50–250	0.1	60	12.5	3.0	.80	.59
MJE32A	77	25 min.	1.0	60	40	3.0	.76	.56
TIP32A	221A	25 min.	1.0	60	40	3.0	.71	.53
2N3720	31	25–180	1.0	60	6.0	3.0	6.89	5.10
2N3868	31	30–150	1.5	60	6.0	3.0	9.92	7.35
2N4235	79	30–150	0.25	60	6	3.0	1.45	1.10
MDS77	306	30 min.	1.0	60	10	3.0	.92	.68
2N4236	79	30–150	0.25	80	6	3.0	1.65	1.25
MJE172	77	50–240	0.1	80	12.5	3.0	.88	.65
MJE32B	77	25 min.	1.0	80	40	3.0	.82	.61
TIP32B	221A	25 min.	1.0	80	40	3.0	.78	.58
2N6303	31	30–150	1.5	80	6.0	3.0	13.30	9.85
MJE32C	77	25 min.	1.0	100	40	3.0	.86	.64
TIP32C	221A	25 min.	1.0	100	40	3.0	.82	.61
2N6034	77	750–18K	2.0	40	40	4.0	1.65	1.22
MJE371	77	40 min.	1.0	40	40	4.0	1.22	.90
2N4898	80	20–100	0.5	40	25	4.0	1.28	.95
MJE3310	77	1K min.	1.0	40	15	4.0	1.16	.86
2N5193	77	25–100	1.5	40	40	4.0	1.15	.85
2N6124	221A	25–100	1.5	45	40	4.0	.74	.55
2N3740	80	30–100	0.25	60	25	4.0	1.62	1.20
2N4899	80	20–100	0.5	60	25	4.0	1.42	1.05
2N6049	80	25–100	0.5	60	75	4.0	1.60	1.20
MJE3311	80	1K min.	1.0	60	15	4.0	1.30	.96
2N5194	77	25–100	1.5	60	40	4.0	1.34	.99
MJE700	77	750 min.	1.5	60	40	4.0	1.38	1.02
2N6125	77	25–100	1.5	60	40	4.0	.79	.59
2N6296	80	750–18K	2.0	60	50	4.0	1.82	1.35
MJE3311	77	1K min.	1.0	60	15	4.0	1.30	1.96
MJE701	77	750 min.	2.0	60	40	4.0	1.53	1.13
2N6035	77	750–18K	2.0	60	40	4.0	1.83	1.36
2N6125	221A	25–100	1.5	60	40	4.0	.79	.59
MJE700T	221A	750 min.	1.5	60	40	4.0	1.22	.90
MJE701T	221A	750 min.	2.0	60	40	4.0	1.28	.95
MJE251	77	40–120	0.2	80	15	4.0	1.34	.99
2N3741	80	30–100	0.25	80	25	4.0	1.82	1.35
2N4900	80	20–100	0.5	80	25	4.0	1.60	1.20
MJE3312	77	1K min.	1.0	80	15	4.0	1.44	1.07
2N5195	77	25–100	1.5	80	40	4.0	1.62	1.20
MJE702	77	750 min.	1.5	80	40	4.0	1.59	1.18
2N6126	221A	20–80	1.5	80	40	4.0	.85	.63
2N6297	80	750–18K	2.0	80	50	4.0	2.03	1.50
MJE703	77	750 min.	2.0	80	40	4.0	1.84	1.36
2N6036	77	750–18K	2.0	80	40	4.0	2.14	1.58
MJE702T	221A	750 min.	1.5	80	40	4.0	1.38	1.02
MJE703T	221A	750 min.	2.0	80	40	4.0	1.55	1.15

POWER TRANSISTOR LISTING CONTINUED ON NEXT PAGE

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SILICON POWER TRANSISTORS (Cont'd)

For illustrations, see a previous page.

Motorola Type	Case	hFE at IC Min.-Max.	hFE at IC A	BVCEO Volts	PD W	Max. IC Cont. Amps	Net Each 1-99	Net Each 100-999
PNP (CONTINUED)								
MJE253	77	40–120	0.2	100	15	4.0	$1.50	$1.11
MJE210	77	45–180	2.0	25	15	5.0	1.05	.78
2N6312	80	25–100	1.5	40	75	5.0	1.11	.82
2N5974	90	20–120	2.5	40	75	5.0	1.85	1.37
2N4913	11	25–100	2.5	40	87.5	5.0	1.01	.75
MJE105	90	25–100	2.0	50	65	5.0	2.36	1.75
2N4902	11	20–180	1.0	60	87.5	5.0	2.16	1.60
2N6313	80	25–100	1.5	60	75	5.0	1.28	.95
MJ8100	79	25–180	2.0	60	10	5.0	9.79	7.25
2N5975	90	25–100	2.5	60	75	5.0	2.08	1.54
2N4905	11	25–100	2.5	60	87.5	5.0	2.23	1.65
MJE1090	90	750 min.	3.0	60	70	5.0	2.90	2.15
MJE1091	90	750 min.	4.0	60	70	5.0	3.13	2.32
TIP125	221A	1K min.	3.0	60	65	5.0	1.24	.92
TIP126	221A	1K min.	3.0	80	65	5.0	1.39	1.03
2N4903	11	20–180	1.0	80	87.5	5.0	2.36	1.75
2N6314	80	25–100	1.5	80	75	5.0	1.62	1.20
2N6190	79	30–120	2.0	80	10	5.0	8.84	6.55
2N6191	79	60–240	2.0	80	10	5.0	12.96	9.60
2N5976	90	20–120	2.5	80	75	5.0	2.46	1.82
2N4906	11	25–100	2.5	80	87.5	5.0	2.43	1.80
MJE1092	90	750 min.	3.0	80	70	5.0	3.35	2.48
MJE1093	90	750 min.	4.0	80	70	5.0	3.67	.72
2N6192	79	30–120	2.0	100	10	5.0	11.54	8.55
2N6193	79	60–240	2.0	100	10	5.0	14.85	11.00
TIP127	221A	1K min.	3.0	100	75	5.0	1.59	1.18
MJ4401	80	12–60	1.5	400	100	5.0	2.97	2.20
TIP42	221A	15–75	3.0	40	65	6.0	.89	.66
TIP42A	221A	15–75	3.0	60	65	6.0	.99	.73
TIP42B	221A	15–75	3.0	80	65	6.0	.92	.68
TIP42C	221A	15–75	3.0	100	65	6.0	1.07	.79
2N6226	11	25–100	3.0	100	150	6.0	1.15	.85
2N6227	11	20–80	3.0	120	150	6.0	1.28	.95
2N6228	11	15–60	3.0	140	150	6.0	1.49	1.10
MJ15012	11	20–100	2.0	250	200	6.0	3.24	2.40
2N6111	221A	30–150	3.0	30	40	7.0	.73	.54
2N6109	221A	30–150	2.5	50	40	7.0	.78	.58
2N6317	80	20–100	2.5	60	90	7.0	1.43	1.06
2N6107	221A	30–150	3.0	70	40	7.0	.78	.58
2N6186	160	30–120	2.0	80	60	7.0	24.98	18.50
2N6187	160	60–240	2.0	80	60	7.0	27.68	20.50
2N6318	80	20–100	2.5	80	90	7.0	1.49	1.10
2N6188	160	30–120	2.0	100	60	7.0	27.68	20.50
2N6189	160	60–240	2.0	100	60	7.0	37.13	27.50
2N3447	11	40–120	5.0	60	115	7.5	5.06	3.75
2N3448	11	40–120	5.0	80	115	7.5	5.40	4.00
2N5980	90	20–120	4.0	40	90	8.0	2.38	1.76
2N6666	221A	1K–20K	3.0	40	65	8.0	1.08	.80
2N6040	221A	1K–10K	4.0	60	75	8.0	1.95	1.45
TIP105	221A	1K–20K	3.0	60	80	8.0	1.10	.82
MJ900	11	1K min.	3.0	60	90	8.0	1.69	1.25
2N5981	90	20–120	4.0	60	90	8.0	2.70	2.00
2N6298	80	750–18K	4.0	60	75	8.0	1.89	.40
2N6053	11	750–18K	4.0	60	100	8.0	1.96	1.45
MJE6040	90	1K–20K	4.0	60	75	8.0	2.09	1.55
MJ901	11	1K min.	3.0	80	90	8.0	1.96	1.45
2N5982	90	20–120	4.0	80	90	8.0	3.21	2.38
2N6299	80	750–18K	4.0	80	75	8.0	2.03	1.50
2N6054	11	750–18K	4.0	80	100	8.0	2.30	1.70
MJE6041	90	1K–20K	4.0	80	75	8.0	2.36	1.75
2N6041	221A	1K–10K	4.0	80	75	8.0	2.10	1.55
TIP106	221A	1K–20K	3.0	80	80	8.0	1.21	.90
2N6042	221A	1K–10K	3.0	100	75	8.0	2.30	1.70
TIP107	221A	1K–20K	3.0	100	80	8.0	1.41	1.05
MJE6042	90	1K–20K	4.0	100	75	8.0	2.71	2.01
MJE-15029	221A	20 min.	4.0	120	50	8.0	1.65	1.22
MJE-15031	221A	20 min.	4.0	150	50	8.0	1.80	1.40
2N6648	11	1K–20K	5.0	40	100	10	1.62	1.20
2N6649	11	1K–20K	5.0	60	100	10	1.82	1.35
2N6667	221A	1K–20K	5.0	60	65	10	1.17	.87
MJE-2901T	221A	25–100	3.0	60	75	10	.97	.72
MJE-2955T	221A	20–70	4.0	60	75	10	.97	.72

Motorola Type	Case	hFE at IC Min.-Max.	hFE at IC A	BVCEO Volts	PD W	Max. IC Cont. Amps	Net Each 1-99	Net Each 100-999
PNP (CONTINUED)								
SE9400	221A	100 min.	4.0	60	70	10	$1.95	$1.45
MJ6700	160	25–180	2.0	60	60	10	27.70	20.50
MJE2901	90	25–100	3.0	60	90	10	2.58	1.85
2N3789	11	15 min.	3.0	60	150	10	1.62	1.20
2N3791	11	30 min.	3.0	60	150	10	1.28	.95
MJE2955	90	20–70	4.0	60	90	10	2.50	1.85
2N5875	11	20–100	4.0	60	150	10	1.28	.95
MJ2500	11	1K min.	5.0	60	150	10	3.38	2.50
2N3790	11	15 min.	3.0	80	150	10	1.82	1.35
2N3792	11	30 min.	3.0	80	150	10	1.35	1.00
2N5876	11	20–100	4.0	80	150	10	1.74	1.29
MJ2501	11	1K min.	5.0	80	150	10	3.78	2.80
2N6650	11	1K–20K	5.0	80	100	10	1.96	1.45
2N6187	160	60–240	2.0	80	60	10	27.68	20.50
D45H10	221A	20 min.	4.0	80	50	10	2.05	1.52
D45H11	221A	40 min.	4.0	80	50	10	2.17	1.61
2N6668	221A	1K–20K	5.0	80	65	10	1.31	.97
SE9401	221A	100 min.	4.0	80	70	10	2.10	1.55
2N6189	160	60–240	2.0	100	60	10	37.13	27.50
SE9402	221A	100 min.	4.0	100	70	10	2.30	1.70
2N6229	11	25–100	5.0	100	150	10	2.03	1.50
2N6230	11	20–80	5.0	120	150	10	2.43	1.80
2N6231	11	15–60	5.0	140	150	10	2.97	2.20
MJ15012	11	20–100	2.0	250	200	10	3.24	2.40
2N5986	90	20–120	6.0	40	100	12	2.57	1.90
2N6594	11	15–200	4.0	40	100	12	.80	.59
2N5987	90	20–120	6.0	60	100	12	2.84	2.10
2N6050	11	750–18K	6.0	60	150	12	3.04	2.25
2N5988	90	20–120	6.0	80	100	12	3.11	2.30
2N6051	11	750–18K	6.0	80	150	12	3.38	2.50
2N6052	11	750–18K	6.0	100	150	12	3.78	2.80
MJE1290	90	20–100	5.0	40	90	15	2.70	2.00
2N6489	221A	20–150	5.0	40	75	15	1.28	.95
2N6490	221A	20–150	5.0	60	75	15	1.08	.86
MJ2955	11	20–70	4.0	60	115	15	1.06	.77
MJE1291	90	20–100	5.0	60	90	15	3.17	2.35
2N5879	11	20–100	6.0	60	160	15	1.69	1.25
2N5880	11	20–100	6.0	80	160	15	1.89	1.40
2N6491	221A	20–150	5.0	80	75	15	1.75	1.30
MJ15016	11	20–70	4.0	120	180	15	1.76	1.30
MJ15002	11	25–150	4.0	140	200	15	2.97	2.20
MJ4030	11	1K min.	10	60	150	16	5.06	3.75
MJ4031	11	1K min.	10	80	150	16	5.60	4.15
2N6029	11	25–100	8.0	100	200	16	4.73	3.50
MJ4032	11	1K min.	10	100	150	16	6.55	4.85
2N6030	11	20–80	8.0	120	200	16	5.00	3.70
2N6609	11	15–60	8.0	140	150	16	3.50	2.59
2N6031	11	15–60	8.0	140	200	16	5.74	4.25
2N6285	11	750–18K	10	60	160	20	4.05	3.00
2N5745	11	15–60	10	80	200	20	2.63	1.95
2N6286	11	750–18K	10	80	160	20	4.32	3.20
2N6287	11	750–18K	10	100	160	20	4.73	3.50
MJ15004	11	25–150	5.0	140	250	20	4.30	3.20
2N5883	11	.....	..	60	200	25	3.31	2.45
2N5884	11	20–100	10	80	200	25	4.05	3.00
2N6436	11	20–80	10	80	200	25	7.09	5.25
2N6437	11	20–80	10	100	200	25	11.48	8.50
2N6438	11	20–80	10	120	200	25	14.65	10.85
MJ15023	11	15–60	8.0	200	250	25	4.32	3.20
MJ15025	11	15–60	8.0	250	250	25	5.00	3.70
2N4398	11	15–60	15	40	200	30	3.04	2.25
2N4399	11	15–60	15	60	200	30	4.05	3.00
MJ11011	11	1K min.	20	60	200	30	6.08	4.50
2N6329	11	6–30	30	60	200	30	2.50	1.85
2N6330	11	6–30	30	80	200	30	2.77	2.05
MJ11013	11	1K min.	20	90	200	30	6.62	4.90
2N6331	11	6–30	30	100	200	30	3.04	2.25
MJ4502	11	25–100	7.5	100	200	30	3.04	2.25
MJ11015	11	1K min.	20	120	200	30	7.56	5.60
2N5683	197	15–60	25	60	300	50	13.50	10.00
MJ11029	197	400 min.	50	60	300	50	7.43	5.50
2N5684	197	15–60	25	80	300	50	15.75	11.67
2N6377	197	30–120	20	80	250	50	16.27	12.05
MJ11031	11	400 min.	50	90	300	50	7.97	5.90
2N6378	197	30–120	20	100	250	50	22.07	16.35
2N6379	197	30–120	20	120	250	50	32.13	23.80
MJ11033	197	400 min.	50	120	300	50	8.91	6.60
MJ14001	197	15–100	50	60	300	70	7.43	5.50
MJ14003	197	15–100	50	80	300	70	7.97	5.90

Our Stocks are Complete and up to date.

Write for information on new or unlisted items.

LOW VOLTAGE POWER TRANSISTORS

Motorola Type	Case	Freq. MHz	Pin Watts	P_{out} Watts	Gain dB	Net Each 1-99	Net Each 100-999
MRF476	TO-220	1.5–30	0.1	3.0	15	$2.00	$1.75
MRF475	TO-220	1.5–30	1.2	12	10	2.90	2.50
MRF433	211	1.5–30	0.13	12.5	20	11.50	10.00
MRF479	TO-220	1.5–30	1.5	15	10	6.90	6.00
MRF406	211	1.5–30	1.25	20	12	13.80	12.00
MRF477	TO-220	1.5–30	1.25	40	15	11.50	10.00
MRF460	211	1.5–30	2.5	40	12	17.25	15.00
MRF421	211	1.5–30	10	100	10	36.80	32.00
MRF8003	TO-39	14–30	0.03	0.5	13	1.75	1.50
MRF8004	TO-39	14–30	0.35	3.5	10	2.10	1.80
MRF449	211	14–30	0.3	30	10	12.65	11.00
MRF449A	145A	14–30	0.3	30	10	12.65	11.00
MRF450	211	14–30	4.0	50	11	13.80	12.00
MRF450A	145A	14–30	4.0	50	11	13.80	12.00
MRF453	211	14–30	4.8	60	11	17.25	15.00
MRF453A	145A	14–30	4.8	60	11	17.25	15.00
MRF455	211	14–30	4.8	60	11	16.00	14.00
MRF455A	145A	14–30	4.8	60	11	16.00	14.00
MRF458	211	14–30	5.0	80	12	19.00	16.50
MRF454	211	14–30	5.0	80	12	19.00	16.50
MRF454A	145A	14–30	5.0	80	12	19.00	16.50
MRF402	TO-39	27–50	0.1	1.0	10	2.30	2.00
2N5847	145A	27–50	0.8	8.0	10	13.80	12.00
2N5848	145A	27–50	3.22	20	8	20.70	18.00
2N5849	145A	27–50	7.14	40	7.5	11.50	10.00
MRF497	TO-220	27–50	4.0	40	10	2.90	2.50
MRF229	TO-39	40–100	0.15	1.5	10	2.00	1.75
MRF230	TO-39	40–100	0.15	1.5	10	10.35	9.00
MRF231	145A	40–100	0.15	3.5	10	11.50	10.00
MRF232	145A	40–100	0.95	7.5	9	12.65	11.00
MRF233	145A	40–100	1.7	15	9.5	16.10	14.00
MRF234	145A	40–100	2.5	25	10	3.15	2.75
MRF237	TO-39	156–162	0.25	4.0	12	12.65	11.00
MRF238	145A	156–162	3.75	30	9	57.50†	54.00*
MHW613	301A	156–162	0.3	30	20	2.07	1.80
MRF604	TO-46	136–174	0.1	1.0	10	1.30	1.10
2N4427	TO-39	136–174	0.1	1.0	10	2.60	2.25
MRF607	TO-39	136–174	0.1	1.8	12	1.95	1.70
2N6255	TO-39	136–174	0.5	3.0	8	8.65	7.50
2N5589	144B	136–174	0.44	3.0	8	9.20	8.00
2N6080	145A	136–174	0.25	4.0	12	4.60	4.00
MRF260	TO-220	136–174	0.5	5.0	10	10.35	9.00
2N5590	145A	136–174	3.0	10	5	5.20	4.50
MRF261	TO-220	136–174	3.0	10	6	16.10	14.00
MRF212	145A	136–174	1.25	10	9	10.35	9.00
2N6081	145A	136–174	3.5	15	6	9.20	8.00
MRF262	TO-220	136–174	3.5	15	6	10.90	9.50
MRF221	211	136–174	3.3	15	6	28.75	25.00
MRF215	316	136–174	0.33	20	8	13.80	12.00
2N5591	145A	136–174	9.0	25	4.4	11.50	10.00
2N6082	145A	136–174	6.0	25	6	12.65	11.00
MRF222	211	136–174	6.0	25	6	13.25	11.50
2N6083	145A	136–174	8.1	30	6	12.65	11.00
MRF233	211	136–174	8.1	30	6	10.35	9.00
MRF264	TO-220	136–174	9.1	30	5	15.00	13.00
2N6084	145A	136–174	14.3	40	4.5	15.50	13.50
MRF224	211	136–174	14.3	40	4.5	31.00	27.00
MRF216	316	136–174	8.5	40	6.7	19.55	17.00
MRF250	211	136–174	18.0	50	4.4	34.50	30.00
MRF245	316	136–174	18.2	80	6.4	55.20†	51.85*
MHW612	301A	146–174	0.2	20	20	57.50†	54.00*
MHW613	301A	146–174	0.3	30	20	1.15	1.00
MRF207	TO-39	220	0.15	1.0	8.2	1.75	1.50
MRF225	TO-39	220	0.18	1.5	9	3.45	3.00
MRF227	TO-39	220	0.13	3.0	13.5	11.50	10.00
MRF208	145A	220	0.1	10	10	12.65	11.00
MRF226	145A	220	1.6	13	9	13.80	12.00
MRF209	145A	220	9.1	25	4.4	8.75	7.60
2N6256	249	407–512	0.05	0.5	10	8.05	7.00
MRF626	305	407–512	0.05	0.5	10	7.50	6.50
MRF627	305A	407–512	0.05	0.5	10	8.65	7.50
MRF628	249	407–512	0.05	0.5	10	2.00	1.75
MRF515	TO-39	407–512	0.12	0.75	8	1.75	1.50
2N3948	TO-39	407–512	0.25	1.0	6	3.45	3.00
MRF629	TO-39	407–512	0.32	2.0	8	9.20	8.00
2N5944	244	407–512	0.25	2.0	9	11.50	10.00
2N5945	244	407–512	0.64	4.0	8	8.05	7.00
MRF660	TO-220	407–512	2.0	7.0	5.4	14.40	12.50
2N5946	244	407–512	2.5	10	6	20.70	18.00
MRF641	316	407–512	3.75	15	7.8	23.00	20.00
MRF644	316	407–512	5.9	25	6.2	25.30	22.00
MRF646	316	407–512	13.3	40	4.8	33.35	29.00
MRF648	316	407–512	22	60	4.4	8.05	7.00
MRF838	305A	806–947	0.22	1.0	6.5	8.05	7.00
MRF838A	305	806–947	0.22	1.0	6.5	21.85	19.00
MRF840	319	806–947	2.5	10	6	25.30	22.00
MRF842	319	806–947	5.0	20	6	31.00	27.00
MRF844	319	806–947	9.0	30	5.2	38.00	33.00
MRF846	319	806–947	15	40	4.3	55.43	52.79

†Lots of 1–24. *Lots of 25–99. #Lots of 100–249.

SMALL-SIGNAL, METAL-PACKAGED TRANSISTORS

For illustrations, see following page.

SWITCHING TRANSISTORS

Motorola Type	Case	h_{FE} at I_C Min.	h_{FE} at I_C mA	Min. BV_{CEO} Volts	Max. I_C A	Min. f_T MHz	Net Each 1-99	Net Each 100-999
NPN								
2N2369A	TO-18	40	10	15	0.2	500	$0.50	$0.32
2N3647	TO-46	25	150	10	0.5	350	2.75	1.95
2N3648	TO-46	30	150	15	0.5	450	3.25	2.35
2N2369	TO-18	20	100	15	0.5	500	.49	.31
2N3227	TO-18	30	100	20	0.5	500	3.25	2.25
2N3508	TO-46	40	10	20	0.5	500	6.50	5.00
2N3509	TO-46	100	10	20	0.5	500	6.50	5.00
2N4013	TO-18	35	500	30	1.0	300	2.00	1.45
2N4014	TO-18	35	500	50	1.0	300	2.15	1.55
2N3736	TO-46	30	1000	30	1.5	250	5.30	3.75
2N3737	TO-46	20	1000	50	1.5	250	2.00	1.43
2N3734	TO-39	30	1000	50	1.5	250	2.45	1.75
2N3735	TO-39	20	1000	50	1.5	250	.84	.60
2N3724	TO-39	35	500	30	2.0	300	1.25	.90
2N5859	TO-39	15	1000	40	2.0	250	1.08	.72
2N3725	TO-39	35	500	50	2.0	300	2.27	1.51
MM5262	TO-39	25	1000	50	2.0	350	2.15	1.55
2N5861	TO-39	25	500	50	2.0	200	1.75	1.17
2N3506	TO-39	40	1500	40	3.0	60	13.30	9.50
2N3507	TO-39	30	1500	50	3.0	60	15.05	10.75
2N2540	TO-18	100	150	30	.....	250	5.85	4.95
PNP								
2N4209	TO-18	40	50	15	0.05	850	$3.65	$2.60
2N3546	TO-18	25	50	12	.....	700	2.80	2.15
2N4208	TO-18	30	10	12	0.2	700	2.95	2.10
2N3012	TO-18	30	30	12	0.2	400	2.05	1.45
2N2894	TO-18	40	30	12	0.2	400	2.40	1.70
2N869A	TO-18	40	30	18	0.2	400	1.25	.90
2N3762	TO-39	30	1000	40	1.5	180	6.05	4.30
2N3467	TO-39	40	500	40	0.1	175	2.65	1.90
MM4037	TO-39	50	150	40	1.0	60	1.60	1.15
2N3244	TO-39	50	500	40	1.0	175	17.95	12.80
2N3468	TO-39	25	500	50	1.0	150	2.90	2.05
2N3245	TO-39	30	500	50	1.0	150	17.95	12.80
2N3763	TO-39	20	1000	60	1.5	150	12.40	8.90
MM4030	TO-39	25	500	60	1.0	100	1.05	.75
MM4032	TO-39	70	500	60	1.0	150	1.20	.85
MM4036	TO-39	40	150	65	1.0	60	1.85	1.30
2N4406	TO-39	20	1000	80	1.5	150	13.50	10.38
2N4407	TO-39	30	1000	80	1.5	150	15.30	11.77
2N4404	TO-39	30	500	80	1.0	200	9.90	7.62
2N4405	TO-39	50	500	80	1.0	200	10.80	8.30
MM4033	TO-39	70	500	80	1.0	150	1.55	1.10
2N3634	TO-39	50	50	140	1.0	150	4.60	3.29
2N3635	TO-39	100	50	140	1.0	200	5.60	4.00
2N3636	TO-39	50	50	175	1.0	150	5.50	3.93

UHF/VHF AMPLIFIERS/OSCILLATORS

Motorola Type	Case	h_{FE} at I_C Min.	h_{FE} at I_C mA	Min. BV_{CEO} Volts	Max. NF at f dB	Max. NF at f MHz	Net Each 1-99	Net Each 100-999
NPN								
2N918	TO-72	20	3.0	15	6.0	60	$0.83	$0.71
PNP								
2N4260	TO-72	30	10	15	.....	.....	14.80	$11.40
2N4261	TO-72	30	10	15	.....	.....	17.50	13.50#
2N3308	TO-18	25	2.0	25	6.0	200	10.70	8.20#
2N3307	TO-18	40	2.0	35	4.5	200	12.60	9.70#

HIGH-GAIN, LOW-NOISE TRANSISTORS

Motorola Type	Case	h_{FE} at I_C Min.	h_{FE} at I_C mA	Min. BV_{CEO} Volts	Max. I_C A	Max. NF dB	Net Each 1-99	Net Each 100-999
NPN								
MM6427	TO-18	5K	10	40	300	.....	$1.40	$1.00
2N930	TO-18	100	10	45	30	3.0	.45	.28
2N930A	TO-18	100	10	45	30	3.0	1.65	1.15
2N2484	TO-18	100	10	60	50	8.0	.49	.28
PNP								
2N2604	TO-46	40	120	45	30	4.0	$1.25	$0.78
2N2605	TO-46	100	300	45	30	4.0	1.25	.78
2N3964	TO-18	250	1000	45	200	4.0	1.10	.78
2N3965	TO-18	250	1000	60	200	8.0	1.15	.80
2N3962	TO-18	100	1000	60	200	10.0	1.00	.74
2N3798	TO-18	150	450	60	50	3.5	3.75	2.70
2N3799	TO-18	300	900	60	50	2.5	4.05	2.90
2N3963	TO-18	100	1000	80	200	10.0	1.05	.76

CONTINUED ON FOLLOWING PAGE

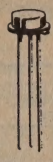
PRICES LISTED ARE FOR GUIDANCE ONLY

Silicon Transistors

Case 29
TO-92

TO-52

TO-39


TO-46

Case 22
TO-18

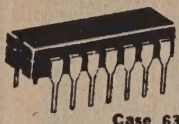
TO-72

TO-60

Case 215

Case 249-01

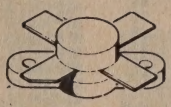
Case 646


Case 632

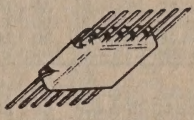
Case 654

Case 145A-01,

Case 144B-03


Case 211-01

Case 244-01


Case 607

SMALL-SIGNAL, METAL-PACKAGED TRANSISTORS (Cont'd)

HIGH-VOLTAGE, HIGH-CURRENT TRANSISTORS

Motorola Type	Case	hFE at IC Min.	hFE at IC mA	Min. BVCEO Volts	Max. IC A	Min. fT MHz	Net Each 1-99	Net Each 100-999
NPN								
2N4237	TO-39	30	250	40	3.0	2.0	$ 1.10	$ 0.85
2N4238	TO-39	30	250	60	3.0	2.0	1.40	1.05
MM3005	TO-39	50	150	60	2.5	50	1.85	1.30
2N4239	TO-39	30	250	80	3.0	2.0	1.60	1.20
MM3006	TO-39	50	200	80	2.5	50	2.15	1.55
2N1990	TO-39	20	30	100	1.0	.....	2.95	1.96
2N657	TO-39	30	200	100	.....	.....	2.31	1.54
2N5681	TO-39	40	250	100	1.0	30	1.20	.93
2N3498	TO-39	40	150	100	0.5	150	3.50	2.50
2N4924	TO-39	40	150	100	0.2	100	2.40	1.70
MM3007	TO-39	50	250	100	2.5	50	2.90	2.05
2N3499	TO-39	100	150	100	0.5	150	3.60	2.57
2N5682	TO-39	40	250	120	1.0	30	1.37	1.05
MM3008	TO-39	40	10	120	0.4	50	1.70	1.20
MM2258	TO-39	50	10	120	0.5	150	4.40	3.15
MM3001	TO-39	20	10	150	0.2	150	1.60	1.15
2N3114	TO-39	30	30	150	0.2	40	6.85	4.90
2N3712	TO-39	30	30	150	0.2	40	2.95	1.97
2N3500	TO-39	40	150	150	0.3	150	3.70	2.64
2N3501	TO-39	100	150	150	0.3	150	3.80	2.71
MM2259	TO-39	35	10	175	0.3	150	4.70	3.35
MM3009	TO-39	40	10	180	0.4	50	2.05	1.45
MM3002	TO-39	20	10	200	0.05	150	1.80	1.30
2N4926	TO-39	20	30	200	0.05	30	3.60	2.55
MM3003	TO-39	20	10	250	0.05	150	2.04	1.50
2N4927	TO-39	20	30	250	0.05	30	3.90	2.75
MM420	TO-39	25	30	250	1.0	15	1.05	.75
2N5059	TO-39	30	30	250	0.15	30	2.60	1.85
2N3440	TO-39	40	20	250	1.0	15	.90	.60
2N3742	TO-39	20	30	300	0.05	30	14.30	10.92#
2N5058	TO-39	35	30	300	0.15	30	2.95	2.10
MM421	TO-39	25	30	325	1.0	15	1.15	.85
2N3439	TO-39	40	20	350	1.0	15	1.09	.70
PNP								
2N4234	TO-39	30	250	40	3.0	3.0	$ 1.25	$ 0.95
2N4235	TO-39	30	250	60	3.0	3.0	1.45	1.10
MM5005	TO-39	50	150	60	2.0	30	1.10	.80
2N4036	TO-39	40	150	65	1.0	60	.85	.57
MM5006	TO-39	50	200	80	2.0	30	1.35	.95
2N4236	TO-39	30	250	80	3.0	3.0	1.65	1.25
2N3496	TO-18	40	10	80	0.1	200	11.80	8.40
2N3494	TO-39	40	10	80	0.1	200	11.10	7.95
MM4000	TO-39	20	10	100	0.1	.....	1.60	1.15
2N4928	TO-39	25	10	100	0.1	100	4.70	3.35
2N5679	TO-39	40	250	100	1.0	30	1.37	1.05
MM5007	TO-39	50	250	100	2.0	30	1.70	1.20
2N3495	TO-39	40	10	120	0.1	150	14.50	10.35
2N3497	TO-18	40	10	120	0.1	150	15.40	10.95
2N5680	TO-39	40	250	120	1.0	30	1.37	1.05
2N3634	TO-39	50	50	140	1.0	150	4.60	3.29
MM4001	TO-39	20	10	150	0.5	.....	1.80	1.25
2N4929	TO-39	25	10	150	0.5	100	5.70	4.05
2N3636	TO-39	50	50	175	1.0	150	5.50	3.93
2N3637	TO-39	100	50	175	1.0	200	6.00	4.29
MM4002	TO-39	20	10	200	0.5	.....	2.08	1.45
2N4930	TO-39	20	20	200	0.5	20	6.72	5.17#
MM5415	TO-39	30	50	200	1.0	15	1.09	.94
2N6432	TO-18	30	30	200	1.0	50	1.96	1.31
2N5415	TO-39	30	50	200	1.0	15	1.38	1.95
MM4003	TO-39	20	10	250	0.5	.....	2.30	1.65
2N4931	TO-39	20	20	250	0.5	20	7.65	5.89#
2N3743	TO-39	25	30	300	0.05	30	14.30	10.92#
MM5416	TO-39	30	50	300	1.0	15	1.50	1.05
2N6433	TO-18	30	30	300	1.0	50	2.15	1.43
MM5416	TO-39	30	50	300	1.0	15	1.50	1.05

#Lots of 100–249.

GENERAL PURPOSE TRANSISTORS

Motorola Type	Case	hFE at IC Min.	hFE at IC mA	Min. BVCEO Volts	Max. IC A	Min. fT MHz	Net Each 1-99	Net Each 100-999
NPN								
2N916	TO-18	50	10	25	.....	300	$0.99	$0.66
2N2218	TO-39	40	150	30	0.8	250	.43	.37
2N2219	TO-39	100	150	30	0.8	250	.43	.37
2N2222	TO-18	100	150	30	0.8	250	.51	.33
2N3300	TO-39	100	150	30	0.5	250	1.25	.90
2N3302	TO-18	100	150	30	0.5	250	1.30	.95
2N697	TO-39	40	150	40	.....	50	.43	.37
2N718	TO-18	40	150	40	.....	50	.65	.45
2N2218A	TO-39	40	150	40	0.8	250	.44	.38
2N2221A	TO-18	40	150	40	0.8	250	.54	.36
2N5581	TO-46	40	150	40	0.8	250	3.40	2.62
2N3053	TO-39	50	150	40	0.7	100	.58	.39
2N3946	TO-18	50	10	40	0.2	300	2.95	2.10
MM3903	TO-52	50	10	40	0.2	250	1.40	1.00
2N2219A	TO-39	100	150	40	0.8	300	.44	.38
2N2222A	TO-18	100	150	40	0.8	300	.53	.36
2N3947	TO-18	100	10	40	0.2	300	2.75	1.95
2N5582	TO-46	100	150	40	0.8	300	3.92	3.02
MM3904	TO-52	100	10	40	0.2	300	1.50	1.05
2N3946	TO-18	50	10	40	0.2	250	2.95	2.10
2N2897	TO-18	50	150	45	1.0	100	1.85	1.23
2N2270	TO-39	50	150	45	1.0	100	.99	.66
2N956	TO-18	40	150	50	.....	70	1.15	.85
2N1613	TO-39	40	150	50	0.5	60	.57	.38
2N2193A	TO-39	40	150	50	1.0	50	4.40	2.95
2N915	TO-18	50	10	50	.....	250	1.05	.84
2N656	TO-39	30	200	60	.....	.....	1.96	1.31
2N2895	TO-18	40	150	65	1.0	120	2.05	1.45
2N3700	TO-18	50	500	80	1.0	80	1.64	.94
2N3020	TO-39	40	150	80	1.0	80	3.80	2.70
2N1711	TO-39	100	150	80	.....	70	.43	.37
2N3019	TO-39	100	150	80	1.0	100	.73	.49
2N2896	TO-18	60	150	90	1.0	120	3.10	2.05
PNP								
2N1132	TO-39	30	150	35	0.6	60	$1.17	$0.78
2N1132A	TO-39	30	150	40	0.6	60	2.65	1.77
2N2904	TO-39	40	150	40	0.6	200	.53	.35
2N2906	TO-18	40	150	40	0.6	200	.52	.35
2N3250	TO-18	50	10	40	0.2	250	.58	.39
MM3905	TO-52	50	10	40	0.2	200	1.40	1.00
MM4037	TO-39	50	150	40	1.0	60	1.60	1.15
MM3906	TO-52	100	10	40	0.2	250	1.50	1.05
2N2907	TO-18	100	150	40	0.6	200	.51	.33
2N3251	TO-18	100	10	40	0.2	300	.58	.39
2N3486	TO-46	100	150	40	0.6	200	7.20	5.15
2N2905	TO-39	100	150	40	0.6	200	.54	.36
2N2904A	TO-39	40	150	60	0.6	200	.60	.40
2N2906A	TO-18	40	150	60	0.6	200	.54	.36
2N3485A	TO-46	40	150	60	0.6	200	6.50	4.65
2N3250A	TO-18	50	10	60	0.2	250	.60	.40
MM5005	TO-39	50	150	60	2.0	30	1.10	.80
2N2905A	TO-39	100	150	60	0.6	200	.54	.36
2N2907A	TO-18	100	150	60	0.6	200	.53	.36
2N3251A	TO-18	100	10	60	0.2	300	.60	.40
2N3486A	TO-46	100	150	60	0.6	200	7.90	5.65
MM4036	TO-39	20	150	65	1.0	60	1.85	1.30
2N4404	TO-39	40	150	80	1.0	200	9.90	7.62
MM5006	TO-39	50	200	80	2.0	30	1.35	.95
2N4405	TO-39	100	150	80	1.0	200	10.80	8.30
MM5007	TO-39	50	250	100	2.0	30	1.70	1.20

MOTOROLA Semiconductors — Silicon Transistors

SMALL-SIGNAL, PLASTIC-PACKAGED TRANSISTORS

GENERAL PURPOSE TRANSISTORS

Motorola Type	Case	h_{FE} at I_C Min.	mA	Min. BV_{CEO} Volts	Max. I_C A	Min. f_T MHz	Net Each 1-99	100-999
NPN								
MPS6601	TO-92	30	1000	25	1.0	100	$0.46	$0.23
MPS6560	TO-92	50	500	25	0.5	60	.48	.32
MPS6514	TO-92	150	2.0	25	0.1	480	.46	.33
MPS5172	TO-92	100	10	25	0.1	.....	.19	.12
2N4124	TO-92	120	2.0	25	0.3	300	.35	.23
MPS6515	TO-92	250	2.0	25	0.1	480	.44	.32
2N4123	TO-92	50	2.0	30	0.2	250	.34	.21
MPS6513	TO-92	90	2.0	30	0.1	330	.44	.32
MPS2222	TO-92	100	150	30	0.6	250	.32	.20
MPS3704	TO-92	100	50	30	0.6	100	.34	.29‡
MPSA20	TO-92	40	5.0	40	0.1	125	.26	.16
2N4400	TO-92	50	150	40	0.6	200	.56	.36
2N3903	TO-92	50	100	40	0.2	250	.47	.30
MPS6531	TO-92	90	100	40	0.6	390	.52	.37
2N4401	TO-92	100	150	40	0.6	250	.72	.46
2N3904	TO-92	100	10	40	0.2	300	.49	.35
MPSA05	TO-92	50	100	60	0.5	100	.48	.28
MPS8098	TO-92	100	1.0	60	0.2	150	.35	.25
MPSA06	TO-92	50	100	80	0.5	100	.50	.29
MPS8099	TO-92	100	1.0	80	0.2	150	.39	.27
PNP								
MPS6651	TO-92	30	1000	25	1.0	100	$0.52	$0.26
MPS6562	TO-92	50	500	25	0.5	60	.54	.36
MPS6518	TO-92	150	2.0	25	0.1	480	.59	.36
2N4126	TO-92	120	2.0	25	0.3	300	.35	.23
MPS6519	TO-92	250	2.0	25	0.1	480	.71	.45
2N4125	TO-92	50	2.0	30	0.2	250	.34	.21
MPS6517	TO-92	90	2.0	30	0.1	330	.54	.35
MPS2907	TO-92	100	150	30	0.6	250	.39	.23
MPS3702	TO-92	100	50	30	0.6	100	.34	.28‡
MPSA70	TO-92	50	5.0	40	0.1	125	.30	.19
2N4402	TO-92	50	150	40	0.6	200	.56	.36
2N3905	TO-92	50	10	40	0.2	250	.50	.32
MPS6534	TO-92	90	100	40	0.6	390	.55	.39
2N4403	TO-92	100	150	40	0.6	250	.82	.46
2N3906	TO-92	100	10	40	0.2	300	.52	.37
MPSA55	TO-92	50	100	60	0.5	100	.52	.33
MPS8598	TO-92	100	300	60	0.2	150	.37	.26
MPSA56	TO-92	50	100	80	0.5	100	.60	.37
MPS8599	TO-92	100	1.0	80	0.2	150	.41	.29

LOW-NOISE TRANSISTORS

Motorola Type	Case	h_{FE} at I_C Min.	mA	Min. BV_{CEO} Volts	Typ. NF dB	Max. f_T MHz	Net Each 1-99	100-999
NPN								
2N4124	TO-92	120	2.0	25	5.0	300	$0.35	$0.23
MPS6520	TO-92	200	2.0	25	3.0	390	.49	.36
MPS6521	TO-92	300	2.0	25	3.0	390	.54	.38
2N5089	TO-92	400	10	25	2.0	50	.72	.46
2N4123	TO-92	50	2.0	30	6.0	250	.34	.20
2N5088	TO-92	300	10	30	3.0	50	.50	.36
MPS8097	TO-92	250	0.1	40	2.0	200	.72	.46
MPSA18	TO-92	500	10	45	1.5	100	.72	.46
2N6429	TO-92	500	10	45	5.0	100	.60	.40
2N6429A	TO-92	500	10	45	3.5	100	.75	.55
2N5210	TO-92	250	10	50	2.0	30	.72	.48
2N6428	TO-92	250	10	50	6.0	100	.60	.40
2N6428A	TO-92	250	10	50	4.0	100	.75	.55
MPSA09	TO-92	100	0.1	50	1.4	30	.54	.36
2N5209	TO-92	150	10	50	3.0	30	.66	.44
PNP								
2N4126	TO-92	120	2.0	25	4.0	250	$0.35	$0.23
MPS6522	TO-92	200	2.0	25	3.0	340	.52	.37
MPS6523	TO-92	300	2.0	25	3.0	340	.58	.39
2N4125	TO-92	50	2.0	30	5.0	200	.34	.21
MPS4250	TO-92	250	10	40	2.0	250	.30	.21‡
2N5086	TO-92	150	10	50	3.0	40	.50	.36
2N5087	TO-92	250	10	50	2.0	40	.60	.40
MPS4249	TO-92	100	10	60	3.0	100	.25	.18‡
MPS4250A	TO-92	250	0.1	60	2.0	250	.32	.23‡

HIGH-SPEED, SATURATED-SWITCHING TRANSISTORS

Motorola Type	Case	Min. BV_{CEO} Volts	h_{FE} at I_C Min.	mA	Maximum V_{CE}(sat) @ Volts	I_C mA	Net Each 1-99	100-999
NPN								
2N4265	TO-92	12	100	10	0.22	10	$0.54	$.36
MPS3013	TO-92	15	15	300	0.5	300	.49	.29
MPS706	TO-92	15	20	10	0.6	10	.45	.30
MPS3646	TO-92	15	30	30	0.2	30	.28	.17
2N4264	TO-92	15	40	10	0.22	10	.48	.32
MPS2369	TO-92	15	40	10	0.25	10	.53	.35
MPS835	TO-92	20	20	10	0.3	10	.60	.40
MPS834	TO-92	.....	25	10	0.25	10	.52	.35
PNP								
2N5228	TO-92	5.0	30	10	0.4	10	$0.28	$.19
MPS4257	TO-92	6.0	30	50	0.15	10	.37	.23‡
MPS3639	TO-92	6.0	30	10	0.16	10	.26	.16
MPS3640	TO-92	12	30	10	0.2	10	.29	.18
MPS4258	TO-92	12	30	50	0.15	10	.35	.22‡
2N5771	TO-92	15	50	10	0.18	10	.43	.27

UHF/VHF AMPLIFIERS

Motorola Type	Case	Min. BV_{CEO} Volts	Max. NF at f dB	MHz	Max. C_{cb} pF	Min. f_T MHz	Net Each 1-99	100-999
NPN								
MPS5179	TO-92	12	4.5	200	1.0	900	$0.39	$0.33
MPS3563	TO-92	12	.....		1.7	600	.28	.17
2N5222	TO-92	15	.....		1.3	450	.24	.16
MPS918	TO-92	15	6	60	1.7	600	.83	.55
MPSH17	TO-92	15	6	200	0.9	800	.68	.46
MPSH31	TO-92	20	6	45	0.65	300	.51	.34
MPSH30	TO-92	20	6	45	0.65	300	.51	.34
MPS6539	TO-92	20	4.5	100	0.7	500	.60	.40
MPS8001	TO-92	25	.....		0.65#	100	.45	.25
MPSH19	TO-92	25	.....		0.65	300	.45	.35
MPS6546	TO-92	25	.....		0.35#	600	1.24	.83
MPS6547	TO-92	25	.....		0.35#	600	1.35	.90
MPSH10	TO-92	25	.....		0.65‡	650	.49	.33
MPSH11	TO-92	25	.....		0.7	650	.54	.36
MPS6543	TO-92	25	.....		1.0	750	1.32	.88
MPSH32	TO-92	30	3.3	45	0.22	300	.63	.42
MPS6540	TO-92	30	.....		0.65	350	.63	.42
MPSH20	TO-92	30	.....		0.65	400	.59	.39
MPSH24	TO-92	30	.....		0.36	400	.62	.41
MPSH07	TO-92	30	3.2	100	0.3‡	400	.68	.46
MPSH08	TO-92	30	3.5	200	0.3‡	400	.73	.51
MPS3866	TO-92	30	.....	.....	.....	500	.65	.57
MPSH37	TO-92	40	.....		0.7#	300	.51	.34
MPS3693	TO-92	45	4.0#	1	0.2#	200	.31	.20
MPS3694	TO-92	45	4.0	1	0.2#	200	.35	.22
MPSH34	TO-92	45	.....	.....	0.32	500	.65	.44
MPSH04	TO-92	80	2.0	1	1.6	80	.51	.36
MPSH05	TO-92	80	2.0	1	1.6	80	.49	.35
PNP								
MPSH81	TO-92	20	.....	.....	0.65‡	600	$0.45	$0.30
2N5208	TO-92	25	3.0	100	1.0	300	.54	.36
MPSH54	TO-92	80	2.0	1	1.6	80	.54	.36
MPSH55	TO-92	80	.....	.....	1.6	80	.51	.36

#Typical. ‡C_{ee}.

HIGH-VOLTAGE TRANSISTORS

Motorola Type	Case	h_{FE} at I_C Min.	mA	Min. BV_{CEO} Volts	Max. I_C A	Min. f_T MHz	Net Each 1-99	100-999
NPN								
MPSL01	TO-92	50	10	100	0.15	60	$0.54	$0.33
MPSD03	TO-92	25	10	100	0.05	40	.84	.40
MPSD02	TO-92	20	30	140	0.05	40	.86	.41
2N5550	TO-92	60	10	140	0.6	100	.58	.36
2N5551	TO-92	80	10	160	0.6	100	.62	.38
MPSD01	TO-92	20	30	200	0.1	40	.97	.46
MPSA43	TO-92	40	10	200	0.5	50	.68	.42
2N6515	TO-92	50	30	250	0.5	40	.65	.44
MPSA42	TO-92	40	10	300	0.5	50	.53	.37
2N6516	TO-92	45	30	300	0.5	40	.68	.45
2N6517	TO-92	30	30	350	0.5	40	.72	.47
PNP								
MPSD53	TO-92	20	30	100	0.05	40	$0.84	$0.40
MPSL51	TO-92	40	50	100	0.6	60	.61	.42
2N5400	TO-92	40	10	120	0.6	100	.75	.50
MPSD52	TO-92	20	30	140	0.05	40	.88	.42
2N5401	TO-92	60	10	150	0.6	100	.89	.60
MPSD51	TO-92	20	30	200	0.1	40	.99	.47
MPSA93	TO-92	40	10	200	0.5	50	.53	.35
2N6518	TO-92	50	30	250	0.5	40	.68	.45
MPSA92	TO-92	40	10	300	0.5	50	.58	.38
2N6519	TO-92	45	30	300	0.5	40	.72	.47
2N6520	TO-92	30	30	350	0.5	40	.76	.49

DARLINGTON TRANSISTORS

Motorola Type	Case	Min. BV_{CEO} Volts	h_{FE} at I_C Min.	mA	Min. f_T MHz	Max. I_C mZ	Net Each 1-99	100-999
NPN								
MPSA12	TO-92	20	20K	10	.....	500	$0.58	$0.35
MPSD04	TO-92	25	1K	100	100	300	.88	.42
MPSA13	TO-92	30	10K	100	125	500	.42	.29
MPSA14	TO-92	30	20K	100	125	500	.51	.31
2N6426	TO-92	40	30K	100	150	500	.50	.32
2N6427	TO-92	40	20K	100	130	500	.48	.30
PNP								
MPSA62	TO-92	20	20K	10	.....	500	$0.58	$0.36
MPSD54	TO-92	25	1K	100	100	300	.99	.47
MPSA63	TO-92	30	10K	100	125	500	.42	.30
MPSA64	TO-92	30	20K	100	125	500	.51	.32

‡Lots of 100–499.

PRICES LISTED ARE FOR GUIDANCE ONLY

SMALL SIGNAL HERMETIC TRANSISTORS

SILICON DUAL TRANSISTORS

Devices listed in descending order of magnitude of h_{FE}.

LOW NOISE—HIGH GAIN AMPLIFIERS

Motorola Type	Case	Polarity	BV_{CEO} V	DC Current Gain Ratio h_{FE1}/h_{FE2}	Net Ea., Lots 1-99	Net Ea., Lots 100-999
2N2919	654	NPN	60	0.9/1.0 10%	$4.20	$3.00
2N2920*	654	NPN	60		4.50	3.22
2N3810	654	PNP	60		4.60	3.29
2N3811	654	PNP	60		5.00	3.58
2N2639	654	NPN	40	0.9/1.0 10%	2.50	1.79
2N2642	654	NPN	40		3.00	2.15
2N2915	654	NPN	40		8.00	5.75
2N2916	654	NPN	40		4.20	3.00
2N3808	654	PNP	60	0.8/1.0 20%	4.20	3.00
2N3809	654	PNP	60		4.40	3.15
2N2913	654	NPN	40	0.8/1.0 > or unmatched 20%	2.50	1.79
2N2914	654	NPN	40		2.80	2.00
2N3806	654	PNP	60		3.10	2.22
2N3807	654	PNP	60		3.10	2.22

GENERAL PURPOSE AMPLIFIERS AND SWITCHES

Motorola Type	Case	Polarity	BV_{CEO} V	DC Current Gain Ratio h_{FE1}/h_{FE2}	Net Ea., Lots 1-99	Net Ea., Lots 100-999
2N2060*	654	NPN	60	0.9/1.0 10%	$3.60	$2.58
2N2903A	654	NPN	30		3.40	2.43
MD3250A†	654	PNP	40		6.50	4.65
MD3251A†	654	PNP	40		7.00	5.00
2N2480A	654	NPN	40	0.8/1.0 20%	2.90	2.08
2N2652	654	NPN	60		2.90	2.08
2N2903	654	NPN	30		6.65	4.75
2N4938	654	PNP	40		3.00	2.15
MD2218†	654	NPN	30	0.8/1.0 > or unmatched 20%	2.60	1.86
MD2219†	654	NPN	30		9.00	6.45
MD2905†	654	PNP	40		9.00	6.45
MD3251†	654	PNP	40		6.30	4.50
2N5793	654	NPN	40		5.65	3.25
2N5794	654	NPN	40		3.20	2.30
2N5795	654	PNP	60		3.70	2.65
2N5796	654	PNP	60		3.80	2.72
2N4854*	654	‡	40	.....	4.30	3.10
MD6001†	654	‡	30	.....	4.10	2.93
MD6002†	654	‡	30	.....	10.20	7.30

HIGH SPEED SWITCHES, HIGH FREQUENCY OSCILLATORS

MD708A†	654	NPN	15	0.9/1.0 10%	$5.00	$3.58
MD918A†	654	NPN	15		5.50	3.93
MD2369A†	654	NPN	15		4.50	3.22
MD708B†	654	NPN	15	0.8/1.0 20%	4.50	3.22
MD918B	654	NPN	15		5.50	3.93
MD708†	654	NPN	15	0.8/1.0 > or unmatched 20%	4.00	2.86
MD918†	654	NPN	15		4.80	3.43
MD2369†	654	NPN	15		3.40	2.43

*JAN and JANTX types available. †For Case 610, add suffix **F**; prices on request. ‡Complementary pairs; one NPN/one PNP.

UNIJUNCTION TRANSISTORS—UJT

Motorola Type	Case	Intrinsic Standoff Ratio	Max. I_P μA	Min. I_V mA	Max. P_D mW	Net Ea., Lots 1-99	Net Ea., Lots 100-999
MU10	29	0.50–0.85	5.0	1.0	300	$0.41	$0.36
MU20	22	0.56–0.85	2.0	1.0	300	.47	.42
MU2646	29	0.56–0.75	5.0	4.0	300	.88	.77
2N2646	22	0.56–0.75	5.0	4.0	300	.55	.48
2N2647	22	0.68–0.82	2.0	8.0	300	.96	.85
2N3980	22	0.68–0.82	2.0	0.01	360	2.90	2.54
2N4851	22	0.56–0.75	2.0	2.0	300	.89	.78
2N4852	22	0.70–0.85	2.0	4.0	300	.89	.78
2N4853	22	0.70–0.85	0.4	6.0	300	2.16	1.89
2N4870	29	0.56–0.75	5.0	2.0	300	.70	.62
2N4871	29	0.70–0.85	5.0	4.0	300	.63	.55
MU4891	29	0.55–0.82	5.0	2.0	300	.75	.66
MU4892	29	0.51–0.69	2.0	2.0	300	.98	.86
MU4893	29	0.55–0.82	2.0	2.0	300	.81	.71
MU4894	29	0.74–0.86	1.0	2.0	300	.88	.77
2N4948*	22	0.55–0.82	2.0	2.0	360	.79	.69
2N4949*	22	0.74–0.86	1.0	2.0	360	2.09	1.93
2N5431†	22	0.72–0.80	0.4	2.0	300	3.03	2.65

*JAN and JANTX types available. †JAN type available.

PROGRAMMABLE UNIJUNCTION TRANSISTORS—PUT

I_P and I_V at $R_G = 1$ meg. $V_O = 6.0$ V min. $V_F = 1.5$ V at $I_F = 50$ mA. $t_r = 80$ nsec. $T_J = -50°$ C to $+100°$ C except as otherwise noted.

Motorola Type	Case	Maximum I_P μA	Maximum I_V μA	P_D mW	I_T (pulse) A	Net Ea., Lots 1-99	Net Ea., Lots 100-999
MPU131	29	2.0	50	375	2.0	$0.62	$0.54
MPU132	29	0.3	50	375	2.0	.68	.59
MPU133	29	0.15	25	375	2.0	.78	.68
2N6027	29	2.0	50	375	5.0	.27	.24
2N6028	29	0.15	25	375	5.0	.34	.30
2N6116*	22	2.0	50	250	2.0	1.21	1.06
2N6117*	22	0.3	50	250	2.0	1.99	1.74
2N6118*	22	0.15	25	250	2.0	2.41	2.11
MPU6027	29	2.0	50	375	.....	.73	.50
MPU6028	29	0.15	25	375	.....	.93	.61

*$T_J = -50°$ C to $+125°$ C.

NPN-PNP SILICON QUAD TRANSISTORS

Each quad transistor contains four similar transistors that can be used to reduce space requirements. Listed in order of decreasing BV_{CEO} (min.). NPN except as otherwise noted.

PLASTIC DUAL-IN-LINE (CASE 646)

Motorola Type	BV_{CEO} V	h_{FE} at I_C Min.	I_C mA	Maximum t_{on} ns	Maximum t_{off} ns	Min. f_T MHz	Net Ea., Lots 1-99	Net Ea., Lots 100-999
MPQ3799*	60	300	0.1	.....	.....	60	$2.29	$1.47
MPQ3467*	40	20	500	40	90	250	1.78	1.14
MPQ3725	40	25	500	35	60	250	1.78	1.14
MPQ2483	40	150	1.0	.....	.....	50	2.13	1.37
MPQ3798*	40	150	0.1	.....	.....	60	2.13	1.37
MPQ2484	40	300	1.0	.....	.....	50	2.29	1.47
MPQ6001†	30	40	150	30‡	225‡	200	2.62	1.69
MPQ6002†	30	100	150	30‡	225‡	200	2.93	1.89
MPQ3303	12	40	300	15	20	400	2.93	1.89

CERAMIC DUAL-IN-LINE (CASE 632)

MHQ2907*	60	100	150	30‡	100‡	350	$7.90	$6.08•
MHQ3799*	60	300	0.1	.....	.....	325	8.50	6.54•
MHQ2906*	40	40	150	30‡	100‡	350	7.50	5.77•
MHQ2221	40	40	150	30	225	350	7.50	5.77•
MHQ2222	40	100	150	25	250	350	7.90	6.08•
MHQ3798*	40	150	0.1	.....	.....	325	8.20	6.31•
MHQ6100†	40	75	1.0	.....	.....	175§	9.38	7.22•
MHQ3467*	40	20	500	40	120	.....	7.90	6.08•
MHQ6001†	30	40	150	.....	.....	400	9.00	6.93•
MHQ6002†	30	100	150	.....	.....	400	9.80	7.54•
MHQ2483	25	150	1.0	.....	.....	175	8.20	6.31•
MHQ2369	15	40	10	9‡	15‡	550	9.20	7.08•
MHQ3546*	12	25	50	15‡	25‡	1000	9.70	7.47•

FLAT PACK (CASE 607)

MQ2905A*	60	100	150	45	130	225	20.90	$17.70•
2N5146*	40	20	1000	40	120	200	21.10	17.85
MQ3467*	40	20	500	40	120	200	20.90	17.70•
MQ3725	40	30	500	45	75	300	20.45	17.30•
MQ2219A	40	100	150	60	350	270	20.00	16.90•

*PNP; all other types NPN. †Complementary. ‡Typical. §NPN; 130 MHz, PNP.

NPN-PNP SILICON RF TRANSISTORS

For communications and general amplifier applications. Listed in order of increasing test frequency; then in order of increasing output power rating, within each price break-out tables.

NPN RF POWER AMPLIFIERS

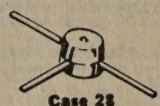
Motorola Type	Case	Test Conditions f MHz	Test Conditions V_{CC} V	Min. P_{out} W	Min. BV $_{CBO}$ V	Net Each, Lots of 1-99	Net Each, Lots of 100-499
MRF8004	TO-39	27	12.5	3.5	60	$ 2.10	$ 1.80
2N6370	211-01	30	28	10.0*	65	28.75	25.00
2N5847	145A-01	50	12.5	8.0	36	13.80	12.00
2N6255	TO-39	175	12.5	3.0	36	1.95	1.70
2N5589	144B-03	175	13.6	3.0	36	8.65	7.50
2N6080	145A-01	175	12.5	4.0	36	9.20	8.00
2N5641	144B-03	175	28	7.0	65	9.20	8.00
2N5590	145A-01	175	13.6	10	36	10.35	9.00
2N6081	145A-01	175	12.5	15	36	10.35	9.00
2N3948	TO-39	400	13.6	1.0	36	1.75	1.50
2N5635	144B-03	400	28	2.5	60	10.95	9.50
2N6256	249-01	470	12.5	0.5	36	8.75	7.60
2N5944	244-01	470	12.5	2.0	36	9.20	8.00
MM8009♯	TO-39	1000	28	0.9	55	2.30	2.00
2N5070	TO-60	30	28	25*	65	18.40	16.00
2N6368	211-01	30	12.5	40*	36	28.75	25.00
2N5941	211-01	30	28	40*	65	23.00	20.00
2N5849	145A-01	50	12.5	40	48	20.70	18.00
2N5642	145A-01	175	28	20	65	10.95	9.50
2N6082	145A-01	175	12.5	25	36	11.50	10.00
2N5591	145A-01	175	13.6	25	36	13.80	12.00
2N6083	145A-01	175	12.5	30	36	13.25	11.50
2N5643	145A-01	175	28	40	65	15.50	13.50
2N6084	145A-01	175	12.5	40	36	15.00	13.00
MRF208	145A-01	220	12.5	10	36	11.50	10.00
MRF209	145A-01	220	12.5	25	36	13.80	12.00
2N5636	144B-03	400	28	7.5	60	12.00	10.50
2N5637	145A-01	400	28	20	60	15.50	13.50
MRF5177	215	400	28	30	60	27.60	24.00
2N5945	244-01	470	12.5	4.0	36	11.50	10.00
2N5946	244-01	470	12.5	10	36	14.40	12.50

*PEP. §Tripler. ♯Also UHF and Microwave oscillators.

FIELD EFFECT TRANSISTORS

Case 20

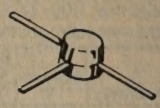
Case 22


Case 28

Case 29

Case 45

Case 51


Case 176

Case 226

RF AMPLIFIERS

Listed in order of decreasing specified test frequency; increasing power gain and noise figure.

Motorola Type	Case	f_T MHz	Minimum G_{pa} dB	Minimum NF dB	Max. C_{rss} pF	Net Ea., Lots 1-99	Net Ea., Lots 100-999
N-CHANNEL JFETs							
U310	27	450	11	3.0	2.5	$1.75	$1.10
2N4416	20	400	10	4.0	0.8	1.50	1.05
2N4416A	20	400	10	4.0	0.8	1.55	1.10
2N5485	29	400	10	4.0	1.0	.45	.32
2N5486	29	400	10	4.0	1.0	.45	.32
MPF256	29	400	12	4.0	1.2	.80	.53
MPF102	29	100	..	...	3.0	.45	.30
2N5484	29	100	16	3.0	3.0	.45	.30
J310	29	100	16	3.0	2.5	.70	.50
DUAL GATE, N-CHANNEL MOSFETs							
3N209	20	500	10	6.0	0.05	$1.25	$0.90
MFE521	20	500	21	3.5	0.02	1.55	1.05
3N201	20	200	15	5.0	0.03	1.20	.85
3N202	20	200	15	...	0.03	1.20	.85
MFE131	20	200	17	5.0	0.05	1.15	.80
3N212	20	200	21	...	0.05	1.40	1.00
3N211	20	200	29	3.5	0.05	1.40	1.00
3N203	20	45	20	6.0	0.03	1.10	.80
3N213	20	45	27	4.0	0.025	1.50	1.05

CHOPPERS AND SWITCHES

Listed in order of decreasing $V_{(BR)GSS}$, increasing $r_{ds(on)}$, then in order of increasing C_{rss} and I_{DSS}.

Motorola Type	Case	Min. $V_{(BR)GSS}$ V	Maximum $r_{ds(on)}$ Ohms	Maximum C_{rss} pF	Max. I_{DSS} mA	Net Ea., Lots 1-99	Net Ea., Lots 100-999
N-CHANNEL JFETs							
2N4856	22	40	25	8.0	0.25	$1.05	$0.75
2N4857	22	40	40	8.0	0.25	1.05	.75
2N4858	22	40	60	8.0	0.25	1.05	.75
2N5638	29	30	30	4.0	1.0	.55	.40
2N5639	29	30	60	4.0	1.0	.50	.35
2N5640	29	30	100	4.0	1.0	.55	.40
P-CHANNEL JFETs							
MPF970	29	30	100	5.0	10	$0.90	$0.65
MPF971	29	30	250	5.0	10	.85	.60
N-CHANNEL MOSFETs							
2N4351	20	25	300	1.3	10	$2.25	$1.60
P-CHANNEL MOSFETs							
MFE3003	20	15	200	1.0	10	$3.00	$2.05

POWER TRANSIENT SUPPRESSORS (CASE 119)

$P_D = 350$ W max. at $T_C = 25°$ C, $T_J = 175°$ C. $I_{R(max.)}$ at $V_R = 50$ μADC. MPZ Series is an array of six basic cells, special configurations are available with various power and/or voltage ratings.

Motorola Type	Nom. $V_{OP(PK)}$ VDC	Max. C_T V	$V_{Z(max.)}$ at I_Z* VDC	$V_{Z(max.)}$ at I_Z* ADC	Typ. C μF	Net Ea., Lots of 1-99	Net Ea., Lots of 100-999
MPZ5-16A	14	1.25	24	200	0.025	$30.94	$27.20
MPZ5-16B	14	1.25	20	200	0.025	55.38	48.47
MPZ5-32A	28	1.25	50	100	0.011	22.13	19.56
MPZ5-32B	28	1.25	45	100	0.011	33.06	29.09
MPZ5-32C	28	1.25	40	100	0.011	55.38	48.47
MPZ5-180A	165	1.14	250	20	0.0012	33.06	29.09
MPZ5-180B	165	1.14	225	20	0.0012	55.38	48.47
MPZ5-180C	165	1.14	205	20	0.0012	77.31	67.53

*Pulse width = 1.0 msec.

GENERAL PURPOSE AMPLIFIERS/SWITCHES

Listed in order of increasing gate-source breakdown voltage, and forward transfer admittance.

Motorola Type	Case	Min. $V_{(BR)}$	Minimum-Maximum I_{DSS} mA	Minimum-Maximum y_{fs} μmhos	Net Ea., Lots 1-99	Net Ea., Lots 100-999
N-CHANNEL JFETs						
2N5459	29	25	4.0–16	2000–6000	$0.45	$0.32
2N5458	29	25	2.0–9.0	1500–5500	.45	.32
2N5457	29	25	1.0–5.0	1000–5000	.45	.30
2N4416	20	30	5.0–15	4500–7500	1.50	1.05
2N4416A	20	30	5.0–15	4500–7500	1.55	1.10
2N3823	20	30	4.0–20	3500–6500	1.05	.80
2N4222	20	30	5.0–15	2500–6000	1.40	1.00
2N4221	20	30	2.0–6.0	2000–5000	1.40	1.00
2N4220	20	30	0.5–3.0	1000–4000	1.40	1.00
2N4341	22	50	3.0–9.0	2000–4000	1.25	.90
2N4340	22	50	1.2–3.6	1300–3000	1.05	.75
2N4339	22	50	0.5–1.5	800–2400	.90	.65
P-CHANNEL JFETs						
2N2609	22	30	2.0–10	2500–	$1.40	$1.00
2N2608	22	30	0.9–4.5	1000–	1.35	.95
2N5462	29	40	4.0–16	2000–6000	.70	.50
2N5461	29	40	2.0–9.0	1500–5000	.65	.45
2N5460	29	40	1.0–5.0	1000–4000	.70	.50
N-CHANNEL MOSFETs						
3N128	20	20	5.0–25	5000–12000	$2.05	$1.45
MFE3004	20	20	2.0–10	2000–	1.80	1.40
3N171	20	25	–10	1000–	2.50	1.80
3N170	20	25	–10	1000–	2.75	1.95
3N169	20	25	–10	1000–	3.00	2.15
2N4351	20	25	–10	1000–	2.25	1.60
P-CHANNEL MOSFETs						
MFE3003	20	15	–10	.....	$3.00	$2.05
2N4352	20	25	10–25	1000–	2.50	1.80
3N157	20	35	–10	1000–4000	2.50	1.80
3N157A	20	35	–0.25	1000–4000	4.25	3.05

GENERAL PURPOSE AUDIO AMPLIFIERS

Listed in order of increasing gate-source breakdown voltage and forward transfer admittance.

Motorola Type	Case	Min. $V_{(BR)}$	Minimum-Maximum I_{DSS} mA	Minimum-Maximum y_{fs} μmhos	Net Ea., Lots 1-99	Net Ea., Lots 100-999
N-CHANNEL JFETs						
2N5459	29	25	4.0–16	2000–6000	$0.45	$0.32
2N5458	29	25	2.0–9.0	1500–5500	.45	.30
2N5457	29	25	1.0–5.0	1000–5000	.45	.30
2N4222A	20	30	5.0–15	2500–6000	1.45	1.05
2N4221A	20	30	2.0–6.0	2000–5000	1.45	1.05
2N4220A	20	30	0.5–3.0	1000–4000	1.45	1.05
P-CHANNEL JFETs						
2N3330	20	20	2.0–6.0	1500–3000	$1.95	$1.35
2N5462	29	40	4.0–16	2000–6000	.70	.50
2N5461	29	40	2.0–9.0	1500–5000	.65	.45
2N5460	29	40	1.0–5.0	1000–4000	.70	.50
N-CHANNEL MOSFETs						
MFE3001	20	20	0.5–6.0	700–3500	$2.25	$1.75
P-CHANNEL MOSFETs						
MFE823	22	25	–20	1000–	$2.15	$1.50

ECONOMY DUAL DIODES (CASE 29)

$T_J = 135°$ C, $I_F = 200$ mA. $V_{(BR)}$ at $I_{BR} = 100$ μA; C at V_R = zero; t_{rr} at $I_R = 10$ mA. Common cathode except MSD6150, common anode; MSD7000, series.

Motorola Type	Min. $V_{(BR)}$ Volts	Maximum C pF	Maximum t_{rr} nsec	Net Each, Lots of 1-99	Net Each, Lots of 100-999
MSD6100	100	1.5	4.0	$0.36	$0.24
MSD6101	50	2.0	10	.40	.27
MSD6102	70	3.0	100	.30	.20
MSD6150	70	8.0	100	.37	.25

LARGER QUANTITY PRICES AVAILABLE ON REQUEST.

PRICES LISTED ARE FOR GUIDANCE ONLY

DUAL EPICAP TUNING DIODE

C_T diode capacitance at $V_R = 3.0$ V, f = 1.0 MHz. C_R capacitance ratio C_3/C_{30}, f = 1.0 MHz. Q at 3.0 V, 100 MHz.

Motorola Type	Case	C_T ±10% pF	Cap. Ratio	Q Min.	Net Ea., Lots of 1-99	Net Ea., Lots of 100-999
MV104	29	36	2.5	100	$0.77	$0.56
MV104G	29	40	2.5	100	.65	.46
MV109	226	29	5.0	280#	.77	.55
MV209	226	29	5.0	200#	.77	.55
BB105B	226	2.2*	4.5	225	.52	.40
BB105G	226	2.3*	4.0	150	.50	.38
BB105A	226	2.6*	4.0	225	.50	.38

*At 25 volts. #At 50 MHz.

EPICAP TUNING DIODES

C_T at $V_R = 4.0$ V, f = 1.0 MHz. Q at $V_R = 4.0$ V, f = 50 MHz.

Nom. C_T pF	Motorola Type	Cap. Ratio Min.	Q Min.	Max. V_R VDC	Motorola Type	Cap. Ratio Min.	Q Min.	Max. V_R VDC
	Case 51				Case 45			
1.0	MVI-2097	2.0	325†	30	.....	.....	.....	.....
2.2	MVI-2098	2.0	325†	30	.....	.....	.....	.....
3.3	MVI-2099	2.2	300†	30	.....	.....	.....	.....
4.7	MVI-2100	2.4	275†	30	.....	.....	.....	.....
6.8	MVI-2101	2.7	275†	30	.....	.....	.....	.....
8.2	MVI-2102	2.8	275†	30	.....	.....	.....	.....
10	MVI-2103	2.8	275†	30	.....	.....	.....	.....
12	MVI-2104	2.8	275†	30	.....	.....	.....	.....
15	MVI-2105	2.9	275†	30	.....	.....	.....	.....
18	MVI-2106	2.9	250†	30	.....	.....	.....	.....
22	MVI-2107	2.9	200†	30	.....	.....	.....	.....
27	MVI-2108	2.7	200†	30	.....	.....	.....	.....
33	MVI-2109	2.7	200†	30	.....	.....	.....	.....
	Case 51				Case 51			
6.8	1N5139, A	2.7	350	60	.....	.....	.....	.....
10	1N5140, A	2.8	300	60	MV1866	3.0	500	60
12	1N5141, A	2.8	300	60	MV1868	3.0	500	60
15	1N5142, A	2.8	250	60	MV1870	3.0	400	60
18	1N5143, A	2.8	250	60	MV1871	3.0	400	60
22	1N5144, A	3.2	200	60	MV1872	3.2	400	60
27	1N5145, A	3.2	200	60	MV1874	3.2	300	60
33	1N5146, A	3.2	200	60	MV1876	3.2	300	60
39	1N5147, A	3.2	200	60	MV1877	3.2	300	60
47	1N5148, A	3.2	200	60	MV1878	3.2	300	60
	Case 51				Case 51			
6.8	1N5461A	2.7	600	30	1N5441A	2.5	450	30
8.2	1N5462A	2.8	600	30	1N5442A	2.5	450	30
10	1N5463A	2.8	550	30	1N5443A	2.6	400	30
12	1N5464A	2.8	550	30	1N5444A	2.6	400	30
15	1N5465A	2.8	550	30	1N5445A	2.6	400	30
18	1N5466A	2.9	500	30	1N5446A	2.6	350	30
20	1N5467A	2.9	500	30	1N5447A	2.6	350	30
22	1N5468A	2.9	500	30	1N5448A	2.6	350	30
27	1N5469A	2.9	500	30	1N5449A	2.6	350	30
33	1N5470A	2.9	500	30	1N5450A	2.6	350	30
39	1N5471A	2.9	450	30	1N5451A	2.6	300	30
47	1N5472A	2.9	400	30	1N5452A	2.6	250	30
56	1N5473A	2.9	300	30	1N5453A	2.6	200	30
68	1N5474A	2.9	250	30	1N5454A	2.7	175	30
82	1N5475A	2.9	225	30	1N5455A	2.7	175	30
100	1N5476A	2.9	200	30	1N5456A	2.7	175	30
	Case 51				Case 51			
6.8	MV1620	2.0	300	20	MV2101	2.5	450	30
8.2	MV1622	2.0	300	20	MV2102	2.5	450	30
10	MV1624	2.0	300	20	MV2103	2.5	400	30
12	MV1626	2.0	300	20	MV2104	2.5	400	30
15	MV1628	2.0	250	20	MV2105	2.5	400	30
18	MV1630	2.0	250	20	MV2106	2.5	350	30
20	MV1632	2.0	250	20	.....	.....	.....	.....
22	MV1634	2.0	250	20	MV2107	2.5	350	30
27	MV1636	2.0	200	20	MV2108	2.5	300	30
33	MV1638	2.0	200	20	MV2109	2.5	200	30
39	MV1640	2.0	200	20	MV2110	2.5	150	30
47	MV1642	2.0	200	20	MV2111	2.5	150	30
56	MV1644	2.0	150	20	MV2112	2.6	150	30
68	MV1646	2.0	150	20	MV2113	2.6	150	30
82	MV1648	2.0	150	20	MV2114	2.6	100	30
100	MV1650	2.0	150	20	MV2115	2.6	100	30
	Case 51				Case 51			
15	MV830	1.8	30	30	.....	.....	.....	.....
18	MV831	1.8	25	30	.....	.....	.....	.....
22	MV832	1.8	25	30	.....	.....	.....	.....
27	MV833	1.8	25	30	.....	.....	.....	.....
33	MV834	1.9	20	30	.....	.....	.....	.....
39	MV835	1.9	20	30	.....	.....	.....	.....
47	MV836	1.9	15	30	.....	.....	.....	.....
56	MV837	1.9	15	30	.....	.....	.....	.....
68	MV838	2.0	15	30	.....	.....	.....	.....
82	MV839	2.0	10	30	.....	.....	.....	.....
100	MV840	2.0	10	30	.....	.....	.....	.....
	Case 51				Case 146			
120	MV1404	10	200#	12	MV1652	2.6	250*	20
150	MV1403	10	200#	12	MV1654	2.6	250*	20
180	.....	.....	.....	.....	MV1656	2.6	200*	20
200	.....	.....	.....	.....	MV1658	2.6	200*	20
220	.....	.....	.....	.....	MV1660	2.6	150*	20
250	MV1405	10	200#	12	MV1662	2.3	150*	20
270	.....	.....	.....	.....	MV1664	2.3	100*	20
330	.....	.....	.....	.....	MV1666	2.3	100*	20
550	MV1401	14	200#	12	.....	.....	.....	.....

†At 100 MHz. *At 20 MHz. #At 1 MHz.

NPN-PNP MICRO-T PLASTIC TRANSISTORS (CASE 28)

Micro-T package 0.085" dia. injection-molded plastic package for applications requiring high component mounting density. More detailed information available on request.

GENERAL PURPOSE AND SWITCHING TRANSISTORS

Motorola Type	Max. V_{CEO} V	Oper. h_{FE} Range	Typ. f_T MHz	Typ. t_{on} @ I_C nsec	@ I_C mA	Net Ea., Lots 1-99	Net Ea., Lots 100-999
			NPN				
MMT76	40	100 μA to 100 mA	300	40*	10	$ 0.83	$ 0.77
MMT3903						1.53	1.42
MMCM3903•						21.00■	16.20▲
MMT3904						1.53	1.42
MMCM3904•						21.50■	16.55▲
MMCM2222•	60	100 μA to 500 mA	300	25†	150	21.90■	16.85▲
MMT2222						1.47	1.35
			PNP				
MMT75	40	100 μA to 100 mA	350	45‡	10	$ 0.83	$ 0.77
MMT3905						1.35	1.25
MMCM3905•						22.00■	16.95▲
MMT3906						1.48	1.37
MMCM3906•						22.30■	17.20▲
MMT2907	60	100 μA to 500 mA	350	30§	150	1.75	1.62
MMCM2907•						21.50■	16.55▲

•Case 176 hermetically sealed ceramic. *t_{off} = 140 nsec. †t_{off} = 250 nsec. ‡t_{off} = 160 nsec. §t_{off} = 100 nsec.

RF AMPLIFIER AND SWITCHING TRANSISTORS

Motorola Type	Max. V_{CEO} V	Oper. h_{FE} Range	Typ. f_T MHz	Typ. t_{on} @ I_C nsec	@ I_C mA	Net Ea., Lots 1-99	Net Ea., Lots 100-999
			NPN				
MMT3960	3	1-30 mA	2250	3	10	$3.68	$3.40
MMT8006	8	.01-10 mA	2200	.....	.....	7.58	7.39
MMT8007						7.25	6.89
MMT8008						6.25	5.97
MMT5031	14	1-5 mA	2000	.....	.....	3.90	3.80
MMT5031A						5.97	5.82
MMT2857	15	1-20 mA	1400	.....	.....	2.63	2.43
MMT2857A						3.68	3.40
			PNP				
MMT918	15	3	600	.....	.....	$2.08	$1.98
MMT4261	15	10	1000	.....	.....	6.63	6.31

LOW CURRENT SWITCHING

Motorola Type	Max. V_{CEO} V	Oper. h_{FE} Range	Typ. f_T MHz	Typical NF at I_C dB	Typical NF at I_C μA	Net Ea., Lots 1-99	Net Ea., Lots 100-999
			NPN				
MMT72	20	10 mA to 100 mA	400	12	300	$ 1.17	$ 1.08
MMT3014						2.27	2.09
MMT2369	15	10 mA to 100 mA	650	2	10	1.55	1.43
MMCM2369						21.00■	16.20▲
			PNP				
MMT3546	12	10-100 mA	850	15	50	$2.82	$2.60

LOW NOISE/HIGH GAIN TRANSISTORS

Motorola Type	Max. V_{CEO} V	Oper. h_{FE} Range	Typ. f_T MHz	Typical NF at I_C dB	Typical NF at I_C μA	Net Ea., Lots 1-99	Net Ea., Lots 100-999
			NPN				
MMT70	60	100 μA to 10 mA	90	2.0	10	$ 1.00	$ 0.92
MMT930						1.25	1.15
MMCM930•						21.00■	16.20▲
MMT2484						1.33	1.23
MMCM2484•						21.30■	16.40▲
			PNP				
MMT71	60	10 μA to 10 mA	140	1.5	100	$ 0.83	$ 0.77
MMT3798						2.25	2.08
MMCM3798•						22.20■	17.10▲
MMT3799						2.63	2.43
MMCM3799•						22.50■	17.35▲

•Case 176 hermetically sealed ceramic.

EPICAP PRICES

Motorola Type	Net Ea., Lots 1-99	Net Ea., Lots 100-999	Motorola Type	Net Ea., Lots 1-99	Net Ea., Lots 100-999
1N5139—1N5148	$3.60	$2.50	MV830—MV838	$1.35	$0.95
1N5139A—1N5148A	4.25	3.00	MV1401—MV1405	8.75	6.30
1N5441A—1N5456A	3.10	2.20	MV1620—MV1646	1.42	1.00
1N5441B—1N5456B	3.72	2.70	MV1648—MV1650	1.75	1.22
1N5441C—1N5456C	4.50	3.30	MV1652—MV1666	3.60	2.55
1N5461A—1N5476A	6.00	4.40	MV1866—MV1878	10.50	7.25
1N5461B—1N5476B	7.80	5.20	MV2101—MV2115	.90	.60
1N5461C—1N5476C	10.00	7.20	MVI-2097—MVI-2109	1.75	1.62

■Lots of 1-24. ▲Lots of 25-99.

Case 29
TO-92

Case 81A

Case 730

Case 82
TO-18

Case 234
Actual Size

Case 209

Case 210

OPTOELECTRONIC DEVICES

OPTICAL COUPLERS/ISOLATORS

Motorola Type	Case	Isol. Volts	Trans. Ratio % Min.	Min. BV_{CEO} Volts	Net Ea., Lots 1-99	Net Ea., Lots 100-999
TRANSISTOR OUTPUT						
TIL112	730	7500	2	20	$0.90	$0.80
TIL115	730	7500	2	20	.90	.80
IL15	730	7500	6	30	1.00	.85
MCT26	730	7500	6	30	.87	.69
TIL111	730	7500	8	30	.90	.80
TIL114	730	7500	8	30	.90	.80
IL12	730	7500	10	20	.90	.75
TIL118	730	7500	10	20	.90	.80
4N27	730	7500	10	30	.87	.69
4N28	730	7500	10	30	.87	.69
IL74	730	7500	12.5	20	.87	.69
4N25	730	7500	20	30	.96	.72
4N26	730	7500	20	30	.96	.72
H11A2	730	7500	20	30	1.70	1.40
H11A520	730	7500	20	30	1.00	.85
IL1	730	7500	20	30	1.00	.85
MCT2	730	7500	20	30	.96	.72
TIL116	730	7500	20	30	.90	.80
4N38	730	7500	20	80	1.30	1.00
H11A5	730	7500	30	30	1.00	.85
H11A1	730	7500	50	30	1.00	.85
H11A550	730	7500	50	30	1.00	.85
TIL117	730	7500	50	30	.90	.80
4N35	730	7500	100	30	1.10	.88
4N36	730	7500	100	30	1.10	.88
4N37	730	7500	100	30	1.10	.88
H11A5100	730	7500	100	30	1.50	1.25
DARLINGTON TRANSISTOR OUTPUT						
4N31	730	7500	50	30	$1.10	$0.95
H11B3	730	7500	100	25	1.40	1.10
4N29	730	7500	100	30	1.20	1.00
4N30	730	7500	100	30	1.20	1.00
MCA230	730	7500	100	30	1.20	1.00
H11B255	730	7500	100	55	1.40	1.10
H11B2	730	7500	200	25	1.50	1.20
MCA231	730	7500	200	30	1.50	1.30
MOC119	730	7500	300	30	1.00	.75
TIL119	730	7500	300	30	1.00	.75
TIL113	730	7500	300	30	1.20	1.00
MOC8030	730	7500	300	80	1.40	1.20
H11B1	730	7500	500	25	1.55	1.25
4N32	730	7500	500	30	1.40	1.10
4N33	730	7500	500	30	1.40	1.10

INFRARED EMITTING DIODES

Infrared (900 nM typ. peak emission wavelength) gallium arsenide emitters provide high power output in light modulators, shaft or position encoders, punched card and tape readers, optical switching and logic circuits. They are spectrally matched for use with silicon detectors.

Motorola Type	Case	Power Output at I_F µW (Typ.)	Power Output at I_F mA	Forward Voltage V_F (Typ.)	Net Ea., Lots 1-99	Net Ea., Lots 100-999
MLED60	234	550	50	1.2	$2.00	$1.60
MLED92	29	150	50	1.2	.55	.40
MLED90	234	350	50	1.2	2.00	1.60
MLED910	81A	150	50	1.2	6.30	5.30
MLED930	209	650	100	1.2	1.25	.98

PIN SILICON PHOTODIODES

Designed for application in laser detection, light demodulation, detection of radiation from visible and near infrared LEDs, shaft or position encoders, switching and logic circuits or any design requiring radiation sensitivity and stable characteristics. High speed devices with response time of less than 1.0 ns typical. Dark current = 2.0 nA max. at V_R = 20 V; response time = 1.0 ns typ.

Motorola Type	Case	Lens	H = 2.0 mW/cm² Sensitivity µA/mW/cm²	H = 2.0 mW/cm² Light Current	Net Ea., Lots 1-99	Net Ea., Lots 100-999
MRD500	209	Convex	1.2 min.	6.0 µA min.	$3.50	$2.75
MRD510	210	Flat	0.3 min.	1.5 µA min.	3.50	2.75

NPN SILICON PHOTOTRANSISTORS

H is radiation flux density emitted from a tungsten source at 2870 K.

HIGH DENSITY PHOTOTRANSISTORS

Subminiature NPN silicon phototransistors designed for use in card and tape readers, pattern and character recognition equipment, shaft encoders or any design requiring radiation sensitivity, stable characteristics and high stability. Light current at H = 20 mW/cm².

Motorola Type	Case	Min. Light Current mA	Max. Dark Current nA	Typ. t_s µs	Net Each, Lots of 1-99	Net Each, Lots of 100-999
MRD601	81A	0.5	25	4.8	$7.80	$6.00
MRD602	81A	2.0	25	4.8	8.20	6.50
MRD603	81A	4.0	25	4.8	8.90	7.40
MRD604	81A	7.0	25	4.8	9.50	8.00

*At H = 5.0 mW/cm²; sensitivity = 0.04 mA/mW/cm² at H = 5.0 mW/cm². †Vcc = 20 V; all others Vcc = 30 V. ‡Maximum.

LOW DENSITY PHOTOTRANSISTORS

NPN silicon phototransistors designed for use in industrial inspection, processing and control systems, counters, sorters, switching and logic circuits or any design requiring radiation sensitivity, stable characteristics and moderate mounting density in arrays or single device applications. Sensitivity and light current at H = 5.0 mW/cm²; dark current at Vcc = 20 V.

Motorola Type	Case	Sensitivity mA/mW/cm⁵ Min.	Dark Current nA Max.	Light Current mA Min.	Net Ea., Lots 1-99	Net Ea., Lots 100-999
MRD300*	82	0.8	25	4.0	$2.50	$1.75
MRD310*	82	0.2	25	1.0	1.13	.82
MRD3050‡	82	0.02	100	0.1	.88	.67
MRD3051‡	82	0.04	100	0.2	.98	.72
MRD3054‡	82	0.125–0.5	100	.625–2.5	1.03	.77
MRD3055‡	82	0.3	100	1.5	1.08	.82
MRD3056‡	82	0.4	100	2.0	1.24	.92

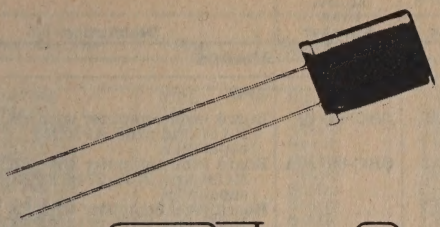
*Maximum Switching Time: 6.5 µs; †11 µs; ‡5.5 µs typical.

SILICON PHOTO DARLINGTON AMPLIFIERS

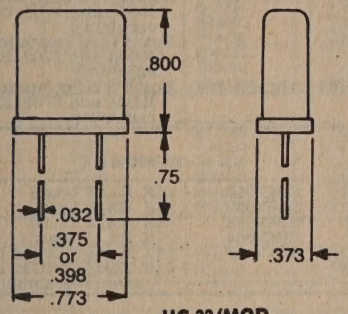
Designed for use where extremely high sensitivity is required. Plastic side reading devices are the most economical detectors available. Sensitivity and light current at H = 2.0 mW/cm²; dark current at H = 0. Switching time, 400 µsec.

Motorola Type	Case	Sensitivity mA/mW/cm² Typ.	Dark Current nA Max.	Light Current mA Typ.	Net Ea., Lots 1-99	Net Ea., Lots 100-999
2N5777	29	2.0	100	4.0	$0.60	$0.50
2N5778	29	2.0	100	4.0	.70	.55
2N5779	29	4.0	100	8.0	.80	.70
2N5780	29	4.0	100	8.0	.90	.80
MRD14B	29	1.0	100	2.0	.55	.40
MRD360	82	.....	100	20	3.35	2.25
MRD370	82	.....	100	10	1.55	1.20

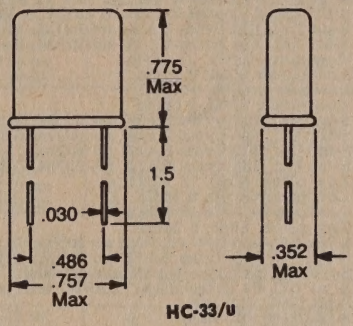
M-tron Microprocessor Crystals



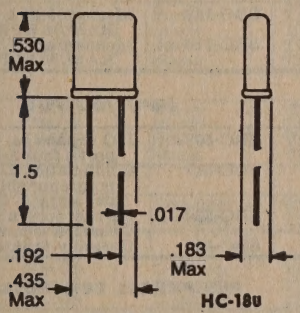
Quartz crystals for microprocessors, clocks and integrated circuits. Frequencies available from 1 MHz to 100 MHz. Compatible with all major manufacturer types. **Frequency Calibration Tolerance:** ±.0025% at 25°C. **Frequency Stability Tolerance:** ±.0035% of the +25°C reading from −20°C to +70°C. Popular frequencies listed below are stock items; non-standard items built to customer specifications. To order stock items, specify product number and frequency.



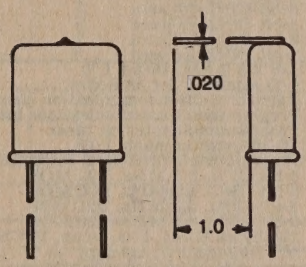
HC-33/MOD



HC-33/U



HC-18U



Optional 3rd Lead

M-Tron Product Type	Frequency (MHz)	Package Style	Max. Series Resistance (ohms)	Net Each, Lots of 1-49	50-99	100-249	250-499	500-999	1000-2499	2500-4999
MP-2	1.000000	HC-33 or 51/U	500	$5.44	$4.90	$4.45	$4.08	$3.89	$3.71	$3.55
	1.843200	HC-33 or 51/U	300	3.97	3.58	3.25	2.98	2.84	2.71	2.59
	2.000000	HC-33 or 51/U	300	2.72	2.45	2.23	2.04	1.94	1.86	1.78
	2.097152	HC-33 or 51/U	300	2.72	2.45	2.23	2.04	1.94	1.86	1.78
	2.457600	HC-33 or 51/U	250	2.72	2.45	2.23	2.04	1.94	1.86	1.78
	3.276800	HC-33 or 51/U	200	2.72	2.45	2.23	2.04	1.94	1.86	1.78
	3.579545	HC-33 or 51/U	100	2.44	2.20	2.00	1.83	1.75	1.67	1.59
	4.000000	HC-33 or 51/U	100	2.44	2.20	2.00	1.83	1.75	1.67	1.59
	4.194304	HC-33 or 51/U	100	2.44	2.20	2.00	1.83	1.75	1.67	1.59
MP-1	2.457600	HC-18 or 49/U	300	2.11	1.90	1.73	1.58	1.51	1.44	1.38
	3.276800	HC-18 or 49/U	250	2.11	1.90	1.73	1.58	1.51	1.44	1.38
	3.579545	HC-18 or 49/U	250	2.11	1.90	1.73	1.58	1.51	1.44	1.38
	4.000000	HC-18 or 49/U	150	2.06	1.85	1.68	1.54	1.47	1.40	1.34
	4.194304	HC-18 or 49/U	100	2.06	1.85	1.68	1.54	1.47	1.40	1.34
	4.915200	HC-18 or 49/U	75	2.06	1.85	1.68	1.54	1.47	1.40	1.34
	5.000000	HC-18 or 49/U	75	2.06	1.85	1.68	1.54	1.47	1.40	1.34
	5.068800	HC-18 or 49/U	75	2.06	1.85	1.68	1.54	1.47	1.40	1.34
	5.120000	HC-18 or 49/U	75	2.06	1.85	1.68	1.54	1.47	1.40	1.34
	5.185000	HC-18 or 49/U	75	2.06	1.85	1.68	1.54	1.47	1.40	1.34
	5.990400	HC-18 or 49/U	50	2.06	1.85	1.68	1.54	1.47	1.40	1.34
	6.000000	HC-18 or 49/U	50	2.06	1.85	1.68	1.54	1.47	1.40	1.34
	6.144000	HC-18 or 49/U	50	2.06	1.85	1.68	1.54	1.47	1.40	1.34
	6.553600	HC-18 or 49/U	50	2.06	1.85	1.68	1.54	1.47	1.40	1.34
	7.372800	HC-18 or 49/U	50	2.06	1.85	1.68	1.54	1.47	1.40	1.34
	8.000000	HC-18 or 49/U	50	2.17	1.95	1.77	1.62	1.55	1.48	1.41
	10.000000	HC-18 or 49/U	40	2.28	2.05	1.86	1.71	1.63	1.55	1.49
	11.000000	HC-18 or 49/U	30	2.28	2.05	1.86	1.71	1.63	1.55	1.49
	12.000000	HC-18 or 49/U	50	2.48	2.25	2.06	1.91	1.83	1.75	1.69
	14.318180	HC-18 or 49/U	25	2.48	2.25	2.06	1.91	1.83	1.75	1.69
	16.000000	HC-18 or 49/U	25	2.67	2.40	2.18	2.00	1.90	1.82	1.74
	18.000000	HC-18 or 49/U	25	2.67	2.40	2.18	2.00	1.90	1.82	1.74
	18.432000	HC-18 or 49/U	25	2.67	2.40	2.18	2.00	1.90	1.82	1.74
	19.660800	HC-18 or 49/U	25	2.67	2.40	2.18	2.00	1.90	1.82	1.74
	20.000000	HC-18 or 49/U	25	2.67	2.40	2.18	2.00	1.90	1.82	1.74
	28.356900	HC-18 or 49/U	40	2.25	2.03	1.84	1.69	1.61	1.53	1.47
	48.000000	HC-18 or 49/U	40	2.64	2.38	2.14	1.97	1.87	1.77	1.69

Prices subject to change without notice.

Microcomputer Chips & Boards

NSC Number	Description
	CHIPS
INS1771J-1	Floppy disk controller
INS1771N-1	Floppy disk controller
INS2651J	Communication chip UART
INS2651N	Communication chip UART
INS8035J-11	8-bit UC, 64 bytes RAM, no ROM, 11 MHz
INS8035J-6	8-bit UC, 64 bytes RAM, no ROM, 6 MHz
INS8035LJ-11	Low power 8035, 11 MHz
INS8035LJ-6	Low power 8035, 6 MHz
INS8035LN-11	Low power 8035, 11 MHz
INS8035LN-6	Low power 8035, 6 MHz
INS8035N-11	8-bit UC, 64 bytes RAM, no RO, 11 MHz
INS8035N-6	8-bit UC, 64 bytes RAM, no ROM, 6 MHz
INS8039J-11	8-bit UC, 128 bytes RAM, no ROM, 11 MHz
INS8039J-6	8-bit UC, 128 bytes RAM, no ROM, 6 MHz
INS8039LJ-11	Low power 8039, 11 MHz
INS8039LJ-6	Low power 8039, 6 MHz
INS8039LN-11	Low power 8039, 11 MHz
INS8039LN-6	Low power 8039, 6 MHz
INS8039N-11	8-bit UC, 128 bytes RAM, no ROM, 11 MHz
INS8039N-6	8-bit UC, 128 bytes RAM, no ROM, 6 MHz
INS8040D-11	8-bit UC, 256 bytes RAM, no ROM, 11 MHz
INS8040D-6	8-bit UC, 256 bytes RAM, no ROM, 6 MHz
INS8040LD-11	Low power 8040, 11 MHz
INS8040LD-6	Low power 8040, 6 MHz
INS8040-LN-11	Low power 8040, 11 MHz
INS8040LN-6	Low power 8040, 6 MHz
INS8040N-11	8-bit UC, 256 bytes RAM, no ROM, 11 MHz
INS8040N-6	8-bit UC, 256 bytes RAM, no ROM, 6 MHz
INS8070N	8-bit UC, 64 bytes RAM, bus oriented
INS8073N	8-bit UC, 64 bytes RAM, BASIC interpreter
INS8080AJ	8-bit CPU, 2.0 μsec
INS8080AJ-1	8-bit CPU, 1.3 μsec
INS8080AJ-2	8-bit CPU, 1.5 μsec
INS8080AJ/A	8-bit CPU, 2.0 μsec
INS8080AJI	8-bit CPU, 2.0 μsec
INS8080AN	8-bit CPU, 2.0 μsec
INS8080AN-1	8-bit CPU, 1.3 μsec
INS8080AN-2	8-bit CPU, 1.5 μsec
INS8154N	128 x 8 RAM, 16-bit I/O
INS8243N	I/O expander for 48 Series
INS8250N	Asynchronous communication element
INS8251N	Programmable communications interface
INS8253N	Programmable interval timer
INS8254N	16-bit programmable I/O
INS8255N	Programmable peripheral interface
NSC800D	8-bit CPU, 2.5 MHz, P2CMOS
NSC800D-1	8-bit CPU, 1.0 MHz, P2CMOS
NSC800D-2	8-bit CPU, 2.0 MHz, P2CMOS
NSC800N	8-bit CPU, 2.5 MHz, P2CMOS
NSC810N	128 bytes RAM, I/O, timer, P2CMOS
NSC888	NSC800 evaluation board

NSC Number	Equiv. Intel Number	Description
		ANALOG
BLC-711	SBC-711	Analog input board
BLC-724	SBC-724	Analog output board
BLC-732	SBC-732	Combination analog I/O board

NSC Number	Equiv. Intel Number	Description
		BOARDS
		CPU
BLC-80/10	SBC-80/10	Board level computer with 1K bytes RAM and 2708 EPROM capability
BLC-80/11	SBC-80/10A	Board level computer with 1K bytes ROM and 2708/2716 EPROM capability
BLC-80/12	.....	Board level computer with 2K bytes ROM and 2708/2716 EPROM capability
BLC-80/14	.....	Board level computer with 4K bytes ROM and 2708/2716 EPROM capability
BLC-80/204	SBC-80/204	Board level computer with 4K bytes ROM and 2708/2716 EPROM capability
		MEMORY
BLC-016	SBC-016	16K RAM board
BLC-032	SBC-032	32K RAM board
BLC-048	SBC-048	48K RAM board
BLC-064	SBC-064	64K RAM board
BLC-416	SBC-416	16K ROM/PROM board
BLC-8432	.....	32K ROM/PROM board with on-board programming (MM2716)
		COMBINATION MEMORY AND INPUT/OUTPUT
BLC-104	SBC-104	Memory and I/O expansion, 4K RAM, 4 EPROM sockets
BLC-116	SBC-116	Memory and I/O expansion, 16K RAM, 4 EPROM sockets
		INPUT/OUTPUT
BLC-508	SBC-508	I/O expansion, four 8-bit input ports, four 8-bit output ports
BLC-517	SBC-517	Combination I/O expansion, 48 programmable parallel I/O lines, one serial I/O
BLC-530	SBC-530	Current loop adapter
BLC-8538	.....	8-channel communications board
BLC-556	SBC-556	Optically isolated I/O board
		PERIPHERAL CONTROLLERS
BLC-8201	.....	Floppy disk controller (MDS-DOS compatible)
BLC-8221	.....	Floppy disk controller
BLC-8228	.....	Video monitor/keyboard controller, 5 by 7 dot matrix
BLC-8229	.....	Video monitor/keyboard controller, 7 by 9 dot matrix

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RAM SELECTION GUIDE

NSC Part Number	Type	Operation	Output	Maximum Access Time	Supply Voltage	Temperature Range °C	Package
64/16 x 4							
DM7489	TTL	Static	Open-Collector	60 ns	5	0 to +70	16-pin
DM8599	TTL	Static	TRI-STATE	45 ns	5	0 to +70	16-pin
DM74189	TTL	Static	TRI-STATE	45 ns	5	0 to +70	16-pin
DM54S189	TTL	Static	TRI-STATE	50 ns	5	−55 to +125	16-pin
DM74S189	TTL	Static	TRI-STATE	35 ns	5	0 to +70	16-pin
DM54S289	TTL	Static	Open-Collector	50 ns	5	−55 to +125	16-pin
DM74S289	TTL	Static	Open-Collector	35 ns	5	0 to +70	16-pin
MM54C89	CMOS	Static	TRI-STATE	650 ns	3—15	−55 to +125	16-pin
MM74C89	CMOS	Static	TRI-STATE	650 ns	3—15	−40 to +85	16-pin
DM85S68	TTL	Static	TRI-STATE	40 ns	5	0 to +70	18-pin
54LS189	Schottky	Static	TRI-STATE	100 ns	5	−55 to +125	16-pin
74LS189	Schottky	Static	TRI-STATE	80 ns	5	0 to +70	16-pin
54LS289	Schottky	Static	Open-Collector	110 ns	5	−55 to +125	16-pin
74LS289	Schottky	Static	Open-Collector	90 ns	5	0 to +70	16-pin
256/256 x 1							
DM54S200	TTL	Static	TRI-STATE	70 ns	5	−55 to +125	16-pin
DM54S206	TTL	Static	Open-Collector	80 ns	5	−55 to +125	16-pin
DM74S200	TTL	Static	TRI-STATE	50 ns	5	0 to +70	16-pin
DM74S206	TTL	Static	Open-Collector	60 ns	5	0 to +70	16-pin
MM54C200	CMOS	Static	TRI-STATE	400 ns	3—15	−55 to +125	16-pin
MM74C200	CMOS	Static	TRI-STATE	400 ns	3—15	−40 to +85	16-pin
256/64 x 4							
MM54C910	CMOS	Static	TRI-STATE	400 ns	5	−55 to +125	18-pin
MM74C910	CMOS	Static	TRI-STATE	400 ns	5	−40 to +85	18-pin
1024/1024 x 1							
MM54C929	CMOS	Static	TRI-STATE	275 ns	5	−55 to +125	16-pin
MM74C929	CMOS	Static	TRI-STATE	250 ns	5	−40 to +85	16-pin
MM54C930	CMOS	Static	TRI-STATE	275 ns	5	−55 to +125	18-pin
MM74C930	CMOS	Static	TRI-STATE	250 ns	5	−40 to +85	18-pin
MM2102A	NMOS	Static	TRI-STATE	350 ns	5	0 to +70	16-pin
MM2102A-2	NMOS	Static	TRI-STATE	250 ns	5	0 to +70	16-pin
MM2102A-4	NMOS	Static	TRI-STATE	450 ns	5	0 to +70	16-pin
1024/256 x 4							
MM54C920	CMOS	Static	TRI-STATE	275 ns	5	−55 to +125	22-pin
MM74C920	CMOS	Static	TRI-STATE	250 ns	5	−40 to +85	22-pin
MM54C921	CMOS	Static	TRI-STATE	275 ns	5	−55 to +125	18-pin
MM74C921	CMOS	Static	TRI-STATE	250 ns	5	−40 to +85	18-pin
4096/4096 x 1							
MM5280	NMOS	Dynamic	TRI-STATE	200 ns	12, ±5	0 to +70	22-pin
MM5280-5	NMOS	Dynamic	TRI-STATE	270 ns	12, ±5	0 to +70	22-pin
8192/8192 x 1							
MM5298-2A, B	NMOS	Dynamic	TRI-STATE	150 ns	12, ±5	0 to +70	16-pin
MM5298-3A, B	NMOS	Dynamic	TRI-STATE	200 ns	12, ±5	0 to +70	16-pin
MM5298-4A, B	NMOS	Dynamic	TRI-STATE	250 ns	12, ±5	0 to +70	16-pin
16,384/16,384 x 1							
MM5290-2	NMOS	Dynamic	TRI-STATE	150 ns	12, ±5	0 to +70	16-pin
MM5290-3	NMOS	Dynamic	TRI-STATE	200 ns	12, ±5	0 to +70	16-pin
MM5290-4	NMOS	Dynamic	TRI-STATE	250 ns	12, ±5	0 to +70	16-pin
MM5290-055	NMOS	Dynamic	TRI-STATE	250 ns	12. ±5	0 to +55	16-pin
2048/512 x 4							
NMC6513-9	CMOS	Static	TRI-STATE	300 ns	5	0 to +75	18-pin
NMC6513-5	CMOS	Static	TRI-STATE	350 ns	5	0 to +75	18-pin
4096/1024 x 4							
MM2114-2	NMOS	Static	TRI-STATE	200 ns	5	0 to +70	18-pin
MM2114-3	NMOS	Static	TRI-STATE	300 ns	5	0 to +70	18-pin
MM2114	NMOS	Static	TRI-STATE	450 ns	5	0 to +70	18-pin
MM2114-2L	NMOS	Static	TRI-STATE	200 ns	5	0 to +70	18-pin
MM2114-3L	NMOS	Static	TRI-STATE	300 ns	5	0 to +70	18-pin
MM2114-L	NMOS	Static	TRI-STATE	450 ns	5	0 to +70	18-pin
NMC6514-2	CMOS	Static	TRI-STATE	300 ns	5	0 to +55	18-pin
NMC6514-9	CMOS	Static	TRI-STATE	300 ns	5	0 to +55	18-pin
NMC6514-5	CMOS	Static	TRI-STATE	350 ns	5	0 to +55	18-pin
4096/4096 x 1							
NMC6504-2	CMOS	Static	TRI-STATE	300 ns	5	−55 to +125	18-pin
NMC6504-9	CMOS	Static	TRI-STATE	300 ns	5	−40 to +85	18-pin
NMC6504-5	CMOS	Static	TRI-STATE	350 ns	5	0 to +75	18-pin
MM5257-25	NMOS	Static	TRI-STATE	250 ns	5	0 to +70	18-pin
MM5257-3	NMOS	Static	TRI-STATE	300 ns	5	0 to +70	18-pin
MM5257	NMOS	Static	TRI-STATE	450 ns	5	0 to +70	18-pin

LISTING CONTINUED ON FOLLOWING PAGE

RAM SELECTION GUIDE (CONT'D)

NSC Part Number	Type	Operation	Output	Maximum Access Time	Supply Voltage	Temperature Range °C	Package
4096/4096 x 1 (CONT'D							
MM5257-2L	NMOS	Static	TRI-STATE	200 ns	5	0 to +70	18-pin
MM5257-25L	NMOS	Static	TRI-STATE	250 ns	5	0 to +70	18-pin
MM5257-3L	NMOS	Static	TRI-STATE	300 ns	5	0 to +70	18-pin
MM5257-L	NMOS	Static	TRI-STATE	450 ns	5	0 to +70	18-pin
MM2147	NMOS	Static	TRI-STATE	70 ns	5	0 to +70	18-pin
MM2147L	NMOS	Static	TRI-STATE	70 ns	5	0 to +70	18-pin
MM2147-3	NMOS	Static	TRI-STATE	55 ns	5	0 to +70	18-pin
1024/1024 x 1							
NMC6508-2	CMOS	Static	TRI-STATE®	250 ns	5	−55 to +125	16-pin
NMC6508-9	CMOS	Static	TRI-STATE	250 ns	5	−40 to +85	16-pin
NMC6508-5	CMOS	Static	TRI-STATE	300 ns	5	0 to +75	16-pin
NMC6518-2	CMOS	Static	TRI-STATE	250 ns	5	−55 to +125	18-pin
NMC6518-9	CMOS	Static	TRI-STATE	250 ns	5	−40 to +85	18-pin
NMC6518-5	CMOS	Static	TRI-STATE	300 ns	5	0 to +75	18-pin
1024/256 x 4							
NMC6551-2	CMOS	Static	TRI-STATE	300 ns	5	−55 to +125	18-pin
NMC6551-9	CMOS	Static	TRI-STATE	300 ns	5	−40 to +85	18-pin
NMC6551-5	CMOS	Static	TRI-STATE	350 ns	5	0 to +75	18-pin
NMC6552-2	CMOS	Static	TRI-STATE	300 ns	5	−55 to +125	18-pin
NMC6552-9	CMOS	Static	TRI-STATE	300 ns	5	−40 to +85	18-pin
NMC6552-5	CMOS	Static	TRI-STATE	350 ns	5	0 to +75	18-pin

EPROM SELECTION GUIDE

16,336 (2048 x 8)							
MM2716Q	CMOS	Static	.....	450 ns	+5	0 to +70	16-pin
MM2716Q-1	CMOS	Static	.....	350 ns	+5	0 to +70	16-pin
MM2716Q-2	CMOS	Static	.....	390 ns	+5	0 to +70	16-pin
MM2716Q-5	CMOS	Static	.....	550 ns	+5	0 to +70	16-pin
MM2716QE	CMOS	Static	.....	450 ns	+5	−40 to +85	16-pin
MM2716QM	CMOS	Static	.....	450 ns	+5	−55 to +125	16-pin
MM2716QM/883	CMOS	Static	.....	450 ns	+5	−55 to +125	16-pin
8192 (1024 x 8)							
MM2758Q-A	CMOS	Static	.....	450 ns	+5	0 to +70	16-pin
MM2758Q-B	CMOS	Static	.....	450 ns	+5	0 to +70	16-pin

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CD4000 SERIES DIGITAL IC'S

NSC No.	Description
CD4000	Dual 3-input NOR gate/inverter
CD4001	Quad 2-input NOR gate
CD4001B	Double buffered quad 2-in NOR gate
CD4002	Dual 4-input NOR gate
CD4002B	Double buffered dual 4-in NOR gate
CD4006	18-bit shift register
CD4007	Dual comp. pair plus inverter
CD4008B	4-bit full adder w/parallel carry
CD4009	Hex inverting buffer
CD4010	Hex buffer
CD4011	Quad 2-input NAND gate
CD4011B	Double buffered quad 2-in NAND gate
CD4012	Dual 4-input NAND gate
CD4012B	Double buffered dual 4-in NAND gate
CD4013B	Dual D flip-flop
CD4014	8-bit shift register
CD4015	Dual 4-bit shift register
CD4016	Quad bilateral switch
CD4017B	Decade counter/divider
CD4018B	Presettable divide-by-N counter
CD4019B	Quad AND-OR select gate
CD4020	14-bit ripple carry binary counter
CD4021	8-bit shift register
CD4022B	Divide-by-8 counter/divider
CD4023	Triple 3-input NAND gate
CD4023B	Double buffered triple 3-in NAND gate
CD4024B	7-bit binary counter
CD4025	Triple 3-input NOR gate
CD4025B	Double buffered triple 3-in NOR gate
CD4027B	Dual J-K flip-flop
CD4028B	BCD-to-decimal decoder
CD4029B	Presettable up/down counter
CD4030	Quad EX-OR gate (MM74C86)
CD4031B	64-bit shift register
CD4034B	8-bit shift register
CD4035B	4-bit PIPO shift register
CD4040B	12-bit binary ripple counter
CD4041	Quad true/complement buffer
CD4042B	Quad D latch
CD4043	Quad 3-state NOR R/S latch
CD4044	Quad 3-state NAND R/S latch
CD4046B	Phase locked loop
CD4047B	Mono/astable multivibrator
CD4048B	Expandable 8-input gate
CD4049	Hex inverting buffer

NSC No.	Description
CD4050B	Hex buffer
CD4051B	8-channel multiplexer
CD4052B	Diff. 4-channel multiplexer
CD4053B	Triple 2-channel multiplexer
CD4060B	14-stage ripple carry binary counter
CD4066B	Quad bilateral switch
CD4069	Hex inverter (MM74C04)
CD4070B	Quad exclusive-OR gate (MM74C86)
CD4071B	Quad 2-input OR gate
CD4072B	Dual 4-input OR gate
CD4073B	Triple 3-input AND gate
CD4075B	Triple 3-input OR gate
CD4076B	TRI-STATE quad D flip-flop (MM74C173)
CD4081B	Quad 2-input AND gate
CD4082B	Dual 4-input AND gate
CD4089B	Binary rate multiplier
CD4093B	Quad 2-input NAND Schmitt trigger
CD4099B	8-bit addressable latch
CD40106B	Hex Schmitt trigger (MM74C14)
CD40160B	Sync decade counter (MM74C160)
CD40161B	Sync binary counter (MM74C161)
CD40162B	Fully sync decade counter (MM74C162)
CD40163B	Fully sync binary counter (MM74C163)
CD40174B	Hex D flip-flop
CD40175B	Quad D flip-flop
CD40192B	Sync up/down decade counter (MM74C192)
CD40193B	Sync up/down binary counter (MM74C193)
CD4503B	Hex bus driver (MM70C97)
CD4507B	Quad exclusive-OR gate (MM74C86)
CD4510B	BCD up/down counter
CD4511B	BCD-to-7-segment decoder/driver
CD4512B	8-channel data selector
CD4514B	4-bit latch/4-16 line decoder
CD4515B	4-bit latch/4-16 line decoder
CD4516B	Binary up/down counter
CD4518B	Dual BCD up counter
CD4519B	4-bit AND-OR selector
CD4520B	Dual binary up counter
CD4522	Divide-by-N BCD counter
CD4527B	BCD rate multiplier
CD4528B	Dual retrig./reset. mono. multi.
CD4529B	Dual 4-channel analog data selector
CD4584B	Hex Schmitt trigger (MM74C14N)
CD4723B	Dual 4-bit addressable latch
CD4724B	8-bit addressable latch

ORDERING INFORMATION

NSC No.	Package	Temperature Range
CD40XXCN	Molded DIP (N)	−40° C to +85° C
CD40XXCJ	Cavity DIP (J)	−40° C to +85° C
CD40XXMJ	Cavity DIP (J)	−55° C to +125° C
CD40XXMD	Cavity DIP (D)	−55° C to +125° C
CD40XXMF	Cavity flat pack (F)	−55° C to +125° C
CD40XXBCN	Molded DIP (N)	−40° C to +85° C
CD40XXBCJ	Cavity DIP (J)	−40° C to +85° C
CD40XXBMJ	Cavity DIP (J)	−55° C to +85° C

NSC No.	Package	Temperature Range
CD40XXBMD	Cavity DIP (D)	−55° C to +125° C
CD40XXBMF	Cavity flat pack (F)	−55° C to +125° C
CD45XXCN	Molded DIP (N)	−40° C to +85° C
CD45XXCJ	Cavity DIP (J)	−40° C to +85° C
CD45XXMJ	Cavity DIP (J)	−55° C to +125° C
CD45XXMD	Cavity DI (D)	−55° C to +125° C
CD45XXMF	Cavity flat pack (F)	−55° C to +125° C

SERIES 54C/74C DIGITAL IC'S

NSC No.	Description
MM54C00/MM74C00	Quad 2-input NAND gate
MM54C02/MM74C02	Quad 2-input NOR gate
MM54C04/MM74C04	Hex inverter
MM54C08/MM74C08	Quad 2-input AND gate
MM54C10/MM74C10	Triple 3-input AND gate
MM54C14/MM74C14	Hex Schmitt trigger
MM54C20/MM74C20	Dual 4-input NAND gate
MM54C30/MM74C30	8-input NAND gate
MM54C32/MM74C32	Quad 2-input OR gate
MM54C42/MM74C42	BCD-to-decimal decoder
MM54C48/MM74C48	BCD-to-7-segment decoder
MM54C73/MM74C73	Dual J-K flip-flop
MM54C74/MM74C74	Dual D flip-flop
MM54C76/MM74C76	Dual J-K flip-flop
MM54C83/MM74C83	4-bit binary full adder
MM54C85/MM74C85	4-bit magnitude comparator
MM54C86/MM74C86	Quad 2-input exclusive-OR gate
MM54C89/MM74C89	64-bit TRI-STATE RAM
MM54C90/MM74C90	4-bit decade counter
MM54C93/MM74C93	4-bit binary counter
MM54C95/MM74C95	4-bit R-S/L-S register
MM54C107/MM74C107	Dual J-K flip-flop
MM54C150/MM74C150	1-of-16 data selector
MM54C151/MM74C151	8-channel digital multiplexer
MM54C154/MM74C154	4:16 decoder/demultiplexer
MM54C157/MM74C157	Quad 2-input multiplexer
MM54C160/MM74C160	Sync decade counter
MM54C161/MM74C161	Sync 4-bit binary counter
MM54C162/MM74C162	Sync decade counter
MM54C163/MM74C163	Sync 4-bit binary counter

NSC No.	Description
MM54C164/MM74C164	8-bit SIPO shift register
MM54C165/MM74C165	8-bit PISO shift register
MM54C173/MM74C173	TRI-STATE Quad D flip-flop
MM54C174/MM74C174	Hex D flip-flop
MM54C175/MM74C175	Quad D flip-flop
MM54C192/MM74C192	Sync up/down decade counter
MM54C193/MM74C193	Sync up/down binary counter
MM54C195/MM74C195	4-bit parallel shift register
MM54C221/MM74C221	Dual monostable multivibrator
MM54C240/MM74C240	Octal TRI-STATE buffer
MM54C244/MM74C244	Octal TRI-STATE buffer
MM54C901/MM74C901	Hex inverting TTL buffer
MM54C902/MM74C902	Hex non-inverting TTL buffer
MM54C903/MM74C903	Hex inverting TTL buffer
MM54C904/MM74C904	Hex non-inverting TTL buffer
MM54C905/MM74C905	12-bit succ. approx. register
MM54C906/MM74C906	Hex open drain N-channel buffer
MM54C907/MM74C907	Hex open drain P-channel buffer
MM54C908/MM74C908	Dual high voltage CMOS driver
MM54C909/MM74C909	Quad comparator
MM54C914/MM74C914	Hex Schmitt trigger
MM54C918/MM74C918	Dual high voltage CMOS driver
MM54C922/MM74C922	Keyboard encoder
MM54C941/MM74C941	Octal TRI-STATE buffer
MM70C95/MM80C95	TRI-STATE hex non-inverting buffer
MM70C97/MM80C97	TRI-STATE hex non-inverting buffer
MM74C91	Display controller, 4 dig. 8 seg.
MM74C912	Display controller, 6 dig. 8 seg.
MM74C917	Display controller, 6 dig. 8 seg.
MM78C29/MM88C29	Quad single-ended line driver
MM78C30/MM88C30	Dual differential line driver

LINEAR IC'S

NSC No.	Description
ADC0800	8-bit A/D converter (MM5357)
ADC1210	12-bit A/D converter
ADC3511	11-bit A/D converter
ADC3711	12-bit A/D converter
DAC0800	8-bit converter
DAC0801	8-bit converter
DAC802	8-bit D/A converter
DAC0806	8-bit converter
DAC0807	8-bit converter
DAC0808	8-bit converter
DAC830	8-bit D/A converter
DAC831	8-bit D/A converter
DAC832	8-bit D/A converter
DAC10000	10-bit D/A converter
DAC1001	
DAC1002	
DAC1006	
DAC1007	
DAC1008	10-bit D/A converter
DAC1020	10-bit converter
DAC1021	10-bit D/A converter
DAC1022	10-bit D/A converter
DAC1200	12-bit D/A converter
DAC1201	
DAC1208	
DAC1209	
DAC1210	
DAC1218	
DAC1219	
DAC1220	
DAC1221	12-bit D/A converter
DAC1222	
DAC1230	
DAC1231	
DAC1232	
DAC1280	
DAC1285	
DA1200	12-bit D/A converter
DA1201	
DA1280	
LF111/LF211/LF311	Voltage comparator
LF347	JFET quad BI-FET
LF151/LF351	Single BI-FET op amp
LF153/LF353	Dual BI-FET
LF155/LF255/LF355	JFET input op amp
LF155A/LF355A	JFET input op amp
LF156/LF256/LF356	JFET input op amp
LF156A/LF356A	JFET input op amp
LF157/LF257/LF357	JFET input op amp
LF157A/LF357A	JFET input op amp
LF198/LF298/LF398	Precision sample and hold
LF11201/LF13201	Quad FET analog switch
LF11202/LF13202	Quad FET analog switch
LF13300	Dual slope A/D converter
LF11331/LF13331	Quad FET analog switch
LF11332/LF13332	Quad FET analog switch
LF11333/LF13333	Quad FET analog switch
LF11508/LF13508	BI-FET 8-channel multiplexer
LF11509/LF13509	BI-FET 4-channel multiplexer
LF13741	JFET op amp
LF411A	BI-FET op amp
LF412A	BI-FET op amp
LF441A	BI-FET op amp
LF444A	Quad BI-FET op amp
LH0002	Buffer amplifier
LH0003	Wide band amplifier
LH0004	High voltage op amp
LH0005	Wide band amplifier
LH0020	High gain op amp
LH0021	Power op amp
LH0022	High perf FET op amp
LH0023	Precision sample and hold
LH0024	High speed op amp
LH0032	High speed FET op amp
LH0033	High speed voltage follower
LH0036	Low power instrument amp
LH0037	Instrument amp
LH0038	Precision instrument amp
LH0041	Power op amp
LH0042	FET op amp
LH0043	High speed sample and hold
LH0044	Low noise op amp
LH0045	Two-wire transmitter
LH0052	Precision FET op amp
LH0053	High speed sample and hold
LH0051	Wide band op amp
LH0062	High speed FET op amp
LH0063	Fast Buffer
LH0075	Precision pos regulator
LH0076	Precision pos regulator
LH0082	Fiber optic rec amp
LH0084	Fast instrument amp
LH0086	Gain amp
LH0091	True rms converter
LH0094	Analog math block
LH101	Low distortion op amp
LH740	FET op amp
LH1605	Switching regulator
LH2101A	Dual LM101A
LH2108A	Dual LM108A
LH2110	Dual LM110
LH2201A	Dual LM201A
LH2208	Dual LM208

NSC No.	Description
LH2208A	Dual LM208A
LH2210D	Dual LM210
LH2211D	Dual LM211
LH2301A	Dual LM301A
LH2308	Dual LM308
LH2308A	Dual LM308A
LH2310	Dual LM310
LH2311	Dual LM311
LH24250	Dual LM4250
LH24250C	Dual LM4250C
LM101/LM201	Op amp
LM101A/LM201A/LM301A	Improved op amp
LM102/LM202/LM302	Voltage follower op amp
LM103	Voltage reference
LM104/LM204/LM304	Negative voltage regulator
LM105/LM205/LM305	Positive voltage regulator
LM106/LM206/LM306	Voltage comparator
LM107/LM207/LM307	Compensated op amp
LM108/LM208/LM308	Super gain op amp
LM108A/LM208A/LM308A	Op amp
LM109/LM209/LM309	5 V regulator
LM110/LM210/LM310	Voltage follower op amp
LM111/LM211/LM311	Voltage comparator
LM112/LM212/LM312	Comp. super gain op amp
LM113/LM313	Diode reference
LM117/LM217/LM317	3-term. adj. voltage regulator
LM117HV/LM217HV/ LM317HV	High volt. 3-term. volt. reg.
LM118/LM218/LM318	High slew rate op amp
LM119/LM219/LM319	Dual voltage comparator
LM120/LM320	Neg. fixed voltage regulator
LM121/LM221/LM321	Precision preamp
LM121A/LM221A/LM321A	Precision preamp
LM122/LM322	Timer
LM123/LM223/LM323	5 V, 3 A regulator
LM124/LM224/LM324	Quad op amp
LM124A/LM224A/LM324A	Quad op amp
LM126/LM326	Dual tracking voltage regulator
LM129/LM329	Temp. comp. voltage reference
LM131/LM231/LM331	Volt to freq converter
LM134/LM234/LM334	Constant current source
LM135/LM235/LM335	Temperature sensor
LM136/LM236/LM336	Constant voltage source
LM136-5/LM236-5/LM336-5	Constant voltage source
LM137/LM237/LM337	Negative 3-term. adj. regulator
LM138/LM238/LM338	Pos adj regulator
LM139/LM239/LM339	Quad comparator
LM139A/LM239A/LM339A	Quad comparator
LM140/LM240/LM340	Fixed positive 1 A volt. regulator
LM140L/LM340L	Fixed positive 1 A volt. regulator
LM143/LM343	High voltage op amp
LM144/LM344	High voltage op amp
LM145/LM345	Negative 3 A regulator
LM146/LM246/LM346	Quad micropower op amp
LM148/LM248/LM348	Quad LM741
LM149/LM249/LM349	Decomp. quad op amp
LM150/LM250/LM350	3 A adj. regulator
LM158/LM258/LM358	Dual op amp
LM158A/LM258A/LM358A	Dual op amp
LM159/LM359	Dual high speed prog. op amp
LM160/LM260/LM360	High speed voltage comparator
LM161/LM261/LM361	High speed voltage comparator
LM192/LM292/LM392	Op amp and comparator
LM193/LM293/LM393	Dual comparator
LM193A/LM293A/LM393A	Dual comparator
LM194/LM394	Supermatch pair
LM195/LM295/LM395	Power transistor
LM199/LM299/LM399	Temp. comp. volt. reference
LM199A/LM299A/LM399A	Temp. comp. volt. reference
LM216/LM216A/ LM316/LM316A	Precision op amp
LM234	Constant current source
LM238/LM338	Pos 3-term adj regulator
LM320L	Negative voltage regulator
LM320M	Neg. fixed volt. regulator
LM320ML	Negative voltage regulator
LM325	Dual tracking regulator
LM331	Volt to freq converter
LM341	Series pos. regulator, 0.5 A
LM342	Series pos. regulator, 0.2 A
LM376	Pos voltage regulator
LM377	Dual 2 W stereo power amp
LM378	Dual 4 W stereo power amp
LM379	Dual 6 W stereo power amp
LM380	2 W audio amp
LM381/LM381A	Low noise dual preamp
LM382	Low noise dual preamp
LM383	5 lead 8 W audio power amp
LM384	5 W audio amp
LM386	Low level audio amp
LM387/LM387A	Low noise dual preamp
LM388	1.5 W audio amp
LM390	1 W audio amp
LM391	High voltage audio driver
LM555/LM555C	Timer
LM556/LM556C	Dual timer
LM565/LM565C	Phase locked loop
LM566/LM566C	Phase locked loop
LM567/LM567C	Tone decoder
LM709/LM709A/LM709C	Op amp
LM710/LM710A/LM710C	Differential comparator
LM711/LM711C	Dual differential comparator
LM723/LM723C	Voltage regulator

PRICES LISTED ARE FOR GUIDANCE ONLY

Linear & Digital Integrated Circuits

LINEAR IC'S (CONTINUED)

NSC No.	Description
LM725/LM725A/LM725C	Op amp
LM733/LM733C	Video amp
LM741A/LM741C/LM741E	Compensated op amp
LM747A/LM747C/LM747E	Dual comp. op amp
LM748/LM748C	Op amp
LM78XX	Pos voltage regulator, 1 A
LM78LXX	3-term. pos. regulator, 50 mA
LM78MXX	3-term. pos. regulator, 500 mA
LM79XX	Neg. vclt. regulator, 1 A
LM79LXX	Neg. volt. regulator, 0.1 A
LM79MXX	Neg. volt. regulator, 0.5 A
LM1014	Motor speed control
LM1017	4-bit binary det/driver
LM1019	Digital-tuning station det.
LM1021	Video IF detector
LM1025	Video IF detector
LM1408/LM1508	8-bit DAC
LM1414/LM1514	Dual voltage ccmparator
LM1436/LM1536	High voltage op amp
LM1458/LM1588	Dual comp. op amp
LM1496/LM1596	Balanced mod./demod.
LM1514	Dual differential comparator
LM1536	High voltage op amp
LM1558	Dual comp op amp
LM1596	Balanced mod/demod
LM1800	PLL stereo demodulator
LM1801	Smoke detector
LM1812	Ultrasonic transceiver
LM1815	Adaptive sense amplifier
LM1818	Electronic switched cassette IC
LM1820	AM radio system
LM1821	Video detector
LM1848	Chroma demodulator
LM1868	AM/FM IF with audio power
LM1870	FM demodulator
LM1871	Radio-controlled transmitter
LM1872	Radio-controlled receiver
LM1877	Dual 2 W audio amp
LM1880	No holds vertical/horizontal
LM1886	TV video matrix D/A
LM1889	TV video monitor
LM1895	Low volt audio amp
LM1897	Low noise preamp
LM2001	Low volt audio driver
LM2002	5-lead, 8-watt audio power amp
LM2111	FM detector and limiter
LM2877	Stereo 3½ watt channel SIP
LM2878	Dual 5 W audio amp
LM2895	Low volt audio amp
LM2896	Dual low volt audio amp
LM2900	Quad op amp
LM2901	Quad comparator
LM2902	Quad op amp
LM2903	Dual comparator
LM2904	Dual op amp
LM2905/LM3905	Precision timer
LM2907	Freq. to voltage converter
LM2917	Freq. to voltage converter
LM2924	Op amp and comparator
LM2930	Low volt regulator
LM2931	Low volt regulator
LM3045	Diff. pair transistor array
LM3046	Diff. pair transistor array
LM3075	FM detector and preamp
LM3080	Transconductance amplifier
LM3086	Diff. pair transistor array
LM3089	FM receiver IF system
LM3189	FM IF system
LM3301	Quad op amp
LM3302	Quad comparator
LM3401	Quad op amp
LM3524	Pulse width modulator
LM3820	AM radio
LM3900	Quad op amp
LM3905	Precision timer
LM3909	LED flasher
LM3911	Temperature controller
LM3914	Dot/bar display driver
LM3915	Bar graph display driver 3 dB/step
LM3916	VU bar graph
LM3999	Precision reference
LM4250/LM4250C	Programmable op amp
LM4500	European FM demodulator
LM13080	Programmable power op amp
LM13600	Dual op. trans. amp with buffer
LM13700	Dual transconductance amp
TBA120S	IF amp and det
TBA440C	Mono. vido IF amp
TBA510	Chromainance comb.
TBA530	RGB matrix preamp
TBA540	Reference combination
TBA560C	Luminance/chroma control comb.
TBA920	Line oscillator comb.
TBA950	TV horizontal proc.
TBA970	TV video amp
TBA990	Color demodulator
TDA2522	Color demodulator combination
TDA2530	R-G-B matrix preamp
TDA2560	Luminance/chrominance control
TDA2591	Horiz time base
TDA2593	Line osc combination

SERIES 54/74 TTL

NSC No.	Description
DM5400/DM7400	Quad 2-input NAND gate
DM5401/DM7401	Quad 2-input NAND gate (open coll.)
DM5402/DM7402	Quad 2-input NOR gate
DM5403/DM7403	Quad 2-input NAND gate (open coll.)
DM5404/DM7404	Hex inverter
DM5405/DM7405	Hex inverter (open coll.)
DM5406/DM7406	Hex inverter (open coll.) 30 mA, 30 V
DM5407/DM7407	Hex buffer (open coll.) 30 mA, 30 V
DM5408/DM7408	Quad 2-input AND gate
DM5409/DM7409	Quad 2-input AND gate (open coll.)
DM5410/DM7410	Triple 3-input NAND gate
DM5411/DM7411	Triple 3-input AND gate
DM5413/DM7413	Dual Schmitt trigger
DM5414/DM7414	Hex Schmitt trigger
DM5416/DM7416	Hex inverter (open coll.) 30 mA, 15 V
DM5417/DM7417	Hex buffer (open coll.) 30 mA, 15 V
DM5420/DM7420	Dual 4-input NAND gate
DM5423/DM7423	Exp. dual 4-input NOR gate
DM5425/DM7425	Dual 4-input NOR gate
DM5426/DM7426	Quad 2-input NAND gate (open coll.)
DM5427/DM7427	Triple 3-input NOR gate
DM5430/DM7430	8-input NAND gate
DM5432/DM7432	Quad 2-input OR gate
DM5437/DM7437	Quad 2-input NAND buffer
DM5438/DM7438	Quad 2-input NAND buffer (open coll.)
DM5440/DM7440	Dual 4-input NAND buffer
DM5441A/DM7441A	NIXIE driver
DM5442/DM7442	BCD-to-decimal decoder
DM5445/DM7445	BCD-to-decimal decoder/driver
DM5446A/DM7446A	BCD-to-7-segment decoder/driver
DM5447A/DM7447A	BCD-to-7-segment decoder/driver
DM5448/DM7448	BCD-to-7-segment decoder/driver (active high)
DM5450/DM7450	Exp. dual 2-input AND-OR-INVERT gate
DM5451/DM7451	Dual 2-input AND-OR-INVERT gate
DM5453/DM7453	Exp. 2-input AND-OR-INVERT gate
DM5454/DM7454	2-input AND-OR-INVERT gate
DM5460/DM7460	Dual 4-input expander
DM5470/DM7470	Edge-triggered J-K flip-flop
DM5472/DM7472	J-K M/S flip-flop
DM5473/DM7473	Dual J-K M/S flip-flop w/clear
DM5474/DM7474	Dual D type flip-flop with preset and clear
DM5475/DM7475	Quad latch
DM5476/DM7476	Dual J-K M/S flip-flop with preset and clear
DM5483/DM7483	4-bit binary full adder
DM5485/DM7485	4-bit comparator
DM5486/DM7486	Quad 2-input exclusive-OR gate
DM5490A/DM7490A	Decade counter
DM5492A/DM7492A	Divide-by-12 counter
DM5493A/DM7493A	4-bit binary counter
DM5495/DM7495	4-bit R-S, L-S register
DM5496/DM7496	5-bit PIPO shift register
DM54107/DM74107	Dual J-K flip-flop
DM54109/DM74109	Dual J-K flip-flop (FSC9024)
DM54121/DM74121	Monostable multivibrator
DM54123/DM74123	Dual monostable multivibrator
DM54125/DM74125	TRI-STATE quad 2-input buffer (DM8093)
DM54126/DM74126	TRI-STATE quad 2-input buffer (DM8094)
DM54132/DM74132	Quad Schmitt trigger
DM54141/DM74141	NIXIE driver
DM54145/DM74145	BCD-to-decimal decoder/driver
DM54147/DM74147	10/4 priority encoder
DM54148/DM74148	8/3 priority encoder (FSC9318)
DM54150/DM74150	16:1 multiplexer
DM54151A/DM74151A	8-channel multiplexer
DM54153/DM74153	Dual 4:1 multiplexer
DM54154/DM74154	4:16 decoder/demultiplexer
DM54155/DM74155	Dual 2:4 demultiplexer
DM54156/DM74156	Dual 2:4 demultiplexer (open coll.)
DM54157/DM74157	Quad 2-input multiplexer (FSC9322)
DM54160A/DM74160A	Presettable decade counter (FSC9310)
DM54161A/DM74161A	Presettable binary counter (FSC9316)
DM54162A/DM74162A	Presettable decade counter (sync. clear)
DM54163A/DM74163A	Presettable binary counter (sync. clear)
DM54164/DM74164	8-bit SIPO shift register (DM8570)
DM54165/DM74165	8-bit PISO shift register (DM8590)
DM54166/DM74166	8-bit PISO shift register
DM54173/DM74173	TRI-STATE quad D register (DM8551)
DM54174/DM74174	Hex D flip-flop
DM54175/DM74175	Quad D flip-flop
DM54176/DM74176	Presettable decade counter (SIG8280)
DM54177/DM74177	Presettable binary counter (SIG8281)
DM54180/DM74180	Parity generator/checker
DM54181/DM74181	Arithmetic logic unit
DM54184/DM74184	BCD-to-binary converter

LISTING CONTINUED ON FOLLOWING PAGE

Digital Integrated Circuits

DIGITAL IC'S (CONTINUED)

NSC No.	Description
DM54185A/DM74185A	Binary-to-BCD converter
DM54190/DM74190	Sync up/down decade counter (mode control)
DM54191/DM74191	Sync up/down binary counter (mode control)
DM54192/DM74192	Sync up/down decade counter (DM8560)
DM54193/DM74193	Sync up/down binary counter (DM8563)
DM54194/DM74194	4-bit bidirectional shift register
DM54195/DM74195	4-bit parallel shift register
DM54196/DM74196	Presettable decade counter (SIG8290)
DM54197/DM74197	Presettable binary counter (SIG8291)
DM54198/DM74198	8-bit PIPO shift register
DM54199/DM74199	8-bit PIPO shift register
DM54251/DM74251	TRI-STATE 8-channel multiplexer
DM54284/DM74284	TRI-STATE 4-bit multiplier
DM54285/DM74285	TRI-STATE 4-bit multiplier
DM54365/DM74365	TRI-STATE hex buffer (DM8095)
DM54366/DM74366	TRI-STATE hex inverter (DM8096)
DM54367/DM74367	TRI-STATE hex buffer (4-2) (DM8097)
DM54368/DM74368	TRI-STATE hex inverter (4-2) (DM8098)
DM7092/DM8092	Dual 5-input NAND gate
DM7093/DM8093	TRI-STATE quad 2-input buffer
DM7094/DM8094	TRI-STATE quad 2-input buffer
DM7095/DM8095	TRI-STATE hex buffer (DM74365)
DM7096/DM8096	TRI-STATE hex inverter (DM74366)
DM7097/DM8097	TRI-STATE hex buffer (4-2) (DM74367)
DM7098/DM8098	TRI-STATE hex inverter (4-2) (DM74368)

NSC No.	Description
DM7121/DM8121	TRI-STATE DM74151 (DM74251)
DM7123/DM8123	TRI-STATE 9322
DM7130/DM8130	10-bit comparator
DM7131/DM8131	6-bit comparator w/hi Z inputs
DM7136/DM8136	6-bit comparator w/hi Z in, (open coll.)
DM7160/DM8160	6-bit comparator
DM7200/DM8200	4-bit digital comparator
DM7214/DM8214	TRI-STATE DM74153
DM7219/DM8219	TRI-STATE DM74150
DM7220/DM8220	Parity generator/checker
DM7223/DM8223	1:8 demultiplexer
DM7520/DM8520	Modulo-N-divider
DM7542/DM8542	TRI-STATE quad I/O register
DM7544/DM8544	Contact bounce eliminator
DM7546/DM8546	TRI-STATE 8-bit univ. shift register
DM7551/DM8551	TRI-STATE quad D register (DM74173)
DM7552/DM8552	TRI-STATE decade counter/latch
DM7553/DM8553	TRI-STATE 8-bit latch
DM7554/DM8554	TRI-STATE binary counter/latch
DM7555/DM8555	TRI-STATE presettable decade counter
DM7556/DM8556	TRI-STATE presettable binary counter
DM7560/DM8560	Up/down decade counter (DM74192)
DM7563/DM8563	Up/down binary counter (DM74193)
DM7570/DM8570	8-bit SIPO shift register
DM7590/DM8590	8-bit PISO shift register
DM7613/DM8613	Quad gated D flip-flop
DM7853/DM8853	Dual monostable multivibrator (double edge)

LOW POWER SCHOTTKY 54LS/74LS

DM54LS00/DM74LS00	Quad 2-input NAND gate
DM54LS01/DM74LS01	Quad 2-input NAND gate (open coll.)
DM54LS02/DM74LS02	Quad 2-input NOR gate
DM54LS03/DM74LS03	Quad 2-input NAND gate (open coll.)
DM54LS04/DM74LS04	Hex inverter
DM54LS05/DM74LS05	Hex inverter (open coll.)
DM54LS08/DM74LS08	Quad 2-input AND gate
DM54LS09/DM74LS09	Quad 2-input AND gate (open coll.)
DM54LS10/DM74LS10	Triple 3-input NAND gate
DM54LS11/DM74LS11	Triple 3-input AND gate
DM54LS12/DM74LS12	Triple 3-input NAND gate (open coll.)
DM54LS13/DM74LS13	Dual 4-input NAND Schmitt trigger
DM54LS14/DM74LS14	Hex Schmitt trigger
DM54LS15/DM74LS15	Triple 3-input AND gate (open coll.)
DM54LS20/DM74LS20	Dual 4-input NAND gate
DM54LS21/DM74LS21	Dual 4-input AND gate
DM54LS22/DM74LS22	Dual 4-input NAND gate (open coll.)
DM54LS26/DM74LS26	Quad 2-input hi-volt NAND gate
DM54LS27/DM74LS27	Triple 3-input NOR gate
DM54LS30/DM74LS30	8-input NAND gate
DM54LS32/DM74LS32	Quad 2-input OR gate
DM54LS37/DM74LS37	Quad 2-input NAND buffer
DM54LS38/DM74LS38	Quad 2-input NAND buffer (open coll.)
DM54LS40/DM74LS40	Dual 4-input NAND buffer
DM54LS42/DM74LS42	BCD-to-decimal decoder
DM54LS47/DM74LS47	BCD-to-7-segment decoder/driver
DM54LS48/DM74LS48	BCD-to-7-segment decoder/driver
DM54LS49/DM74LS49	BCD-to-7-segment decoder/driver
DM54LS51/DM74LS51	Dual 2-input AND-OR-INVERT gate
DM54LS54/DM74LS54	2-input AND-OR-INVERT gate
DM54LS55/DM74LS55	Dual 4-input AND-OR-INVERT gate
DM54LS73/DM74LS73	Dual J-K M/S flip-flop w/clear
DM54LS74/DM74LS74	Dual D flip-flop w/preset and clear
DM54LS75/DM74LS75	Quad latch
DM54LS76/DM74LS76	Dual J-K M/S flip-flop w/preset and clear
DM54LS78/DM74LS78	Dual J-K flip-flop w/preset common clock, common clear
DM54LS83A/DM74LS83A	4-bit binary full adder
DM54LS85/DM74LS85	4-bit magnitude comparator
DM54LS86/DM74LS86	Quad 2-input exclusive-OR gate
DM54LS107/DM74LS107	Dual J-K flip-flop
DM54LS109/DM74LS109	Dual J-K flip-flop
DM54LS112/DM74LS112	Dual J-K flip-flop w/preset and clear
DM54LS113/DM74LS113	Dual J-K flip-flop w/preset
DM54LS114/DM74LS114	Dual J-K flip-flop w/preset common clock, common clear
DM54LS122/DM74LS122	Retriggerable one shot w/clear
DM54LS123/DM74LS123	Dual monstable multivibrator
DM54LS125/DM74LS125	TRI-STATE quad buffer
DM54LS126/DM74LS126	TRI-STATE quad buffer
DM54LS132/DM74LS132	Quad 2-input NAND Schmitt trigger
DM54LS138/DM74LS138	Expandable ⅜ decoder
DM54LS139/DM74LS139	Expandable dual 2/4 decoder
DM54LS151/DM74LS151	8-channel multiplexer
DM54LS153/DM74LS153	Dual 4:1 multiplexer
DM54LS154/DM74LS154	4:16 decoder/demultiplexer
DM54LS155/DM74LS155	Dual 2-line to 4-line decoder/ demultiplexer
DM54LS156/DM74LS156	Dual 2-line to 4-line decoder/ demultiplexer
DM54LS157/DM74LS157	Quad 2-input multiplexer
DM54LS158/DM74LS158	Quad 2-input multiplexer
DM54LS160/DM74LS160	Presettable decade counter
DM54LS161/DM74LS161	Presettable binary counter
DM54LS162/DM74LS162	Presettable decade counter (sync clear)
DM54LS163/DM74LS163	Presettable binary counter (sync clear)
DM54LS164/DM74LS164	8-bit SIPO shift register
DM54LS168/DM74LS168	Sync up/down decade counter
DM54LS169/DM74LS169	Sync up/down binary counter
DM54LS170/DM74LS170	4 x 4 register file
DM54LS173/DM74LS173	TRI-STATE quad D register
DM54LS174/DM74LS174	Hex D flip-flop
DM54LS175/DM74LS175	Quad D flip-flop
DM54LS190/DM74LS190	Sync up/down decade counter (mode control)
DM54LS191/DM74LS191	Sync up/down binary counter (mode control)
DM54LS192/DM74LS192	Sync up/down decade counter (2 clocks)
DM54LS193/DM74LS193	Sync up/down binary counter (2 clocks)
DM54LS196/DM74LS196	Presettable decade counter
DM54LS197/DM74LS197	Presettable binary counter
DM54LS240/DM74LS240	TRI-STATE octal buffer
DM54LS241/DM74LS241	TRI-STATE octal buffer
DM54LS242/DM74LS242	TRI-STATE quad transceiver
DM54LS243/DM74LS243	TRI-STATE quad transceiver
DM54LS244/DM74LS244	TRI-STATE octal buffer
DM54LS247/DM74LS247	BCD-to-7-segment decoder/driver (open coll.)
DM54LS248/DM74LS248	BCD-to-7-segment decoder/driver
DM54LS249/DM74LS249	BCD-to-7-segment decoder/driver (open coll.)
DM54LS253/DM74LS253	TRI-STATE DM74LS153
DM54LS257/DM74LS257	TRI-STATE DM74LS157
DM54LS258/DM74LS258	TRI-STATE DM74LS158
DM54LS266/DM74LS266	Quad exclusive-NOR gate (open coll.)
DM54LS279/DM74LS279	Quad S-R latch
DM54LS283/DM74LS283	4-bit binary adder
DM54LS352/DM74LS352	Inverting version of DM74LS153
DM54LS353/DM74LS353	Inverting version of DM74LS253
DM54LS365/DM74LS365	TRI-STATE hex buffer
DM54LS366/DM74LS366	TRI-STATE hex buffer
DM54LS367/DM74LS367	TRI-STATE hex buffer
DM54LS368/DM74LS368	TRI-STATE hex buffer
DM54LS373/DM74LS373	TRI-STATE octal D flip-flop
DM54LS374/DM74LS374	TRI-STATE octal D flip-flop
DM54LS386/DM74LS386	Quad exclusive-OR gate
DM54LS670/DM74LS670	TRI-STATE 4 x 4 register file
DM54LS952/DM74LS952	8-bit dual rank shift register
DM54LS962/DM74LS962	8-bit dual rank shift register
DM71LS95/DM81LS95	TRI-STATE octal buffer
DM71LS96/DM81LS96	TRI-STATE octal buffer
DM71LS97/DM81LS97	TRI-STATE octal buffer
DM71LS98/DM81LS98	TRI-STATE octal buffer
DM76LS52/DM86LS52	8-bit univ. I/O register
DM76LS62/DM86LS62	8-bit univ. I/O register

PRICES LISTED ARE FOR GUIDANCE ONLY

INTERFACE IC'S

NSC No.	Description
D8243	16-line I/O extender for 8080
DH0006	1.5 A relay/lamp driver
DH0008	3 A relay/lamp driver
DH0011	Relay/lamp driver
DH0017	Relay/lamp driver
DH0018	Relay/lamp driver
DH0028	DTL/TTL compatible hanner driver
DH0034	Dual level shifter
DH0069	High voltage pronter driver
DH3467C	Core driver
DH3468C	Core driver
DH3724C	Core driver
DH3725C	Core driver
DP7303	8-bit bidirectional transceiver
DP7304B	8-bit bidirectional transceiver
DP7307	8-bit bidirectional transceiver
DP7308	8-bit bidirectional transceiver
DP7310	Octal latched peripheral drivers
DP7311	Octal latched peripheral drivers
DP8212	8-bit input/output port
DP8216	8-bit bidirectional transceiver
DP8224	Clock generator and driver
DP8226	4-bit bidirectional transceiver
DP8228	System controller and driver
DP8238	System controller and driver
DP8303	8-bit bidirectional transceiver
DP8304	8-bit bidirectional transceiver
DP8307	8-bit bidirectional transceiver
DP8308	8-bit bidirectional transceiver
DP8310	Octal latched peripheral drivers
DP8311	Octal latched peripheral drivers
DP8350	CRT controller
DP8352	CRT controller
DP8353	CRT controller
DS0025C	Dual MOS clock driver
DS0026C	Dual MOS clock driver
DS0056C	Dual MOS clock driver
DS1488	RS232 quad line driver
DS1489	RS232 quad line driver
DS1603	Dual TRI-STATE line receiver
DS1611	Dual high voltage peripheral driver
DS1612	Dual high voltage peripheral driver
DS1613	Dual high voltage peripheral driver
DS1614	Dual high voltage peripheral driver
DS1628	Octal TRI-STATE MOS driver
DS1613	CMOS dual peripheral driver
DS1632	CMOS dual peripheral driver
DS1633	CMOS dual peripheral driver
DS1634	CMOS dual peripheral driver
DS1644	Quad MOS clock driver
DS1645	Hex TRI-STATE TTL/MOS latch driver
DS1647	Quad TRI-STATE register driver
DS1649	Hex TRI-STATE TTL/MOS driver
DS1650	Quad line receiver
DS1651	Quad high speed MOS sense amp
DS1652	Quad line receiver
DS1653	Quad high speed MOS sense amp
DS1671	Dual clock driver
DS1674	Quad MOS clock driver
DS1675	Hex TRI-STATE MOS latch driver
DS1677	TRI-STATE register driver
DS1679	Hex TRI-STATE TTL/MOS driver
DS1686	Dual relay driver (positive)
DS1687	Dual relay driver (negative)
DS1691	RS422/423 line driver
DS1692	RS422/423 line driver
DS26LS31C	Quad differential line driver
DS26LS32C	Quad differential line receiver
DS26LS33C	Quad differential line receiver
DS26S10	Quad bus transceiver
DS26S11	Quad bus transceiver
DS3245	Quad MOS clock driver
DS3486	Quad RS-422/423 line receiver
DS3487	Quad RS-422 line driver
DS3587	Quad TRI-STATE line driver
DS3603	Dual TRI-STATE line receiver
DS3611	Dual AND peripheral driver, 80 V
DS3612	Dual NAND peripheral driver, 80 V
DS3613	Dual OR peripheral driver, 80 V
DS3614	Dual NOR peripheral driver, 80 V
DS3616	Bubble memory coil driver
DS3622	Dual TTL-to-MOS driver
DS3625	Dua l TRI-STATE MOS sense amplifier
DS3628	8-bitTTL-MOS driver
DS3630	Hex CMOS buffer
DS3631	Dual CMOS AND peripheral driver
DS3632	Dual CMOS NAND peripheral driver
DS3633	Dual CMOS OR peripheral driver
DS3634	Dual CMOS
DS3640	DS3670, but with internal damping resistor
DS3642	DS3672, but with internal damping resistor
DS3643	DS3673, but with internal damping resistor
DS3644	DS3674, but with internal damping resistor
DS3645	DS3675, but with internal damping resistor
DS3646	DS3676, but with internal damping resistor
DS3647	Quad TRI-STATE MOS RAM I/O register
DS3648	DS3678, but with internal damping resistor
DS3649	DS3679, but with internal damping resistor
DS3650	Quad TRI-STATE line receiver
DS3651	Quad hi-speed MOS sense amplifier
DS3652	Quad line receiver (open coll.)
DS3653	Quad hi-speed MOS sense amplifier
DS3654	10-digit serial input power driver
DS3662	Quad high speed trap bus transceiver

NSC No.	Description
DS3671	Dual MOS clock driver
DS3672	Dual TTL IN MOS clock driver
DS3673	Quad decoded MOS clock driver
DS3674	Quad MOS clock driver
DS3675	Hex latch/MOS driver
DS3677	Quad TRI-STATE MOS RAM I/O register
DS3678	Quad TRI-STATE MOS RAM chip
DS3679	Hex TRI-STATE MOS RAM address driver
DS3680	Telephone relay driver
DS3686	Dual relay driver (positive)
DS3687	Dual relay driver (negative)
DS3691	Quad line driver, RS-423
DS3692	Quad TRI-STATE line driver
DS36147	Quad MOS RAM I/O register (open coll.)
DS36149	DS36179, but with internal damping resistor
DS36177	Quad MOS RAM I/O register (open coll.)
DS36179	Hex MOS RAM address driver
DS55107	Dual line receiver
DS55108	Dual line receiver
DS55113	Dual differential TRI-STATE line driver
DS55114	Dual differential line driver
DS55115	Dual differential line receiver
DS55121	Dual line driver
DS55122	Triple line receiver with hysterisis
DS55182	Dual line receiver
DS55183	Dual line driver
DS55325	Core memory driver
DS55450	Dual peripheral driver
DS55451	Dual peripheral driver
DS55452	Dual peripheral driver
DS55453	Dual peripheral driver
DS55454	Dual peripheral driver
DS55460	Dual peripheral driver
DS55461	Dual peripheral driver
DS55462	Dual peripheral driver
DS55463	Dual peripheral driver
DS55464	Dual peripheral driver
DS55493	4-segment LED driver
DS55494	6-digit LED driver
DS75107	Dual line receiver
DS75108	Dual line receiver
DS75113	Dual TRI-STATE line driver
DS75114	Dual line driver
DS75115	Dual line receiver
DS75121	Dual line driver
DS75122	Triple line receiver
DS75123	Dual line driver
DS75124	Triple line receiver
DS75125	7-channel line receiver
DS75127	7-channel line receiver
DS75128	8-channel line receiver
DS75129	8-channel line receiver
DS75150	Dual line driver
DS75154	Quad line receiver
DS75207	Dual MOS sense amplifier
DS75208	Dual MOS sense amplifier
DS75325	Core memory driver
DS75361	Dual clock driver
DS75362	Dual clock driver
DS75365	Quad TTL/MOS driver
DS75450	Dual peripheral driver, 30 V
DS75451	Dual AND peripheral driver, 30 V
DS75452	Dual NAND peripheral driver, 30 V
DS75453	Dual OR peripheral driver, 30 V
DS75454	Dual NOR peripheral driver, 30 V
DS75461	Dual AND peripheral driver, 35 V
DS75462	Dual NAND peripheral driver, 35 V
DS75463	Dual OR peripheral driver, 35 V
DS75464	Dual NOR peripheral driver, 35 V
DS75480	7-segment decoder/driver
DS75491	4-segment LED driver, 50 mA
DS75492	6-digit LED driver, 250 mA
DS75493	4-segment LED driver, 50 mA
DS75494	6-digit LED driver, 180 mA
DS7640	Quad 2-in receiver, no hysterisis
DS7641	Quad 2-in receiver
DS7800	Dual TTL/MOS translator
DS7811	Quad 2-in TTL/MOS interface gate
DS7819	Quad 2-in TTL/MOS interface gate
DS7820A	Dual differential line receiver
DS7830	Dual differential line driver
DS7831	Quad TRI-STATE line driver
DS7832	Quad TRI-STATE line driver
DS7833	Quad TRI-STATE transceiver
DS7834	Quad TRI-STATE transceiver
DS7835	Quad TRI-STATE transceiver
DS7836	Quad 2-in bus receiver
DS7837	Hex unified bus receiver
DS7838	Quad unified bus transceiver
DS7839	Quad TRI-STATE transceiver
DS7880	7-segment decoder/driver
DS7889	8-line gas discharge cathode driver
DS78C20	Dual CMOS RS422/423 line receiver
DS78C120	Dual CMOS line receiver
DS78L12	TTL/MOS hex interface unit
DS78LS120	RS232C-RS422/423 line receiver
DS8T26A	Quad transceiver
DS8T28	Quad transceiver
DS8629	Divide-by-100 prescaler
DS8640	Quad bus receiver (no hysteresis)
DS8641	Quad bus transceiver, 50 mA
DS8654	8-bit buffer
DS8656	Diode matrix
DS8664	14-digit decoder/driver
DS8666	14-digit decoder/driver

TRANSISTOR SELECTION GUIDE

NSC No.	Description
2N697	NPN MEDP
2N699	NPN MEDP
2N706	NPN SW
2N708	NPN SW
2N718	NPN MEDP
2N718A	NPN MEDP
2N743	NPN LL
2N744	NPN S
2N753	NPN S
2N760	NPN LL
2N760A	NPN LL
2N834	NPN SW
2N869	PNP GPA
2N869A	PNP SW
2N915	NPN R & I
2N916	NPN R & I
2N917	NPN LL
2N918	NPN LL
2N929	NPN LL
2N929A	NPN LL
2N930	NPN LL
2N930A	NPN LL
2N956	NPN MEDP
2N995	PNP SW
2N1420	NPN MEDP
2N1566	NPN MEDP
2N1613	NPN MEDP
2N1711	NPN MEDP
2N2017	NPN MEDP
2N2102	NPN MEDP
2N2192	NPN MEDP
2N2192A	NPN MEDP
2N2193	NPN MEDP
2N2193A	NPN MEDP
2N2195	NPN MEDP
2N2195A	NPN MEDP
2N2218	NPN MEDP
2N2218A	NPN MEDP
2N2219	NPN MEDP
2N2219A	NPN MEDP
2N2221	NPN MEDP
2N2221A	NPN MEDP
2N2222	NPN MEDP
2N2222A	NPN MEDP
2N2243	NPN MEDP
2N2243A	NPN MEDP
2N2270	NPN MEDP
2N2369	NPN SW
2N2369A	NPN SW
2N2484	NPN LL
2N2509	NPN LL
2N2510	NPN LL
2N2511	NPN LL
2N2586	NPN LL
2N2604	PNP LL
2N2605	PNP LL
2N2608	PFET GPA
2N2609	PFET GPA
2N2657	NPN PWR
2N2658	NPN PWR
2N2696	PNP MEDP
2N2712	NPN GPA
2N2714	NPN GPA
2N2857	NPN RF
2N2890	NPN PWR
2N2891	NPN PWR
2N2894	PNP SW
2N2894A	PNP SW
2N2904	PNP MEDP
2N2904A	PNP MEDP
2N2905	PNP MEDP
2N2905A	PNP MEDP
2N2906	PNP MEDP
2N2906A	PNP MEDP
2N2907	PNP MEDP
2N2907A	PNP MEDP
2N2923	NPN GPA
2N2924	NPN GPA
2N2925	NPN GPA
2N2926	NPN GPA
2N3009	NPN SW
2N3011	NPN SW
2N3012	PNP SW
2N3013	NPN SW
2N3015	NPN CD
2N3019	NPN MEDP
2N3020	NPN MEDP
2N3053	NPN MEDP
2N3070	NFET GPA
2N3071	NFET GPA
2N3072	PNP MEDP
2N3073	PNP MEDP
2N3107	NPN MEDP
2N3108	NPN MEDP
2N3109	NPN MEDP
2N3110	NPN MEDP
2N3115	NPN GPA
2N3116	NPN GPA
2N3117	NPN LL
2N3120	PNP MEDP
2N3121	PNP MEDP
2N3133	PNP MEDP

NSC No.	Description
2N3134	PNP MEDP
2N3135	PNP MEDP
2N3136	PNP MEDP
2N3209	PNP SW
2N3244	PNP core driver
2N3245	PNP core driver
2N3246	NPN LL
2N3248	PNP SW
2N3249	PNP SW
2N3250	PNP SW
2N3250A	PNP SW
2N3251	PNP SW
2N3251A	PNP SW
2N3252	NPN CD
2N3253	NPN CD
2N3299	NPN MEDP
2N3300	NPN MEDP
2N3301	NPN MEDP
2N3302	NPN MEDP
2N3304	PNP SW
2N3329	PFET GPA
2N3330	PFET GPA S
2N3331	PFET GPA S
2N3332	PFET GPA S
2N3368	NFET GPA
2N3369	NFET GPA
2N3370	NFET GPA
2N3382	PFET GPA S
2N3384	PFET GPA S
2N3386	PFET GPA S
2N3390	NPN LL
2N3391	NPN LL
2N3391A	NPN LL
2N3392	NPN LL
2N3393	NPN GPA
2N3394	NPN GPA
2N3395	NPN GPA
2N3396	NPN GPA
2N3397	NPN GPA
2N3398	NPN GPA
2N3414	NPN GPA
2N3415	NPN GPA
2N3416	NPN GPA
2N3417	NPN GPA
2N3444	NPN CD
2N3451	PNP SW
2N3458	NFET GPA
2N3459	NFET GPA
2N3460	NFET GPA
2N3467	PNP core driver
2N3468	PNP core driver
2N3478	NPN RF
2N3502	PNP MEDP
2N3503	PNP MEDP
2N3504	PNP MEDP
2N3505	PNP MEDP
2N3545	PNP SW
2N3546	PNP SW
2N3547	PNP LL
2N3548	PNP LL
2N3549	PNP LL
2N3550	PNP LL
2N3563	NPN UNF (will ship PN3563-18)
2N3564	NPN UHF (will ship PN3564-18)
2N3565	NPN LL (will ship PN3565-18)
2N3566	NPN MEDP (will ship PN3566-5)
2N3567	NPN MEDP (will ship PN3567-5)
2N3568	NPN MEDP (will ship PN3568-5)
2N3569	NPN MEDP (will ship PN3569-5)
2N3576	PNP MEDP
2N3600	NPN RF
2N3605	NPN SW
2N3606	NPN SW
2N3607	NPN SW
2N3634	PNP high voltage
2N3635	PNP high voltage
2N3636	PNP high voltage
2N3637	PNP high voltage
2N3638	PNP MEDP (will ship PN3638-5)
2N3638A	PNP MEDP (will ship PN3638A-5)
2N3641	NPN MEDP (will ship PN3641-5)
2N3642	NPN MEDP (will ship PN3642-5)
2N3643	NPN MEDP (will ship PN3643-5)
2N3644	PNP MEDP (will ship PN3644-5)
2N3645	PNP MEDP (will ship PN3645-5)
2N3646	NPN SW (will ship PN3646-18)
2N3662	NPN UHF OSC

NSC No.	Description
2N3663	NPN UHF OSC
2N3665	NPN MEDP
2N3666	NPN MEDP
2N3678	NPN MEDP
2N3684	NFET LNA
2N3685	NFET LNA
2N3686	NFET LNA
2N3687	NFET LNA
2N3691	NPN LL (will ship PN3691-18)
2N3692	NPN LL (will ship PN3692-18)
2N3693	NPN LL (will ship PN3693-18)
2N3700	NPN R & I
2N3702	PNP GPA
2N3703	PNP GPA
2N3704	NPN GPA
2N3705	NPN GPA
2N3706	NPN GPA
2N3707	NPN LL
2N3708	NPN LL
2N3709	NPN LL
2N3710	NPN LL
2N3711	NPN LL
2N3721	NPN GPA
2N3724	NPN CD
2N3724A	NPN CD
2N3725	NPN CD
2N3725A	NPN CD
2N3742	NPN MEDP HV
2N3794	NPN GPA
2N3799	PNP LL
2N3821	NFET RF
2N3822	NFET RF
2N3823	NFET RF
2N3824	NFET RF
2N3825	NPN UHF OSC
2N3827	NPN LL
2N3858	NPN GPA
2N3858A	NPN GPA
2N3859	NPN GPA
2N3859A	NPN GPA
2N3860	NPN LL
2N3877	NPN LL
2N3877A	NPN LL
2N3900	NPN LL
2N3900A	NPN LL
2N3901	NPN LL
2N3903	NPN GP
2N3904	NPN GP
2N3905	PNP GP
2N3906	PNP GP
2N3921	NFET DM
2N3922	NFET DM
2N3932	NPN RF
2N3933	NPN RF
2N3945	NPN MEDP
2N3946	NPN GPA
2N3947	NPN GPA
2N3954	NFET DM
2N3954A	NFET DM
2N3955	NFET DM
2N3955A	NFET DM
2N3956	NFET DM
2N3957	NFET DM
2N3958	NFET DM
2N3966	NFET GPA
2N3967	NFET LNA
2N3967A	NFET LNA
2N3968	NFET LNA
2N3968A	NFET LNA
2N3969	NFET LNA
2N3969A	NFET LNA
2N3970	NFET S
2N3971	NFET S
2N3972	NFET S
2N3993	PFET S
2N3994	PFET S
2N3994A	PFET S
2N4013	NPN SW
2N4014	NPN SW
2N4030	PNP MEDP
2N4031	PNP MEDP
2N4032	PNP MEDP
2N4033	PNP MEDP
2N4036	PNP MEDP
2N4037	PNP MEDP
2N4047	PNP MEDP
2N4058	PNP LL
2N4059	PNP LL
2N4061	PNP LL
2N4062	PNP LL
2N4084	NFET DM
2N4085	NFET DM
2N4091	NFET SW
2N4092	NFET SW
2N4093	NFET SW
2N4117	NFET GPA S
2N4117A	NFET GPA S
2N4118	NFET GPA S
2N4118A	NFET GPA S

LISTING CONTINUED ON FOLLOWING PAGE

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TRANSISTOR SELECTION GUIDE (CONT'D)

NSC No.	Description
2N4119	NFET GPA S
2N4119A	NFET GPA S
2N4121	PNP GP (will ship PN4121-18)
2N4122	PNP GP (will ship PN4122-18)
2N4123	NPN GP
2N4124	NPN GP
2N4125	PNP GP
2N4126	PNP GP
2N4134	NPN RF
2N4135	NPN RF
2N4140	NPN MEDP (will ship PN4140-18)
2N4141	NPN MEDP (will ship PN4141-18)
2N4142	NPN MEDP (will ship PN4142-18)
2N4143	PNP MEDP (will ship PN4143-18)
2N4208	PNP SW
2N4209	PNP SW
2N4220	NFET GPA
2N4220A	NFET GPA
2N4221	NFET GPA
2N4221A	NFET LNA
2N4222	NFET GPA
2N4222A	NFET LNA
2N4223	NFET RF
2N4224	NFET RF
2N4237	NPN MEDP
2N4248	PNP LL (will ship PN4248-18)
2N4249	PNP LL (will ship PN4249-18)
2N4250	PNP LL (will ship PN4250-18)
2N4250A	PNP LL (will ship PN4250A-18)
2N4258	PNP SW (will ship PN4258-18)
2N4258A	PNP SW (will ship PN4258A-18)
2N4259	NPN RF
2N4274	NPN SW (will ship PN4274-18)
2N4275	NPN SW (will ship PN4275-18)
2N4286	NPN LL
2N4287	NPN LL
2N4288	PNP LL
2N4289	PNP LL
2N4290	PNP GPA
2N4291	PNP GPA
2N4292	NPN UHF OSC
2N4293	NPN UHF OSC
2N4294	NPN SW
2N4295	NPN SW
2N4302	NFET GPA
2N4303	NFET GPA
2N4304	NFET GPA
2N4314	PNP MEDP
2N4338	NFET LN
2N4339	NFET LN
2N4340	NFET LN
2N4341	NFET LN
2N4342	PFET GPA S
2N4354	PNP MEDP (will ship PN4354-5)
2N4355	PNP MEDP (will ship PN4355-5)
2N4356	PNP MEDP (will ship PN4356-5)
2N4360	PFET GPA S
2N4381	PFET GPA S
2N4384	NPN LL
2N4386	NPN LL
2N4391	NFET S
2N4392	NFET S
2N4393	NFET S
2N4400	NPN GPA
2N4401	NPN GPA
2N4402	PNP MEDP
2N4403	PNP MEDP
2N4409	NPN LL
2N4410	NPN LL
2N4416	NFET RF
2N4416A	NFET RF
2N4424	NPN GPA
2N4856	NFET RF
2N4856A	NFET RF
2N4857	NFET RF
2N4857A	NFET RF
2N4858	NFET RF
2N4858A	NFET S
2N4859	NFET S
2N4859A	NFET S
2N4860	NFET S
2N4860A	NFET S
2N4861	NFET S
2N4861A	NFET S

NSC No.	Description
2N4916	PNP GP (will ship PN4916-18)
2N4917	PNP GP (will ship PN4917-18)
2N4918	PNP PWR TO-126
2N4919	PNP PWR TO-126
2N4920	PNP PWR TO-126
2N4921	NPN PWR TO-126
2N4922	NPN PWR TO-126
2N4923	NPN PWR TO-126
2N4924	NPN MEDP
2N4926	NPN MEDP HV
2N4927	NPN MEDP HV
2N4944	NPN MEDP (will ship PN2222A-18)
2N4945	NPN MEDP (will ship PN2222A-18)
2N4946	NPN MEDP (will ship PN2222A-18)
2N4951	NPN GPA
2N4952	NPN GPA
2N4953	NPN GPA
2N4954	NPN GPA
2N4964	PNP LL (will ship MPSA70-18)
2N4965	PNP LL (will ship 2N5086-18)
2N4966	NPN LL (will ship 2N5209-18)
2N4967	NPN LL (will ship 2N5210-18)
2N4968	NPN LL (will ship 2N5209-18)
2N4970	NPN MEDP (will ship PN2222-18)
2N4971	PNP MEDP (will ship PN2906-18)
2N4972	PNP MEDP (will ship PN2907-18)
2N5018	PFET SW
2N5019	PFET SW
2N5020	PFET LNA
2N5021	PFET LNA
2N5022	PNP core driver
2N5023	PNP core driver
2N5030	NPN SW
2N5033	PFET LNA
2N5045	NFET DM
2N5046	NFET DM
2N5047	NFET DM
2N5056	PNP SW
2N5057	PNP SW
2N5078	NFET RF
2N5086	PNP LL
2N5087	PNP LL
2N5088	NPN LL
2N5089	NPN LL
2N5103	NFET RF
2N5104	NFET RF
2N5105	NFET RF
2N5114	PFET SW
2N5115	PFET SW
2N5116	PFET SW
2N5127	NPN LL (will ship PN5127-18)
2N5128	NPN MEDP (will ship PN5128-5)
2N5129	NPN MEDP (will ship PN5129-18)
2N5130	NPN UHF (will ship PN5130-18)
2N5131	NPN LL (will ship PN5131-18)
2N5132	NPN LL (will ship PN5132-18)
2N5133	NPN LL (will ship PN5133-18)
2N5134	NPN SW (will ship PN5134-18)
2N5135	NPN MEDP (will ship PN5135-18)
2N5136	NPN MEDP (will ship PN5136-5)
2N5137	NPN MEDP (will ship PN5137-18)
2N5138	PNP LL (will ship PN5138-18)
2N5139	PNP LL (will ship PN5139-18)

NSC No.	Description
2N5142	PNP MEDP (will ship PN5142-18)
2N5143	PNP MEDP (will ship PN5143-18)
2N5148	NPN PWR
2N5150	NPN PWR
2N5163	NFET GPA
2N5172	NPN GPA
2N5179	NPN RF
2N5180	NPN RF
2N5189	NPN CD
2N5190	NPN PWR TO-126
2N5191	NPN PWR TO-126
2N5192	NPN PWR TO-126
2N5193	PNP PWR TO-126
2N5194	PNP PWR TO-126
2N5195	PNP PWR TO-126
2N5196	NFET DM
2N5197	NFET DM
2N5198	NFET DM
2N5199	NFET DM
2N5209	NPN LL
2N5210	NPN LL
2N5219	NPN LL
2N5220	NPN GPA
2N5221	PNP MEDP
2N5223	NPN LL
2N5224	NPN SW
2N5225	NPN GPA
2N5226	PNP MEDP
2N5227	PNP LL
2N5232	NPN LL
2N5232A	NPN LL
2N5245	NFET RF
2N5246	NFET RF
2N5247	NFET RF
2N5248	NFET RF
2N5294	NPN PWR TO-220
2N5296	NPN PWR TO-220
2N5298	NPN PWR TO-220
2N5305	NPN DARL
2N5306	NPN DARL
2N5307	NPN DARL
2N5308	NPN DARL
2N5336	NPN PWR
2N5338	NPN PWR
2N5354	PNP GPA
2N5355	PNP GPA
2N5358	NFET GPA
2N5359	NFET GPA
2N5360	NFET GPA
2N5361	NFET GPA
2N5362	NFET GPA
2N5363	NFET GPA
2N5364	NFET GPA
2N5365	PNP GPA
2N5366	PNP GPA
2N5397	NFET UHF
2N5398	NFET UHF
2N5400	PNP HV
2N5401	PNP HV
2N5432	NFET SW
2N5433	NFET SW
2N5434	NFET SW
2N5447	PNP MEDP
2N5452	NFET DMGP
2N5453	NFET DMGP
2N5454	NFET DMGP
2N5457	NFET GPA
2N5458	NFET GPA
2N5459	NFET GPA
2N5460	PFET GPA
2N5461	PFET LNA
2N5462	PFET LNA
2N5484	NFET RF
2N5485	NFET RF
2N5486	NFET RF
2N5490	NPN PWR TO-220
2N5492	NPN PWR TO-220
2N5494	NPN PWR TO-220
2N5496	NPN PWR TO-220
2N5515	NFET DM
2N5516	NFET DM
2N5517	NFET DM
2N5518	NFET DM
2N5519	NFET DM
2N5520	NFET DM
2N5521	NFET DM
2N5522	NFET DM
2N5523	NFET DM
2N5524	NFET DM
2N5545	NFET DM
2N5546	NFET DM
2N5547	NFET DM
2N5550	NPN HV
2N5551	NPN HV
2N5555	NFET SW
2N5556	NFET LNA
2N5557	NFET LNA
2N5558	NFET LNA
2N5561	NFET Dual
2N5562	NFET Dual

LISTING CONTINUED ON FOLLOWING PAGE

TRANSISTOR SELECTION GUIDE (CONT'D)

NSC No.	Description
2N5563	NFET Dual
2N5564	NFET DM
2N5565	NFET DM
2N5566	NFET DM
2N5638	NFET SW
2N5639	NFET SW
2N5640	NFET GPA
2N5653	NFET SW
2N5654	NFET SW
2N5655	NPN PWR TO-126
2N5656	NPN PWR TO-126
2N5657	NPN PWR TO-126
2N5668	NFET RF
2N5669	NFET RF
2N5670	NFET RF
2N5769	NPN SW
2N5770	NPN UHF OSC
2N5771	PNP SW
2N5772	NPN SW
2N5817	PNP MEDP
2N5902	DNFET SUB PA
2N5903	DNFET SUB PA
2N5904	DNFET SUB PA
2N5905	DNFET SUB PA
2N5906	DNFET SUB PA
2N5907	DNFET SUB PA
2N5908	DNFET SUB PA
2N5909	DNFET SUB PA
2N5911	NFET DM VHF
2N5912	NFET DM VHF
2N5949	NFET RF
2N5950	NFET RF
2N5951	NFET RF
2N5952	NFET RF
2N5953	NFET RF
2N6034	PNP DARL PWR
2N6035	PNP DARL PWR
2N6036	PNP DARL PWR
2N6037	NPN DARL PWR
2N6038	NPN DARL PWR
2N6039	NPN DARL PWR
2N6040	PNP DARL
2N6041	PNP DARL
2N6042	PNP DARL
2N6043	NPN DARL
2N6044	NPN DARL
2N6045	NPN DARL
2N6076	PNP GPA
2N6099	NPN DARL PWR TO-220
2N6101	NPN PWR TO-220
2N6103	NPN PWR TO-220
2N6107	PNP PWR TO-220
2N6109	PNP PWR TO-220
2N6111	PNP PWR TO-220
2N6121	NPN PWR TO-220
2N6122	NPN PWR TO-220
2N6123	NPN PWR TO-220
2N6124	PNP PWR TO-220
2N6125	PNP PWR TO-220
2N6126	PNP PWR TO-220
2N6129	NPN PWR TO-220
2N6130	NPN PWR TO-220
2N6131	NPN PWR TO-220
2N6132	PNP PWR TO-220
2N6133	PNP PWR TO-220
2N6134	PNP PWR TO-220
2N6288	NPN PWR TO-220
2N6290	NPN PWR TO-220
2N6292	NPN PWR TO-220
2N6386	NPN DARL PWR
2N6387	NPN DARL
2N6388	NPN DARL
2N6483	NFET DM ULN
2N6484	NFET DM ULN
2N6485	NFET DM ULN
2N6486	NPN PWR TO-220
2N6487	NPN PWR TO-220
2N6488	NPN PWR TO-220
2N6489	NPN PWR TO-220
2N6490	PNP PWR TO-220
2N6491	PNP PWR TO-220
2N6548	NPN PWR TO-202
2N6549	NPN PWR TO-202
2N6551	NPN PWR TO-202
2N6552	NPN PWR TO-202
2N6553	NPN PWR TO-202
2N6554	PNP PWR TO-202
2N6555	PNP PWR TO-202
2N6556	PNP PWR TO-202
2N6666	PNP DARL
2N6667	PNP DARL
2N6668	PNP DARL
2N6705	NPN MEDP
2N6706	NPN MEDP
2N6707	NPN MEDP
2N6708	NPN MEDP
2N6709	NPN MEDP
2N6710	PNP MEDP
2N6711	NPN MEDP
2N6712	NPN MEDP
2N6713	NPN MEDP

NSC No.	Description
2N6714	MEDP
2N6715	NPN MEDP
2N6716	NPN MEDP
2N6717	NPN MEDP
2N6718	NPN MEDP
2N6719	NPN MEDP
2N6720	NPN MEDP
2N6721	NPN MEDP
2N6722	NPN MEDP
2N6723	NPN MEDP
2N6724	NPN DARL
2N6725	NPN DARL
2N6726	PNP MEDP
2N6727	PNP MEDP
2N6728	PNP MEDP
2N6729	PNP MEDP
2N6730	PNP MEDP
2N6731	NPN MEDP
2N6732	PNP MEDP
2N6733	NPN MEDP
2N6734	NPN MEDP
2N6735	NPN MEDP
2N6737	NPN MEDP
40235	NPN RF
40236	NPN RF
40237	NPN RF
40238	NPN RF
40239	NPN RF
40240	NPN RF
40242	NPN RF
40243	NPN RF
40244	NPN RF
40245	NPN RF
40246	NPN RF
BD344	PNP PWR TO-126
BD347	NPN PWR TO-220
BFX85	NPN MEDP
D40C1	NPN DARL MEDP TO-202
D40C2	NPN DARL MEDP TO-202
D40C3	NPN DARL MEDP TO-202
D40C4	NPN DARL MEDP TO-202
D40C5	NPN DARL MEDP TO-202
D40C7	NPN DARL MEDP TO-202
D40C8	NPN DARL MEDP TO-202
D40D1	NPN MEDP TO-202
D40D10	NPN MEDP TO-202
D40D11	NPN MEDP TO-202
D40D13	NPN MEDP TO-202
D40D14	NPN MEDP TO-202
D40D2	NPN MEDP TO-202
D40D4	NPN MEDP TO-202
D40D7	NPN MEDP TO-202
D40D8	NPN MEDP TO-202
D40E1	NPN MEDP TO-202
D40E5	NPN MEDP TO-202
D40E7	NPN MEDP TO-202
D40K1	MEDP DARL TO-202
D40K2	MEDP DARL TO-202
D40K3	MEDP DARL TO-202
D40K4	MEDP DARL TO-202
D40N1	NPN MEDP HV TO-202
D40N2	NPN MEDP HV TO-202
D40N3	NPN MEDP HV TO-202
D40N4	NPN MEDP HV TO-202
D40N5	NPN MEDP HV TO-202
D40P1	NPN MEDP HV TO-202
D40P3	NPN MEDP HV TO-202
D40P5	NPN MEDP HV TO-202
D41D1	PNP MEDP TO-202
D41D10	PNP MEDP TO-202
D40D11	PNP MEDP TO-202
D41D13	PNP MEDP TO-202
D41D14	PNP MEDP TO-202
D41D2	PNP MEDP TO-202
D41D4	PNP MEDP TO-202
D41D5	PNP MEDP TO-202
D41D7	PNP MEDP TO-202
D41D8	PNP MEDP TO-202
D41E1	PNP MEDP TO-202
D41E5	PNP MEDP TO-202
D41E7	PNP MEDP TO-202
D42C1	NPN MEDP TO-202
D42C10	NPN MEDP TO-202
D42C11	NPN MEDP TO-202
D42C12	NPN MEDP TO-202
D42C2	NPN PWR TO-202
D42C3	NPN PWR TO-202
D42C4	NPN PWR TO-202
D42C5	NPN PWR TO-202
D42C6	NPN PWR TO-202
D42C7	NPN PWR TO-202
D42C8	NPN PWR TO-202

NSC No.	Description
D42C9	NPN PWR TO-202
D43C1	PNP PWR TO-202
D43C10	PNP PWR TO-202
D43C11	PNP PWR TO-202
D43C12	PNP PWR TO-202
D43C2	PNP PWR TO-202
D43C3	PNP PWR TO-202
D43C4	PNP PWR TO-202
D43C5	PNP PWR TO-202
D43C6	PNP PWR TO-202
D43C7	PNP PWR TO-202
D43C8	PNP PWR TO-202
D43C9	PNP PWR TO-202
D44C1	NPN PWR TO-220
D44C10	NPN PWR TO-220
D44C11	NPN PWR TO-220
D44C12	NPN PWR TO-220
D44C2	NPN PWR TO-220
D44C3	NPN PWR TO-220
D44C4	NPN PWR TO-220
D44C5	NPN PWR TO-220
D44C6	NPN PWR TO-220
D44C7	NPN PWR TO-220
D44C8	NPN PWR TO-220
D44C9	NPN PWR TO-220
D44H1	NPN PWR TO-220
D44H10	NPN PWR TO-220
D44H2	NPN PWR TO-220
D44H4	NPN PWR TO-220
D44H5	NPN PWR TO-220
D44H7	NPN PWR TO-220
D44H8	NPN PWR TO-220
D45C1	PNP PWR TO-220
D45C10	PNP PWR TO-220
D45C11	PNP PWR TO-220
D45C12	PNP PWR TO-220
D45C2	PNP PWR TO-220
D45C3	PNP PWR TO-220
D45C4	PNP PWR TO-220
D45C5	PNP PWR TO-220
D45C6	PNP PWR TO-220
D45C7	PNP PWR TO-220
D45C8	PNP PWR TO-220
D45C9	PNP PWR TO-220
D45H1	PNP PWR TO-220
D45H10	PNP PWR TO-220
D45H2	PNP PWR TO-220
D45H4	PNP PWR TO-220
D45H5	PNP PWR TO-220
D45H7	PNP PWR TO-220
MJE170	PNP PWR TO-126
MJE171	PNP PWR TO-126
MJE172	PNP PWR TO-126
MJE180	NPN PWR TO-126
MJE181	NPN PWR TO-126
MJE182	NPN PWR TO-126
MJE200	NPN PWR TO-126
MJE210	PNP PWR TO-126
MJE220	NPN PWR TO-126
MJE221	NPN PWR TO-126
MJE222	NPN PWR TO-126
MJE223	NPN PWR TO-126
MJE224	NPN PWR TO-126
MJE225	NPN PWR TO-126
MJE230	PNP PWR TO-126
MJE231	PNP PWR TO-126
MJE232	PNP PWR TO-126
MJE233	PNP PWR TO-126
MJE234	PNP PWR TO-126
MJE235	PNP PWR TO-126
MJE240	NPN PWR TO-126
MJE241	NPN PWR TO-126
MJE242	NPN PWR TO-126
MJE243	NPN PWR TO-126
MJE244	NPN PWR TO-126
MJE250	PNP PWR TO-126
MJE251	PNP PWR TO-126
MJE252	PNP PWR TO-126
MJE253	PNP PWR TO-126
MJE254	PNP PWR TO-126
MJE2801T	PNP PWR TO-220
MJE2901T	PNP PWR TO-220
MJE2955T	PNP PWR TO-220
MJE3055T	NPN PWR TO-220
MJE340	NPN PWR TO-126
MJE341	NPN PWR TO-126
MJE3439	NPN PWR TO-126
MJE344	NPN PWR TO-126
MJE3440	NPN PWR TO-126
MJE370	PNP PWR TO-126
MJE371	PNP PWR TO-126
MJE520	NPN PWR TO-126
MJE521	NPN PWR TO-126
MJE700	PNP DARL PWR
MJE701	PNP DARL PWR
MJE702	PNP DARL PWR
MJE703	PNP DARL PWR
MJE710	PNP PWR TO-126
MJE711	PNP PWR TO-126
MJE712	PNP PWR TO-126
MJE720	NPN PWR TO-126
MJE721	NPN PWR TO-126
MJE722	NPN PWR TO-126

LISTING CONTINUED ON FOLLOWING PAGE

TRANSISTOR SELECTION GUIDE (CONT'D)

NSC No.	Description
MJE800	NPN DARL PWR
MJE801	NPN DARL PWR
MJE802	NPN DARL PWR
MJE803	NPN DARL PWR
MPF102	NFET RF
MPF103	NFET GPA
MPF104	NFET GPA
MPF105	NFET GPA
MPF106	NFET RF
MPF107	NFET RF
MPF108	NFET RF
MPF109	NFET GPA
MPF110	NFET GPA
MPF111	NFET GPA
MPF112	NFET RF
MPF256	NFET GPA
MPSA05	NPN MEDP
MPSA06	NPN MEDP
MPSA09	NPN LL
MPSA10	NPN GP
MPSA12	NPN DARL
MPSA13	NPN DARL
MPSA14	NPN DARL
MPSA20	NPN GP
MPSA42	NPN HV
MPSA43	NPN HV
MPSA55	PNP MEDP
MPSA56	PNP MEDP
MPSA70	NPN GP
MPSH10	NPN RF
MPSH11	NPN RF
MPSH19	NPN VHF
MPSH20	NPN RF
MPSH24	NPN RF
MPSH30	NPN RF
MPSH31	NPN RF
MPSH32	NPN IF
MPSH34	NPN IF
MPSH37	NPN RF
MPSL01	NPN HV
MPSL51	PNP HV
MPS706	NPN SW
MPS834	NPN SW
MPS2369	NPN SW (will ship PN2369)
MPS2711	NPN GP
MPS2712	NPN GP
MPS2713	NPN SW
MPS2714	NPN SW
MPS2716	NPN GP
MPS2923	NPN MEDP
MPS2924	NPN MEDP
MPS2925	NPN MEDP
MPS2926	NPN GP
MPS3392	NPN GP
MPS3393	NPN GP
MPS3394	NPN GP
MPS3395	NPN GP
MPS3396	NPN GP
MPS3397	NPN GP
MPS3398	NPN GP
MPS3563	NPN UHF (will ship PN3563)
MPS3638	PNP MEDP (will ship PN3638)
MPS3638A	PNP MEDP (will ship PN3638A)
MPS3639	PNP SW
MPS3640	PNP SW (will ship PN3640)
MPS3642	NPN MEDP (will ship PN3642)
MPS3644	NPN MEDP (will ship PN3644)
MPS3645	NPN MEDP (will ship PN3645)
MPS3646	NPN SW (will ship PN3646)
MPS3693	NPN GP
MPS3694	NPN GP (will ship PN3694)
MPS3702	PNP MEDP
MPS3703	PNP MEDP
MPS3704	NPN GPA
MPS3705	NPN GPA
MPS3707	NPN LL
MPS3708	NPN LL
MPS3709	NPN LL
MPS3710	NPN LL
MPS3711	NPN LL
MPS3721	NPN GP
MPS3826	NPN GP
MPS3827	NPN GP
MPS4354	PNP MEDP (will ship PN4354)
MPS4355	PNP MEDP (will ship PN4355)
MPS4356	PNP MEDP (will ship PN4356)

NSC No.	Description
MPS5172	NPN LL
MPS6507	NPN UHF OSC
MPS6511	NPN IF
MPS6512	NPN GP
MPS6513	NPN GP
MPS6514	NPN GP
MPS6515	NPN GP
MPS6516	PNP GP
MPS6517	PNP GP
MPS6518	PNP GP
MPS6520	NPN GP
MPS6521	NPN GP
MPS6522	PNP GP
MPS6523	PNP GPA
MPS6530	NPN GPA
MPS6531	NPN GPA
MPS6532	NPN GPA
MPS6533	PNP MEDP
MPS6534	PNP MEDP
MPS6535	PNP SW
MPS6539	NPN RF
MPS6540	NPN RF
MPS6541	NPN UHF
MPS6542	NPN RF
MPS6543	NPN RF
MPS6544	NPN RF
MPS6546	NPN RF
MPS6547	NPN RF
MPS6548	NPN RF
MPS6560	NPN MEDP
MPS6561	NPN MEDP
MPS6562	PNP MEDP
MPS6563	PNP MEDP
MPS6564	NPN GPA
MPS6565	NPN LL
MPS6566	NPN LL
MPS6567	NPN RF
MPS6568A	NPN RF
MPS6569	NPN RF
MPS6570	NPN RF
MPS6571	NPN LL
MPS6573	NPN GP
MPS6574	NPN GP
MPS6575	NPN GP
MPS6576	NPN GP
MRF501	NPN RF
MRF502	NPN RF
NDF9406	NFET DMLLHV
NDF9407	NFET DMLLHV
NDF9408	NFET DMLLHV
NDF9409	NFET DMLLHV
NDF9410	NFET DMLLHV
NSDU01	NPN PWR TO-202
NSDU01A	NPN PWR TO-202
NSDU02	NPN PWR TO-202
NSDU05	NPN PWR TO-202
NSDU06	NPN PWR TO-202
NSDU07	NPN PWR TO-202
NSDU10	NPN PWR TO-202
NSDU45	NPN DARL PWR TO-202
NSDU45A	NPN DARL PWR TO-202
NSDU51	PNP PWR TO-202
NSDU51A	PNP PWR TO-202
NSDU52	PNP PWR TO-202
NSDU55	PNP PWR TO-202
NSDU56	PNP PWR TO-202
NSDU57	PNP PWR TO-202
NSD102	NPN PWR TO-202
NSD103	NPN PWR TO-202
NSD104	NPN PWR TO-202
NSD105	NPN PWR TO-202
NSD106	NPN PWR TO-202
NSD131	NPN PWR TO-202
NSD132	NPN PWR TO-202
NSD133	NPN PWR TO-202
NSD134	NPN PWR TO-202
NSD135	NPN PWR TO-202
NSD151	NPN DARL PWR TO-202
NSD152	NPN DARL PWR TO-202
NSD153	NPN DARL PWR TO-202
NSD154	NPN DARL PWR TO-202
NSD202	PNP PWR TO-202
NSD203	PNP PWR TO-202
NSD204	PNP PWR TO-202
NSD206	PNP PWR TO-202
NSD36	NPN PWR TO-202
NSD36A	NPN PWR TO-202
NSD36B	NPN PWR TO-202
NSD36C	NPN PWR TO-202
NSD457	NPN PWR TO-202
NSD458	NPN PWR TO-202
NSD459	NPN PWR TO-202
NSD6178	NPN PWR TO-202

NSC No.	Description
NSD6179	NPN PWR TO-202
NSD6180	NPN PWR TO-202
NSD6181	NPN PWR TO-202
NSE170	PNP PWR TO-202
NSE171	PNP PWR TO-202
NSE180	NPN PWR TO-202
NSE181	NPN PWR TO-202
NSE457	NPN PWR TO-202
NSE458	NPN PWR TO-202
NSE459	NPN PWR TO-202
NSP2010	PNP PWR TO-220
NSP2011	PNP PWR TO-220
NSP2021	PNP PWR TO-220
NSP2090	PNP DARL PWR TO-220
NSP2091	PNP DARL PWR TO-220
NSP2092	PNP DARL PWR TO-220
NSP2093	PNP DARL PWR TO-220
NSP2100	NPN DARL PWR TO-220
NSP2101	NPN DARL PWR TO-220
NSP2102	NPN DARL PWR TO-220
NSP2103	NPN DARL PWR TO-220
NSP2370	PNP PWR TO-220
NSP2480	NPN PWR TO-220
NSP2481	NPN PWR TO-220
NSP2482	NPN PWR TO-220
NSP2483	NPN PWR TO-220
NSP2490	PNP PWR TO-220
NSP2491	PNP PWR TO-220
NSP2520	PNP PWR TO-220
NSP2955	PNP PWR TO-220
NSP3055	PNP PWR TO-220
NSP41	NPN PWR TO-220
NSP41A	NPN PWR TO-220
NSP41B	NPN PWR TO-220
NSP41C	NPN PWR TO-220
NSP42	PNP PWR TO-220
NSP42A	PNP PWR TO-220
NSP42B	PNP PWR TO-220
NSP575	NPN PWR TO-220
NSP576	PNP PWR TO-220
NSP577	NPN PWR TO-220
NSP578	PNP PWR TO-220
NSP579	NPN PWR TO-220
NSP580	PNP PWR TO-220
NSP581	NPN PWR TO-220
NSP582	PNP PWR TO-220
NSP585	NPN PWR TO-220
NSP586	PNP PWR TO-220
NSP587	NPN PWR TO-220
NSP588	PNP PWR TO-220
NSP590	PNP PWR TO-220
NSP595	NPN PWR TO-220
NSP596	PNP PWR TO-220
NSP597	NPN PWR TO-220
NSP5974	PNP PWR TO-220
NSP5975	PNP PWR TO-220
NSP5976	PNP PWR TO-220
NSP5977	NPN PWR TO-220
NSP5978	NPN PWR TO-220
NSP5979	NPN PWR TO-220
NSP598	PNP PWR TO-220
NSP599	NPN PWR TO-220
NSP600	PNP PWR TO-220
NSP601	NPN PWR TO-220
NSP602	PNP PWR TO-220
NSP695	NPN DARL PWR TO-220
NSP695A	NPN DARL PWR TO-220
NSP696	PNP DARL PWR TO-220
NSP696A	PNP DARL PWR TO-220
NSP697	NPN DARL PWR TO-220
NSP697A	NPN DARL PWR TO-220
NSP698	PNP DARL PWR TO-220
NSP698A	PNP DARL PWR TO-220
NSP699	NPN DARL PWR TO-220
NSP699A	NPN DARL PWR TO-220
NS3762	PNP core driver
NS3763	PNP core driver
NS3903	NPN GP
NS3904	NPN GP
NS3905	PNP GP

LISTING CONTINUED ON FOLLOWING PAGE

TRANSISTOR SELECTION GUIDE (CONT'D)

NSC No.	Description
NS3906	PNP GP
P1086	PFET SW
P1087	PFET SW
PF5101	NFET LNA
PF5102	NFET LNA
PF5103	PFET LNA
PF5301	NFET LNA
PN918	NPN LL
PN930	NPN LL
PN2221	NPN MEDP
PN2221A	NPN MEDP
PN2222	NPN MEDP
PN2222A	NPN MEDP
PN2369	NPN SW
PN2369A	NPN SW
PN2484	NPN LL
PN2906	PNP MEDP
PN2906A	PNP MEDP
PN2907	PNP MEDP
PN2907A	PNP MEDP
PN3563	NPN UHF
PN3564	NPN UHF
PN3565	NPN LL
PN3566	NPN MEDP
PN3567	NPN MEDP
PN3568	NPN MEDP
PN3569	NPN MEDP
PN3638	PNP MEDP
PN3638A	PNP MEDP
PN3640	PNP SW
PN3641	NPN MEDP
PN3642	NPN MEDP
PN3643	NPN MEDP
PN3644	NPN MEDP
PN3645	NPN MEDP
PN3646	NPN SW
PN3684	NFET LNA
PN3685	NFET LNA
PN3686	NFET LNA
PN3687	NFET LNA
PN3691	NPN LL
PN3692	NPN LL
PN3694	NPN LL
PN4091	NFET SW
PN4092	NFET SW
PN4093	NFET SW
PN4117	NFET GPA
PN4117A	NFET GPA
PN4118	NFET GPA
PN4118A	NFET GPA
PN4119	NFET GPA
PN4119A	NFET GPA
PN4121	PNP GP
PN4122	PNP GP
PN4140	NPN MEDP
PN4141	NPN MEDP
PN4142	PNP MEDP
PN4143	PNP MEDP
PN4220	NFET GPA
PN4221	NFET GPA
PN4222	NFET GPA
PN4223	NFET RF
PN4224	NFET GPA
PN4248	PNP LL
PN4249	PNP LL
PN4250	PNP LL
PN4250A	PNP LL
PN4258	PNP SW
PN4258A	PNP SW
PN4274	NPN SW
PN4275	NPN SW
PN4302	NFET GPA
PN4303	NFET GPA
PN4304	NFET GPA
PN4342	PFET SW GPA
PN4343	PFET SW GPA
PN4354	PNP MEDP
PN4355	PNP MEDP
PN4356	PNP MEDP
PN4360	PFET SW GPA
PN4391	NFET SW
PN4392	NFET SW
PN4393	NFET SW
PN4416	NFET RF
PN4856	NFET SW
PN4857	NFET SW
PN4858	NFET SW
PN4859	NFET SW
PN4860	NFET SW
PN4861	NFET SW
PN4916	PNP GP
PN4917	PNP GP
PN5033	PFET LNA
PN5127	NPN LL
PN5128	NPN MEDP
PN5129	NPN MEDP
PN5130	NPN UHF
PN5131	NPN LL
PN5132	NPN LL
PN5133	NPN LL
PN5134	NPN SW
PN5135	NPN MEDP
PN5136	NPN MEDP
PN5137	NPN MEDP
PN5138	PNP LL
PN5139	PNP LL
PN5142	PNP MEDP
PN5143	PNP MEDP
PN5163	NFET GPA
PN5179	NPN RF
PN5432	NFET SW
PN5433	NFET SW
PN5434	NFET SW
PN5910	PNP SW
SE7055	NPN GPA
SE7056	NPN GPA
SE9300	NPN DARL PWR TO-220
SE9301	NPN DARL PWR TO-220
SE9302	NPN DARL PWR TO-220
SE9400	PNP DARL PWR TO-220
SE9401	PNP DARL PWR TO-220
SE9402	PNP DARL PWR TO-220
TIP100	NPN DARL TO-220
TIP101	NPN DARL TO-220
TIP102	NPN DARL TO-220
TIP105	PNP DARL TO-220
TIP106	PNP DARL TO-220
TIP107	PNP DARL TO-220
TIP110	NPN DARL PWR
TIP111	NPN DARL PWR
TIP112	NPN DARL PWR
TIP115	PNP DARL PWR
TIP116	PNP DARL PWR
TIP117	PNP DARL PWR
TIP120	NPN DARL PWR
TIP121	NPN DARL PWR
TIP122	NPN DARL PWR
TIP125	PNP DARL PWR
TIP126	PNP DARL PWR
TIP127	PNP DARL PWR
TIP130	NPN DARL PWR
TIP131	NPN DARL PWR
TIP132	NPN DARL PWR
TIP135	PNP DARL PWR
TIP136	PNP DARL PWR
TIP137	PNP DARL PWR
TIP29	NPN PWR TO-220
TIP29A	NPN PWR TO-220
TIP29B	NPN PWR TO-220
TIP29C	NPN PWR TO-220
TIP30	PNP PWR TO-220
TIP30A	PNP PWR TO-220
TIP30B	PNP PWR TO-220
TIP30C	PNP PWR TO-220
TIP31	NPN PWR TO-220
TIP31A	NPN PWR TO-220
TIP31B	NPN PWR TO-220
TIP31C	NPN PWR TO-220
TIP32	PNP PWR TO-220
TIP32A	PNP PWR TO-220
TIP32B	PNP PWR TO-220
TIP32C	PNP PWR TO-220
TIP41	NPN PWR TO-220
TIP41A	NPN PWR TO-220
TIP41B	NPN PWR TO-220
TIP41C	NPN PWR TO-220
TIP42	PNP PWR TO-220
TIP42A	PNP PWR TO-220
TIP42B	PNP PWR TO-220
TIP42C	PNP PWR TO-220
TIP61	NPN PWR TO-220
TIP61A	NPN PWR TO-220
TIP61B	NPN PWR TO-220
TIP61C	NPN PWR TO-220
TIP62	PNP PWR TO-220
TIP62A	PNP PWR TO-220
TIP62B	PNP PWR TO-220
TIP62C	PNP PWR TO-220
TIS34	NFET SW
TIS58	NFET RF
TIS58G	NFET RF
TIS58Y	NFET RF
TIS88	NFET VHF
TIS92	NPN GPA
TIS93	PNP GPA
TIS97	NPN GPA
TIS59	NFET RF
TIS73	NFET SW
TIS74	NFET SW
TIS75	NFET SW
TIS86	NPN RF
TIS87	NPN RF
TN1711	NPN GPA
TN2017	NPN MEDP
TN2102	NPN, TO-237 repl. for 2N2102
TN2102-5	NPN, pin/pin repl. for 2N2102
TN2218A	NPN, TO-237 repl. for 2N2218A
TN2218A-5	NPN, pin/pin repl. for 2N2218A
TN2219	NPN, TO-237 repl. for 2N2219
TN2219-5	NPN, pin/pin repl. for 2N2219
TN2219A	NPN, TO-237 repl. for 2N2219A
TN2219A-5	NPN, pin/pin repl. for 2N2219A
TN2270	NPN MEDP
TN2270-5	NPN MEDP
TN2904A	PNP, TO-237 repl. for 2N2904A
TN2904A-5	PNP, pin/pin repl. for 2N2904A
TN2905	PNP, TO-237 repl. for 2N2905
TN2905-5	PNP, pin/pin repl. for 2N2905
TN2905A	PNP, TO-237 repl. for 2N2905A
TN2905A-5	PNP, pin/pin repl. for 2N2905A
TN3019	NPN, TO-237 repl. for 2N3019
TN3019-5	NPN, pin/pin repl. for 2N3019
TN3020	NPN, TO-237 repl. for 2N3020
TN3020-5	NPN, pin/pin repl. for 2N3020
TN3053	NPN, TO-237 repl. for 2N3053
TN3053-5	NPN, pin/pin repl. for 2N3053
TN3244	PNP core driver
TN3244-5	PNP core driver
TN3245	PNP core driver
TN3245-5	PNP core driver
TN3252	NPN core driver
TN3252-5	NPN core driver
TN3253	NPN core driver
TN3253-5	NPN core driver
TN3440	NPN MEDP
TN3444	NPN core driver
TN3444-5	NPN core driver
TN3467	PNP core driver
TN3467-5	PNP core driver
TN3724	NPN, TO-237 repl. for 2N3724
TN3724-5	NPN, pin/pin repl. for 2N3724
TN3725	NPN, TO-237 repl. for 2N3725
TN3725-5	NPN, pin/pin repl. for 2N3725
TN3742	HIV video
TN3742-5	HIV video
TN4030	PNP MEDP TO-237
TN4033	PNP, TO-237 repl. for 2N4033
TN4033-5	PNP, pin/pin repl. for 2N4033
TN4036	PNP, TO-237 repl. for 2N4036
TN4036-5	PNP, pin/pin repl. for 2N4036
TN4037	PNP, TO-237 repl. for 2N4037
TN4037-5	PNP, pin/pin repl. for 2N4037
TN4234	GPA SW
TN4234-5	GPA SW
TN4235	GPA SW
TN4235-5	GPA SW
TN4236	GPA SW
TN4236-5	GPA SW
TN4314	GPA SW
TN4314-5	GPA SW
TN5022	PNP core driver
TN5022-5	PNP core driver
TN5023	PNP core driver
TN5023-5	PNP core driver
U231	NFET DM
U232	NFET DM
U233	NFET DM
U234	NFET DM
U235	NFET DM
U257	NFET VHF
U308	NFET UHF
U309	NFET UHF
U310	NFET UHF
U312	NFET VHF
U1994E	NFET RF

PRICES LISTED ARE FOR GUIDANCE ONLY

INFRARED LIGHT EMITTING DIODES

Infrared light emitting diodes are manufactured from gallium arsenide and provide a narrow band spectral emission centered at 940 nanometers. All devices are fabricated utilizing epitaxial techniques, for highest conversion efficiency and long operating life. TRW Optron's LED's provide extremely low degradation rates and operating life of more than 10 years. **Reverse Leakage Current:** Less than 100 μA. **Radiation Rise Time:** Typically 0.7 μseconds.

Part No.	P_O Min. mW	I_F mA	Beam Angle Degrees	LED V_F Max. Volts	LED I_F mA	Case Style	Net Each, Lots of 1-99	Net Each, Lots of 100-999
OP123	0.4	50	9	1.5	50	C	$1.59	$1.15
OP124	1.0	50	9	1.5	50	C	1.88	1.36
OP130	1.0	100	10	1.75	100	A	1.44	1.05
OP131	3.0	100	10	1.75	100	A	1.68	1.22
OP132	4.0	100	10	1.75	100	A	1.78	1.29
OP133	5.0	100	10	1.75	100	A	2.16	1.57
OP130W*	1.0	100	32	1.75	100	B	1.44	1.05
OP131W*	3.0	100	32	1.75	100	B	1.68	1.22
OP132W*	4.0	100	32	1.75	100	B	1.78	1.29
OP133W*	5.0	100	32	1.75	100	B	2.16	1.57
OP135	...	...	10	2.5	...	A	2.40	1.75
OP136	...	...	10	2.5	...	A	2.93	2.13
OP135W*	...	...	32	2.5	...	B	2.60	1.89
OP136W*	...	...	32	2.5	...	B	3.13	2.27
OP140	0.5	40	20	1.7	20	D	.70	.51
OP140SLA	...	...	20	1.7	20	D	.87	.63
OP140SLB	...	...	20	1.7	20	D	.82	.59
OP140SLC	...	...	20	1.7	20	D	.82	.59
OP140SLD	...	...	20	1.7	20	D	.82	.59
OP160	0.5	20	8	1.6	20	E	.63	.45
OP160SLA	...	...	8	1.6	20	E	.91	.66
OP160SLB	...	...	8	1.6	20	E	.87	.63
OP160SLC	...	...	8	1.6	20	E	.87	.63
OP160SLD	...	...	8	1.7	20	E	.87	.63
OP160W*	0.5	20	40	1.6	20	F	.91	.66
OP161	0.5	20	8	1.6	20	G	.63	.45

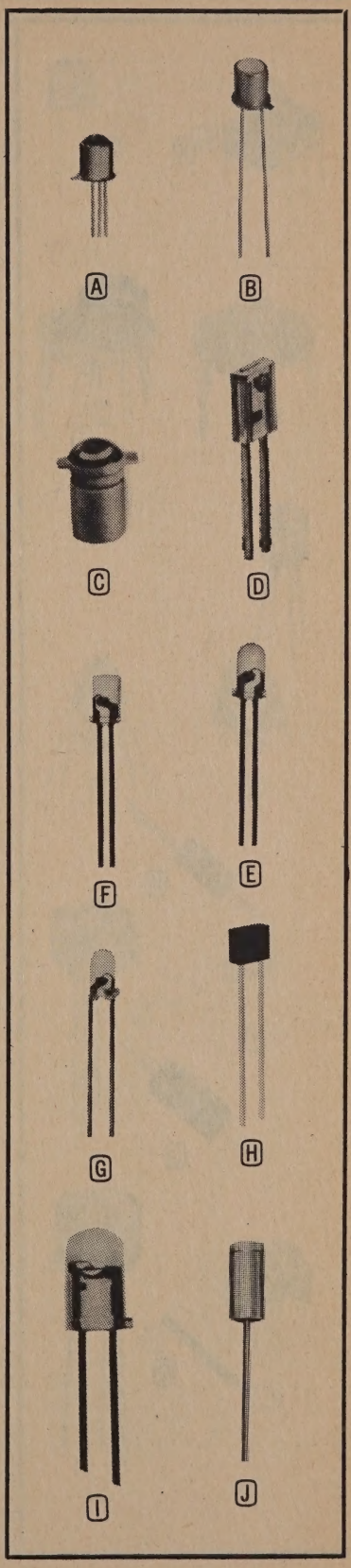
*Has flat window (beam angle 25°); all others have lens.

PHOTOTRANSISTORS

TRW Optron's line of phototransistors extends from low-cost plastic packages for industrial applications to glass-metal hermetic packages for high-reliability applications. Packages include TO-18 cans with a large collecting lens for applications requiring highest sensitivity and narrow acceptance angle and the microminiature pill package for high density applications. All devices are NPN silicon sensors utilizing silicon nitride passivation for the utmost in stability.

Part No. OP-	Light Current I_{L}mA† Min.	Light Current I_{L}mA† Max.	H	Dark Cur. Max.‡ nA	Collector BV_{CEO} Min.§ Volts	Collector BV_{ECO} Min.^ Volts	tr, tf ɪ μsec Typ.	Ang. Resp. Deg.	Case Style	Net Each, Lots of 1-99	Net Each, Lots of 100-999
500	1.0	.....	20	100•	30	5.0	2.0	10	E	$0.64	$0.47
500SLA	40	.....	20	100•	30	5.0	5.0	10	E	.91	.66
500SLB	25	50	20	100•	30	5.0	4.0	10	E	.87	.63
500SLC	17	35	20	100•	30	5.0	4.0	10	E	.87	.63
500SLD	10	24	20	100•	30	5.0	3.0	10	E	.87	.63
500W*	0.5	.....	20	100•	30	5.0	3.0	44	F	.91	.66
501	1.0	.....	20	100	30	5.0	3.0	20	G	.70	.51
550	0.5	.....	20	100	30	5.0	2.0	25	D	.64	.47
550SLA	22	.....	20	100	30	5.0	5.0	25	D	.87	.63
550SLB	15	27.5	20	100	30	5.0	4.0	25	D	.82	.59
550SLC	12	19	20	100	30	5.0	4.0	25	D	.82	.59
550SLD	4.5	14.5	20	100	30	5.0	3.0	25	D	.82	.59
600	0.8	.....	20	25	50	7.0	2.5	24	C	2.12	1.54
601	0.5	3.0	20	25	50	7.0	2.0	24	C	2.21	1.61
602	2.0	5.0	20	25	50	7.0	2.0	24	C	2.31	1.68
603	4.0	8.0	20	25	50	7.0	2.5	24	C	2.36	1.71
604	7.0	22.0	20	25	50	7.0	2.5	24	C	2.40	1.75
640	0.8	.....	20	100	25	5.0	2.5	24	C	1.68	1.22
641	0.5	3.0	20	100	25	5.0	2.0	24	C	1.83	1.33
642	2.0	5.0	20	100	25	5.0	2.0	24	C	1.97	1.43
643	4.0	8.0	20	100	25	5.0	2.5	24	C	2.07	1.50
644	7.0	22.0	20	100	25	5.0	2.5	24	C	2.12	1.54
700	0.8	.....	20	100	25	5.0	5.0	30	J	3.08	2.24
701	1.5	.....	20	100	25	5.0	5.0	30	J	3.17	2.31
702	3.0	.....	20	100	25	5.0	5.0	30	J	3.27	2.38
703	6.0	.....	20	100	25	5.0	5.0	30	J	3.37	2.45
800	0.5	.....	5	100	30	5.0	8.0	10	A	1.73	1.26
801	0.5	3.0	5	100	30	5.0	5.0	10	A	1.83	1.33
802	2.0	5.0	5	100	30	5.0	5.0	10	A	1.97	1.43
803	4.0	8.0	5	100	30	5.0	8.0	10	A	2.07	1.50
804	7.0	22	5	100	30	5.0	10.0	10	A	2.21	1.61
805	15.0	.....	5	100	30	5.0	10.0	10	A	2.36	1.71
800W*	0.3	.....	5	100	30	5.0	5.0	33	B	2.07	1.50
801W*	0.5	3.0	5	100	30	5.0	8.0	33	B	2.12	1.54
802W*	2.5	.....	5	100	30	5.0	10.0	33	B	2.21	1.61

*Has flat window (beam angle 25°); all others have lens. †At V_{CE} = 5 V. ‡At V_{CE} = 10 V, H = 0. §At I_C = 100 μA. ^At I_E = 100 μA. ɪAt V_{CE} = 5 V, I_L = 0.8 mA, R_L = 100 ohms. •At V_{CE} = 15 V.



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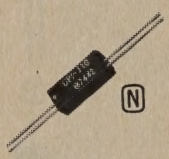
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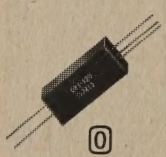
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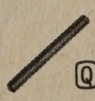
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OPTICALLY COUPLED ISOLATORS

TRW Optron's optically coupled isolators have a gallium arsenide infrared LED coupled with a silicon phototransistor or photodarlington. A wide choice of packages and electrical characteristics offer good design flexibility.

Part No.■■	Cur. Transfer Ratio	DC Isolation Volts	Dark Cur. Max. nA#	LED V_F Max. Volts	LED I_F mA	t_r µsec. Typ.•	t_f µsec. Typ.•	Output Circuit	Case Style	Net Each, Lots of 1-99	Net Each, Lots of 100-999
OPI 2150	2▲	1500	100	1.5	10	2	2	Trans.	K	$0.64	$ 0.47
OPI 2151	10▲	1500	100	1.5	10	2	2	Trans.	K	.75	.55
OPI 2152	20▲	1500	50	1.4	16	3	3	Trans.	K	.86	.63
OPI 2153	50▲	1500	50	1.4	16	3	3	Trans.	K	.94	.69
OPI 2250	2▲	2500	100	1.5	10	2	2	Trans.	K	.67	.49
OPI 2251	10▲	2500	100	1.5	10	2	2	Trans.	K	.78	.57
OPI 2252	20▲	2500	50	1.4	16	3	3	Trans.	K	.89	.65
OPI 2253	50▲	2500	50	1.4	16	3	3	Trans.	K	.97	.71
OPI 2500	12.5	1500	50	1.5	±10	2	2	Trans.	K	2.02	1.47
OPI 3150	300I	1500	100	1.5	10	3**	25**	Darl.	K	1.29	.94
OPI 3151	300♦	1500	100	1.5	10	3**	25**	Darl.	K	1.35	.98
OPI 3152	300♦	1500	100	1.5	10	3**	25**	Darl.	K	1.43	1.04
OPI 3153	500▲	1500	100	1.5	10	3**	25**	Darl.	K	1.48	1.08
OPI 3250	300I	2500	100	1.5	10	3**	25**	Darl.	K	1.35	.98
OPI 3251	300♦	2500	100	1.5	10	3**	25**	Darl.	K	1.40	1.02
OPI 3252	300♦	2500	100	1.5	10	3**	25**	Darl.	K	1.48	1.08
OPI 3253	500▲	2500	100	1.5	10	3**	25**	Darl.	K	1.53	1.12
OPI 6100	10▲	1500	100	1.5	10	3	3	Trans.	K	1.39	1.01
4N25	20■	2500	50	1.5	10	2	2	Trans.	K	.85	.62
4N26	20■	1500	50	1.5	10	2	2	Trans.	K	.82	.59
4N27	10■	1500	50	1.5	10	2	2	Trans.	K	.79	.58
4N28	10■	500	100	1.5	10	2	2	Trans.	K	.74	.53
4N29	100■	2500	100	1.5	10	0.6††	17††	Darl.	K	1.29	.94
4N30	100■	1500	100	1.5	10	0.6††	17††	Darl.	K	1.29	.94
4N31	50■	1500	100	1.5	10	0.6††	17††	Darl.	K	1.21	.88
4N32	500■	2500	100	1.5	10	0.6††	45††	Darl.	K	1.29	.94
4N33	500■	1500	100	1.5	10	0.6††	45††	Darl.	K	1.29	.94
4N35	100■	2500*	50	1.5	10	3	3	Trans.	K	1.08	.78
4N36	100■	1750*	50	1.5	10	3	3	Trans.	K	1.02	.74
4N37	100■	1050*	50	1.5	10	3	3	Trans.	K	1.00	.72
4N38	20	1500	50‡	1.5	10	2	2	Trans.	K	1.11	.80
4N38A	20	2500	50‡	1.5	10	2	2	Trans.	K	1.11	.80
4N22A	25	1000	100••	1.3	10	15	15	Trans.	L	7.93	5.77
4N23A	60	1000	100••	1.3	10	15	15	Trans.	L	8.65	6.29
4N24A	100	1000	100••	1.3	10	20	20	Trans.	L	9.86	7.17
JAN4N22A	25▲	1000	100••	1.3	10	15	15	Trans.	L	10.58	7.69
JAN4N23A	60▲	1000	100••	1.3	10	15	15	Trans.	L	11.54	8.39
JAN4N24A	100▲	1000	100••	1.3	10	20	20	Trans.	L	16.49	11.99
JANTX4N22A	25▲	1000	100••	1.3	10	15	15	Trans.	L	13.75	10.00
JANTX4N23A	60▲	1000	100••	1.3	10	15	15	Trans.	L	14.81	10.77
JANTX4N24A	100▲	1000	100••	1.3	10	20	20	Trans.	L	23.41	17.03
JAN-TXV4N22A	25▲	1000	100••	1.3	10	15	15	Trans.	L	16.73	12.17
JAN-TXV4N23A	60▲	1000	100••	1.3	10	15	15	Trans.	L	20.96	15.24
JAN-TXV4N24A	100▲	1000	100••	1.3	10	20	20	Trans.	L	27.21	19.79
OPI 102	25	1000	100••	1.3	10	3	3	Trans.	L	7.84	5.70
OPI 103	100	1000	100••	1.3	10	3	3	Trans.	L	9.86	7.17
OPI 110	12.5	10,000	100	1.5	20	2	2	Trans.	N	2.29	1.66
OPI 113	50	10,000	100	1.5	10	3‡‡	25‡‡	Darl.	N	2.56	1.86
OPI 120	20	15,000	100	1.5	30	2	2	Trans.	O	9.09†	6.61‡
OPI 123	50	15,000	100	1.5	10	3‡‡	25‡‡	Darl.	O	6.11†	4.44‡
OPI 130	200	1000	100	1.5	10	50	50	Darl.	L	9.62	6.99
OPI 140	15	1000	50	1.5	40	2	2	Trans.	M	10.58	7.69
OPI 150	10♦	50,000	100	1.6	50	2	2	Trans.	Q	36.59†	26.61§
OPI 153	25♦	50,000	100	1.6	50	3‡‡	25‡‡	Darl.	Q	38.32†	27.87§

*AC value. †Qty. 1-9. ‡Qty. 10-99. §Qty. 10-49. #At V_{CE} = 10 V, I_F = 0. •At V_{CE} = 5 V, I_F = 10 mA, R_L = 100 ohms. ▲At V_{CE} = 5 V. ■At V_{CE} = 10 V. ♦At V_{CE} = 1 V. IAt V_{CE} = 2 V. ‡At V_{CE} = 60 V. **At V_{CE} = 10 V, I_F = 50 mA, R_L = 20 ohms. ††At V_{CC} = 10 V, I_C = 50 mA. ‡‡At V_{CC} = 10 V, I_F = 50 mA, R. = 20 ohms. ••At V_C. = 20 V. ■■Suffix letter **A** denotes collector electrically isolated from case.

DUE TO THE FAST DEVELOPMENT IN SEMICONDUCTOR ENGINEERING, NEW ITEMS ARE CONSTANTLY BEING ADDED TO OUR COMPLETE STOCK. CALL OR WRITE FOR THE LATEST INFORMATION

PRICES LISTED ARE FOR GUIDANCE ONLY

PHOTODARLINGTONS

Photodarlingtons are available from TRW Optron in a wide range of packages and use a silicon diffused single chip monolithic structure. They are designed for use in low frequency on-off applications where extremely high sensitivities are required.

Part No.	Light Current I_L Max.* Min.	Max.	H	Dark Cur. Max.† nA	Collector BV_{CEO} Min.‡ Volts	BV_{ECO} Min.§ Volts	t_r, t_f µsec. Typ.▲	Ang. Resp. Deg.	Case Style	Net Each, Lots of 1-99	100-999
OP 300	0.8	...	1.0	1000	15	5.0	40	12	C	$2.40	$1.75
OP 301	0.8	2.4	1.0	250	15	5.0	40	12	C	2.50	1.82
OP 302	1.8	5.4	1.0	250	15	5.0	40	12	C	2.55	1.85
OP 303	3.6	12.0	1.0	1000	15	5.0	40	12	C	2.64	1.92
OP 304	7.0	21.0	1.0	1000	15	5.0	40	12	C	2.69	1.96
OP 305	14.0	...	1.0	1000	15	5.0	40	12	C	1.00	.72
OP 560	0.5	...	1.0	100	30	5.0	60	25	D	.86	.63
OP 830	15.0	...	0.5	1000	15	5.0	40	10	A	1.88	1.36
OP 830W*	4.0	...	0.5	1000	15	5.0	40	33	B	2.02	1.47

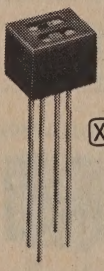
*At V_{CE} = 5 V. †At V_{CE} = 10 V. ‡At I_C = 100 µA. §At I_E = 100 µA. ▲At V_{CC} = 5 V, I_L = 1 mA, R_L = 100 ohms. •Has flat window (beam angle 25°); all others have lens.

PHOTODIODES

Photodiodes are recommended for use in applications requiring fast speed of response. TRW Optron photodiodes may be operated at zero bias (photovoltaic mode) or at any reverse bias up to the diode reverse breakdown voltage. Best linearity is obtained in the reverse bias mode. In the photovoltaic mode, the open circuit voltage varies in a logarithmic manner.

Part No.	Light Min. µA*	Dark Max. nA†	BV_R§ Min. Volts	t_f▲ µsec. Typ.	Ang. Resp. Deg.	Case Style	Net Ea., Lots of 1-99	100-999
OP 790	13	10	100	0.6	30	J	$3.37	$2.45
OP 900	8	10	100	0.6	12	C	2.26	1.64
OP 903	100	30	33	0.2	14	R	7.36	5.35
OP 903W•	35	30	33	0.2	60	S	7.40	5.38
OP 905	35	30	33	0.2	80	T	2.59	1.88
OP 905F	20	30	33	0.2	80	U	2.72	1.98
OP 913	120	30	33	0.05	14	R	7.60	5.52
OP 913W•	40	30	33	0.05	60	S	7.64	5.56
OP 915	50	30	33	0.05	80	T	2.64	1.92
OP 915F	35	30	33	0.05	80	U	2.80	2.03

*At V_R = 10 V, H = 20 mW/cm². †At V_R = 10 V, H = 0. §At I_R = 10 µA. ▲At V_R = 10 V, R_L = 1000 ohms. •Has flat window (beam angle 25°); all others have lens.

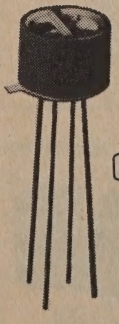


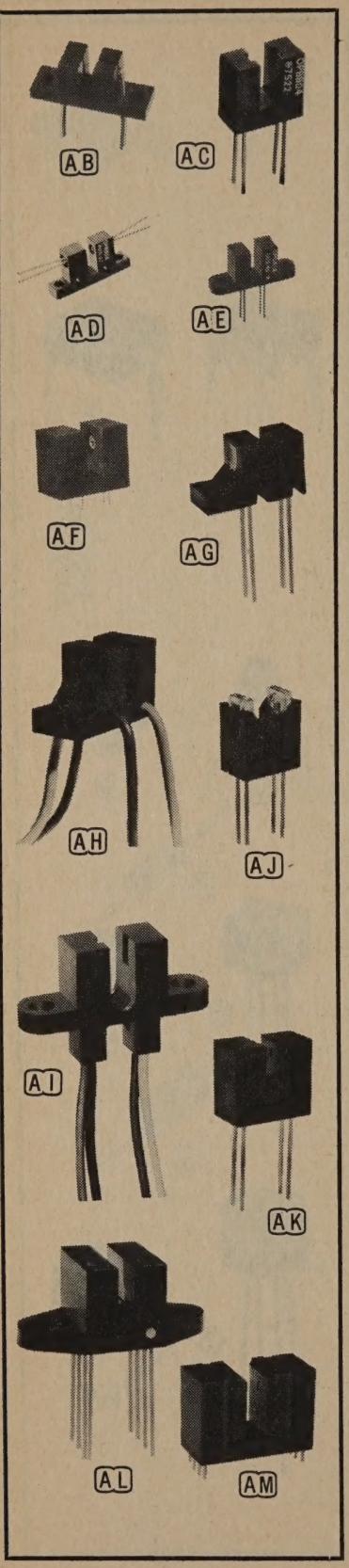
REFLECTIVE TRANSDUCERS

TRW Optron's reflective transducers are comprised of a gallium arsenide infrared light emitting diode with a silicon photosensor in a rugged package. The photosensor responds to the emitted radiation from the LED only when a reflective object is within the field of view of the sensor.

Part No.	Sensor Current Min. mA*	I_F mA	Dist. Ins.	Dark Cur. Max. nA*	LED V_F Max. Volts	I_F mA	Output Circuit	Case Style	Net Each, Lots of 1-99	100-999
OPB 125A	2.000	40†	0.2	250‡	1.6	50	Darl.	V	$9.99	$7.27
OPB 253A	0.025	40†	0.2	100‡	1.6	50	Trans.	V	9.25	6.73
OPB 703A	0.200	40■	0.2	100‡	1.8	40	Trans.	W	4.05	2.94
OPB 706A	0.500	20†	0.05	100*	1.4	20	Trans.	X	2.97	2.16
OPB 706B	0.350	20†	0.05	100*	1.4	20	Trans.	X	2.86	2.08
OPB 706C	0.200	20†	0.05	100*	1.4	20	Trans.	X	2.72	1.98
OPB 707A	25.000	20†	0.05	250*	1.4	20	Darl.	X	3.49	2.54
OPB 707B	17.000	20†	0.05	250*	1.4	20	Darl.	X	3.36	2.44
OPB 707C	10.000	20†	0.05	250*	1.4	20	Darl.	X	3.05	2.22
OPB 708	0.010 0.005 0.100	40† 40§ 40▲	0.15 0.15 0.15	100•	1.6	40	Trans.	Y	2.73	1.98
OPB 709	1.000	40†	0.15	250‡	1.6	40	Darl.	Y	3.43	2.49
OPB 710	0.150	50†	0.25	100*	1.5	50	Trans.	Z	7.12	5.17
OPB 711	0.050	50† 20	0.40 0.08	100*	1.5	20	Trans.	AA	3.17	2.31
OPB 712	....	20†	0.08	100‡	1.5	20	Darl.	AA	3.46	2.52
OPB 730	1.000	50†	0.25	250*	1.5	50	Darl.	Z	6.97	5.07

*Measured from the assembly head to the reflective surface; V_{CE} = 5 V. ‡At V_{CE} = 10 V. •At V_{CE} = 15 V. †No reflecting surface. §Reflecting surface is Mylar or equivalent magnetic tape. ▲Reflecting surface is aluminum foil typical of tape leaders. ■Reflecting surface is 3M tape #476, a dull black surface at a distance of 0.200".





INTERRUPTER ASSEMBLIES

Non-contact switching is provided by TRW Optron's optoelectronic interrupter assemblies which consist of a high efficiency gallium arsenide LED and a silicon NPN phototransistor or photodarlington in a molded plastic housing. A gap in the housing provides a means of sensing motion of opaque objects. Design flexibility is provided by a variety of gap widths and mounting configurations. In addition, units are available with infrared filters to eliminate background illumination and with apertures for high resolution position sensing.

Part No.	Collector Current On-State Min. mA	Collector Current On-State I_F mA	Collector Current Off-State Max.■ mA	LED V_F Max. Volts	LED I_F mA	Slot Width Ins.	Output Circuit	Case Style	Net Each, Lots of 1-99	Net Each, Lots of 100-999
SINGLE CHANNEL										
OPB 120	0.8	40*	100	1.5	50	0.125	Trans.	AB	$15.78	$11.47
OPB 242	1.6	40*	100	1.5	50	0.125	Darl.	AB	15.88	11.55
OPB 243	3.2	40*	300	1.6	50	0.125	Darl.	AB	16.00	11.64
OPB 804	0.5	20■	100	1.7	20	0.150	Trans.	AC	2.58	1.87
OPB 806	0.4	15▲	100	1.6	20	0.125	Trans.	AD	3.33	2.42
OPB 813	0.5	20■	100	1.7	20	0.125	Trans.	AE	2.25	1.64
OPB 813S7	0.35	20■	100	1.7	20	0.125	Trans.	AE	2.85	2.07
OPB 813S5	0.25	20■	100	1.7	20	0.125	Trans.	AE	2.93	2.13
OPB 813S3	0.075	20■	100	1.7	20	0.125	Trans.	AE	3.55	2.58
OPB 814	1.0	10*	100	1.7	20	0.125	Trans.	AE	2.30	1.67
OPB 815	1.8	20†	100	1.7	20	0.125	Trans.	AE	2.38	1.73
OPB 816	0.5	20■	100	1.7	20	0.125	Trans.	AE	2.23	1.62
OPB 817	1.0	10*	100	1.7	20	0.125	Trans.	AE	2.28	1.65
OPB 818	0.1	20*	100	1.5	20	0.200	Trans.	AF	2.98	2.16
OPB 820	0.5	20*	100	1.6	20	0.060	Trans.	AG	2.70	1.96
OPB 820S7	0.3	20*	100	1.6	20	0.060	Trans.	AG	3.20	2.33
OPB 820S5	0.17	20*	100	1.6	20	0.060	Trans.	AG	3.28	2.38
OPB 821	0.5	20*	100	1.6	20	0.060	Trans.	AH	4.78	3.47
OPB 821S12	0.4	20*	100	1.6	20	0.060	Trans.	AH	5.25	3.82
OPB 821S7	0.3	20*	100	1.6	20	0.060	Trans.	AH	5.30	3.85
OPB 821S5	0.17	20*	100	1.6	20	0.060	Trans.	AH	5.45	3.96
OPB 823	0.2	20■	100	1.7	20	0.125	Trans.	AI	4.23	3.07
OPB 824	0.5	20■	100	1.7	20	0.125	Trans.	AI	4.48	3.25
OPB 825	0.5	20▲	100	1.7	40	0.140	Trans.	AJ	2.18	1.58
OPB 847	4.0	20*	100	1.3	20	0.100	Trans.	AK	2.33	1.69
OPB 848	1.0	20*	100	1.3	20	0.100	Trans.	AK	2.28	1.65
DUAL CHANNEL										
OPB 822S	0.25	20■	20	1.7	20	0.100	Trans.	AL	$ 6.83	$4.96
OPB 822SD	0.10	20■	10	1.7	20	0.100	Trans.	AL	7.40	5.38
OPB 826S	0.25	20*	10*	1.7	20	0.150	Trans.	AM	9.53	6.93
OPB 826SD	0.10	20*	10*	1.7	20	0.150	Trans.	AM	10.15	7.38

*At V_{CE} = 5 V. †At V_{CE} = 0.6 V. ▲At V_{CE} = 0.5 V. ■At V_{CE} = 10 V. *Prices on request.

MATCHED EMITTING DIODES AND PHOTOTRANSISTORS

Part No.	I_L Min. mA*	$V_{CE(SAC)}$ Min., @ I_C Volts	$V_{CE(SAC)}$ Min., @ I_C μA	V_F Max. Volts	I_F mA	Matched Devices	Case Style	Net Ea., Lots of 1-99	Net Ea., Lots of 100-999
OPS 660	0.5†	0.4	20	1.6	20	OP 160/500	E	$1.35	$0.98
OPS 690	0.05	0.4	20	1.7	20	OP 140/550	D	1.39	1.01
OPS 691	0.5	0.4	20	1.7	20	OP 140/550	D	1.45	1.06
OPS 692	1.0	0.4	20	1.7	20	OP 140/550	D	1.51	1.10
OPS 693	2.0	0.4	20	1.7	20	OP 140/550	D	1.56	1.14

*At I_F = 20 mA, V_{CE} = 10 V, and distance = 0.125″. †V_{CE} = 5 V and distance = 0.25″.

OUR STOCK IS COMPLETE AND UP TO DATE.

WRITE FOR ADDITIONAL INFORMATION ON

ANY NEW OR UNLISTED ITEMS

PRICES LISTED ARE FOR GUIDANCE ONLY

OP-01 LOW COST, HIGH SPEED OPERATIONAL AMPLIFIER

Fully protected, internally compensated high-speed op amp settles to 0.1% in 1.0 μsec max. Op amp slews at 18 V/μs, providing full power bandwidth of 250 kHz. The output delivers ±12 volts into a 2K ohm load and the op amp fits standard 741 sockets.

PMI Type	Maximum Parameter Values V_{os} mV	TCV_{os} μV/°C	I_B nA	I_{os} nA	Min. CMRR dB	Net Each, Lots of 1-24	25-99	100-999
−55° C to +125° C								
OP-01J	0.7	8.0	30	2.0	90	$17.48	$13.98	$11.65
OP-01Y	0.7	8.0	30	2.0	90	17.48	13.98	11.65
OP-01FJ	2.0	10.0	50	5.0	80	13.50	10.80	9.00
OP-01FY	2.0	10.0	50	5.0	80	13.50	10.80	9.00
OP-01GJ	5.0	20.0	100	20	80	10.50	8.40	7.00
OP-01GY	5.0	20.0	100	20	80	10.50	8.40	7.00
0° C to +70° C								
OP-01HJ	0.7	8.0	30	2.0	90	$12.00	$ 9.60	$ 8.00
OP-01HY	0.7	8.0	30	2.0	90	12.00	9.60	8.00
OP-01EJ	2.0	10.0	50	5.0	80	7.13	5.70	4.75
OP-01EY	2.0	10.0	50	5.0	80	7.13	5.70	4.75
OP-01CJ	5.0	20.0	100	20	80	5.48	4.38	3.65
OP-01CY	5.0	20.0	100	20	80			

OP-02 HIGH PERFORMANCE OPERATIONAL AMPLIFIER

Low input offset voltage (V_{os}), and offset drift (TCV_{os}) provide improved performance over "premium" 741 type op amps. Input voltage range of ±12 volts and output of ±12 volts into 2K ohms are guaranteed. Fits standard 741 socket.

PMI Type	Maximum Parameter Values V_{os} mV	TCV_{os} μV/°C	I_B nA	I_{os} nA	Min. CMRR dB	Net Each, Lots of 1-24	25-99	100-999
OP-02AJ	0.5	8.0	30	2.0	90	$24.00	$19.20	$16.00
OP-02AY	0.5	8.0	30	2.0	90	24.00	19.20	16.00
OP-02J	2.0	10	50	5.0	90	11.93	9.54	7.95
OP-02Y	2.0	10	50	5.0	90	11.93	9.54	7.95
OP-02EJ	0.5	8.0	30	2.0	90	9.00	7.20	6.00
OP-02EY	0.5	8.0	30	2.0	90	9.00	7.20	6.00
OP-02CJ	2.0	10	50	5.0	90	5.93	4.74	3.95
OP-02CY	2.0	10	50	5.0	90	5.93	4.74	3.95
OP-02CP	2.0	10	50	5.0	90	3.98	3.18	2.65

OP-04/OP-14 HIGH PERFORMANCE MATCHED COMPENSATED DUAL OP AMP

High performance in a dual op amp means matched V_{os} (ΔV_{os}) and CMRR (ΔCMRR). In addition, both input and output have ±12 volt operation guaranteed. The output will drive a 2K ohm load. The OP-04K is pin-for-pin compatible with 747 sockets. The OP-14J is pin-for-pin compatible with 1458/1558 sockets.

PMI Type	Maximum Parameter Values V_{os} mV	TCV_{os} μV/°C	I_B nA	I_{os} nA	Min. CMRR dB	Net Each, Lots of 1-24	25-99	100-999
−55° C to +125° C								
OP-04AK/14AJ	1.0	8.0	50	2.0	94	$42.00	$33.60	$28.00
OP-04AY	1.0	8.0	50	2.0	94	36.00	28.80	24.00
OP-04K/14J	2.0	10	75	5.0	94	21.00	16.80	14.00
OP-04Y	2.0	10	75	5.0	94	16.50	13.20	11.00
0° C to +70° C								
OP-04EK/14EJ	1.0	8.0	50	2.0	94	$12.00	$9.60	$8.00
OP-04EY	1.0	8.0	50	2.0	94	8.40	6.72	5.60
OP-04CK/14CJ	2.0	10	75	5.0	94	9.00	7.20	6.00
OP-04CY	2.0	10	75	5.0	94	6.38	5.10	4.25

OP-05 LOW NOISE, LOW DRIFT, COMPENSATED INSTRUMENTATION OPERATIONAL AMPLIFIER

Guaranteed long term stability of 1μV/month makes the OP-05 an excellent replacement for chopper-stabilized types. In addition to eliminating chopper noise, this op amp has low frequency noise of 0.6μV P-P max. Low offset voltage and drift also contribute to the amplifier's ability to perform in very stringent applications. The device fits 725 & 108A sockets, and can deliver ±10.5 volts onto a 1K ohm load.

PMI Type	Maximum Parameter Values V_{os} mV	TCV_{os} μV/°C	I_B nA	I_{os} nA	Min. CMRR dB	Net Each, Lots of 1-24	25-99	100-999
OP-05AJ	0.15	0.9	±2.0	2.0	114	$60.00	$48.00	$40.00
OP-05AY	0.15	0.9	±2.0	2.0	114	60.00	48.00	40.00
OP-05J	0.5	2.0	±3.0	2.8	114	25.50	20.40	17.00
OP-05Y	0.5	2.0	±3.0	2.8	114	25.50	20.40	17.00
OP-05EJ	0.5	2.0	±4.0	3.8	110	12.00	9.60	8.00
OP-05EY	0.5	2.0	±4.0	3.8	110	12.00	9.60	8.00
OP-05CJ	1.3	4.5	±7.0	6.0	100	9.00	7.20	6.00
OP-05CY	1.3	4.5	±7.0	6.0	100	9.00	7.20	6.00
OP-05CP	1.3	4.5	±7.0	6.0	100	4.88	3.90	3.25

OP-07 ULTRA-LOW OFFSET VOLTAGE OPERATIONAL AMPLIFIER

Ultra-low offset voltages of 25μV max. and 1μV/month drift rates are available in this high precision op amp. Since the OP-07 is pin-for-pin compatible with the OP-05, it may be used where the OP-05 is marginal. In addition, the OP-07 replaces 725, 108A, and 741 types. In most cases, V_{os} of 25μV means the elimination of costly nulling potentiometers.

PMI Type	Maximum Parameter Values V_{os} mV	TCV_{os} μV/°C	I_B nA	I_{os} nA	Min. CMRR dB	Net Each, Lots of 1-24	25-99	100-999
OP-07AJ	0.025	0.6	±2.0	2.0	110	$63.00	$50.40	$42.00
OP-07AY	0.025	0.6	±2.0	2.0	110	63.00	50.40	42.00
OP-07J	0.075	1.3	±3.0	2.8	110	27.75	22.20	18.50
OP-07Y	0.075	1.3	±3.0	2.8	110	27.75	22.20	18.50
OP-07EJ	0.075	1.3	±4.0	3.8	106	13.50	10.80	9.00
OP-07EY	0.075	1.3	±4.0	3.8	106	13.50	10.80	9.00
OP-07CJ	0.15	1.8	±7.0	6.0	100	9.75	7.80	6.50
OP-07CY	0.15	1.8	±7.0	6.0	100	9.75	7.80	6.50
OP-07DJ	0.15	2.5	±12	6.0	94	7.13	5.70	4.75
OP-07CP	0.15	1.8	±7.0	6.0	100	4.28	3.42	2.85

OP-08 (IMPROVED LM108/308) AND OP-12 (COMPENSATED OP-08) PRECISION LOW INPUT CURRENT OP AMPS

The OP-08 offers performance superior to 108A performance—improved V_{os}, TCV_{os}, and CMRR for demanding applications. In addition, the OP-12 offers the same outstanding features and is internally compensated. The OP-08E and OP-12E offer less than 260 μv V_{os} over the entire O° C to 70° C range.

PMI Type	Maximum Parameter Values V_{os} mV	TCV_{os} μV/°C	I_B nA	I_{os} nA	Min. CMRR dB	Net Each, Lots of 1-24	25-99	100-999
−55° C to +125° C								
OP-08/12AJ	0.15	2.5	2.0	0.2	104	$45.00	$36.00	$30.00
OP-08/12BJ	0.3	3.5	2.0	0.2	104	30.00	24.00	20.00
OP-08/12CJ	1.0	10	5.0	0.5	84	15.00	12.00	10.00
0° C to +70° C								
OP-08/12EJ	0.15	2.5	2.0	0.2	104	$18.00	$14.40	$12.00
OP-08/12FJ	0.3	3.5	4.0	0.4	102	9.00	7.20	6.00
OP-08/12GJ	1.0	10	5.0	0.5	84	7.50	6.00	5.00

OP-10 DUAL MATCHED INSTRUMENTATION OPERATIONAL AMPLIFIER

The OP-10 offers true precision in a matched dual op amp. With a ΔV_{os} of 180μV max. and minimum ΔCMRR of 114 dB, a high-performance, low-cost instrumentation amplifier can be designed. The 14 pin DIP package is also compatible with automatic insertion equipment. The individual op amps offer performance similar to the OP-05.

PMI Type	Maximum Parameter Values V_{os} mV	TCV_{os} μV/°C	I_B nA	I_{os} nA	Min. CMRR dB	Net Each, Lots of 1-24	25-99	100-999
−55° C to +125° C								
OP-10AY	0.18	2.0	±3.0	2.8	114	$60.00	$48.00	$40.00
OP-10Y	0.5	2.0	±3.0	2.8	106	33.75	27.00	22.50
0° C to +70° C								
OP-10EY	0.5	2.0	±4.0	3.8	106	$26.25	$21.00	$17.50
OP-10CY	2.6	4.5	±7.0	6.0	94	15.00	12.00	10.00

OP-09 (IMPROVED RM4136/RC4136) AND OP-11 (IMPROVED LM148) PRECISION QUAD OP AMPS

The OP-09 and OP-11 offer V_{os} and CMRR matching between individual sections. The op amps are proven 741-type circuits and are available in two popular pinouts: the OP-09 fits 4136 sockets, and the OP-11 fits 148 sockets. With a ΔV_{os} of 750μV max. and 94 dB ΔCMRR, cost effective instrumentation amplifiers may be designed.

PMI Type	Maximum Parameter Values V_{os} mV	TCV_{os} μV/°C	I_B nA	I_{os} nA	Min. CMRR dB	Net Each, Lots of 1-24	25-99	100-999
−55° C to +125° C								
OP-09/11AY	0.75	10	300	20	94	$30.00	$24.00	$20.00
OP-09/11BY	2.0	15	500	50	94	15.00	12.00	10.00
0° C to +70° C								
OP-09/11EY	0.75	10	300	20	94	$14.25	$11.40	$ 9.50
OP-09/11FY	2.0	15	500	50	94	9.75	7.80	6.50

PM155A LOW POWER HIGH SPEED OPERATIONAL AMPLIFIER, PM156A HIGH SPEED OPERATIONAL AMPLIFIER AND PM157A DECOMPENSATED HIGH SPEED OPERATIONAL AMPLIFIER

The PM155, 156, and 157 BIFET op amps are pin-for-pin compatible with LF155/6/7 types. The slew rates vary from 3V/μsec (PM155) to 40V/μsec (PM157). BIFET technology produces low bias currents with the reliability of single-chip devices. For applications which require more precision, the OP-15, OP-16, and OP-17 are available.

PMI Type	Maximum Parameter Values V_{os} mV	TCV_{os} μV/°C	I_B pA	I_{os} pA	Min. CMRR dB	Net Each, Lots of 1-24	25-99	100-999
−55° C to +125° C								
PM155/6/7AJ	2.0	5.0	50	10	85	$52.50	$42.00	$35.00
PM155/6/7J	5.0	—	100	20	85	8.70	6.96	5.80
0° C to +70° C								
PM355/6/7AJ	2.0	5.0	50	10	85	$27.75	$22.20	$18.50
PM355/6/7J	10	—	200	50	80	4.88	3.90	3.25

OP-15 (IMPROVED LF155/355) PRECISION LOW-POWER BIFET OP AMP

The OP-15 is a precision BIFET op amp. With a maximum supply current of 4 mA, it offers the speed of the LF156 (10V/μsec min.) and the power consumption of an LF155. The 500μV max. offset voltage is less than ½ LSB of a 12-bit, 5 V DAC. For many applications 500μV is small enough to eliminate a nulling potentiometer. The op amp is pin-for-pin compatible with LF155/6 amplifiers. Input bias current is temperature compensated.

PMI Type	Maximum Parameter Values V_{os} mV	TCV_{os} μV/°C	I_B pA	I_{os} pA	Min. CMRR dB	Net Each, Lots of 1-24	25-99	100-999
−55° C to +125° C								
OP-15AJ	0.5	5.0	110	22	86	$52.50	$42.00	$35.00
OP-15BJ	1.0	10	200	40	86	18.75	15.00	12.50
OP-15CJ	3.0	15	400	100	82	10.50	8.40	7.00
0° C to +70° C								
OP-15EJ	0.5	5.0	110	22	86	$30.00	$24.00	$20.00
OP-15FJ	1.0	10	200	40	86	11.25	9.00	7.50
OP-15GJ	3.0	15	400	100	82	6.75	5.40	4.50

OP-16 (IMPROVED LF156/356) PRECISION HIGH-SPEED BIFET OP AMP AND OP-17 (IMPROVED LF157/357) PRECISION DECOMPENSATED BIFET OP AMP

The OP-16 and OP-17 have guaranteed slew rates of 18V/μsec and 45V/μsec respectively. Both amplifiers have 500μV max. offset voltage which eliminates the need for a zero adjust potentiometer in a 10 V, 12-bit DAC system. The amplifiers are pin-for-pin compatible with 156 and 157 op amps. In addition both amplifiers have temperature compensated input bias currents.

PMI Type	Maximum Parameter Values V_{os} mV	TCV_{os} μV/°C	I_B pA	I_{os} pA	Min. CMRR dB	Net Each, Lots of 1-24	25-99	100-999
−55° C to +125° C								
OP-16/17AJ	0.5	5.0	130	25	86	$52.50	$42.00	$35.00
OP-16/17BJ	1.0	10	250	50	86	18.75	15.00	12.50
OP-16/17CJ	3.0	15	500	125	82	10.50	8.40	7.00
0° C to +70° C								
OP-16/17EJ	0.5	5.0	130	25	86	$30.00	$24.00	$20.00
OP-16/17FJ	1.0	10	250	50	86	11.25	9.00	7.50
OP-16/17GJ	3.0	15	500	125	82	6.75	5.40	4.50

SSS725 HIGH PERFORMANCE LOW NOISE, LOW DRIFT OP AMP AND PM-725 LOW NOISE, LOW DRIFT OP AMP

The 725 is very stable, low drift, low offset op amp. The unusually high CMRR coupled with external frequency compensation allows for some unique performance. When compensated for a closed loop gain of 1000, the 725 has a slew rate of 8μV/sec. The input is protected and, when compensation is removed, the 725 makes a very accurate comparator. The guaranteed open loop gain is 1 million.

PMI Type	Maximum Parameter Values V_{os} mV	TCV_{os} μV/°C	I_B nA	I_{os} nA	Min. CMRR dB	Net Each, Lots of 1-24	25-99	100-999
−55° C to +125° C								
PM725J	1.0	5.0	100	20	110	$24.00	$19.20	$16.00
PM725Y	1.0	5.0	100	20	110	24.00	19.20	16.00
0° C to +70° C								
PM725CJ	2.5	—	125	35	94	$6.38	$5.10	$4.25
PM725CY	2.5	—	125	35	94	6.38	5.10	4.25
PM725CP	2.5	—	125	35	94	4.13	3.30	2.75

MAT-01 MATCHED DUAL TRANSISTORS

Monolithic dual NPN transistors with extremely tight matching and temperature tracking characteristics for use in very low noise, low level preamps, log/anti-log and multiplier/divider circuits. Exceptional log conformance over a seven-decade collector current range with h_{FE} of 590 @ I_C = 10 nA. Low noise—0.23μV PP (0.1 Hz to 10 Hz). TCV_{os} = 0.5μV/°C maximum with 40μV type. V_{BE} mismatch. High breakdown voltage of 45 V minimum. Six-pin TO-99 type package allows direct replacement of all monolithic dual transistors and many JEDEC (2N) part numbers.

PMI Type	Maximum I_B* nA	Maximum I_{os}* nA	Minimum B*	Minimum LV_{CEO} V	Net Each, Lots of 1-24	25-99	100-999
MAT-01AH	20	0.6	500	45	$11.25	$ 9.00	$7.50
MAT-01GH	40	3.2	250	45	6.38	5.10	4.25
MAT-01H	30	0.8	330	60	12.75	10.20	8.50
MAT-01FH	40	3.2	250	60	7.13	5.70	4.75

*Values at I_C = 10μA.

REF-01 AND REF-02 PRECISION VOLTAGE REFERENCE/THERMOMETER

These monolithic voltage reference sources employ an improved bandgap reference design to achieve high stability and low noise outputs while requiring only 15 mW typical power consumption. The REF-01 provides a stable +10 V output while the REF-02 features a +5 V output in conjunction with a high accuracy temp. output useful for sensing temperature over the −150° C to +150° C temperature range with less than 1° C error. ±3% adjustment of the output voltage may be accomplished with negligible effect on temperature stability. Fast settling, high output capability (20 mA) and operation with short-circuit protection are achieved with no external components.

PMI Type	Maximum Untrimmed Output Offset % of Ideal	Maximum Output Voltage Temp. Coeff. ppm/°C	Line Reg %/V	Net Each, Lots of 1-24	25-99	100-999
REF-01AJ	0.3	8.5	0.010	$45.00	$36.00	$30.00
REF-01J	0.5	25	0.010	22.50	18.00	15.00
REF-01EJ	0.3	8.5	0.010	12.00	9.60	8.00
REF-01HJ	0.5	25	0.010	7.50	6.00	5.00
REF-01CJ	1.0	65	0.015	6.75	5.40	4.50
REF-01DJ	1.5	—	0.04	3.00	2.40	2.00
REF-02AJ	0.3	8.5	0.010	45.00	36.00	30.00
REF-02J	0.5	25	0.010	22.50	18.00	15.00
REF-02EJ	0.3	8.5	0.010	12.00	9.60	8.00
REF-02HJ	0.5	25	0.010	7.50	6.00	5.00
REF-02CJ	1.0	65	0.015	6.75	5.40	4.50
REF-02DJ	1.5	—	0.04	3.00	2.40	2.00

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CMP-01 AND CMP-02 PRECISION VOLTAGE COMPARATOR

High speed monolithic voltage comparators featuring outstanding DC input parameters and ease of application. A superior replacement for 111-type devices with numerous performance advantages. High current TTL output has fanout of 4 loads without needing pullup resistors, yet allows wired OR operation. Operates from single +5 V or ±15 V supplies with guaranteed response times. For best DC accuracy select CMP-02 series. CMP-01 series offers fastest response times. Input slew rate, 92V/μs typ (CMP-01). High input impedance, 16 megohms (CMP-02) with 110 dB CMRR. TCV_{os} = 1.0μV/°C typ.

PMI Type	Maximum V_{os} mV	Maximum I_{os} nA	Maximum I_B nA	Min. Gain V/mV	Net Each, Lots of 1-24	25-99	100-999
CMP-01J	0.8	25	600	200	$24.00	$19.20	$16.00
CMP-01Y	0.8	25	600	200	24.00	19.20	16.00
CMP-01BJ	2.8	80	900	100	12.00	9.60	8.00
CMP-01EJ	0.8	25	600	200	8.63	6.90	5.75
CMP-01EY	0.8	25	600	200	8.63	6.90	5.75
CMP-01CJ	2.8	80	900	100	6.75	5.40	4.50
CMP-01CY	2.8	80	900	100	6.75	5.40	4.50
CMP-02J	0.8	3.0	50	200	24.00	19.20	16.00
CMP-02Y	0.8	3.0	50	200	24.00	19.20	16.00
CMP-02BJ	2.8	15	100	100	12.00	9.60	8.00
CMP-02EJ	0.8	3.0	50	200	8.63	6.90	5.75
CMP-02EY	0.8	3.0	50	200	8.63	6.90	5.75
CMP-02CJ	2.8	15	100	100	6.75	5.40	4.50
CMP-02CY	2.8	15	100	100	6.75	5.40	4.50

DAC-01 6-BIT MONOLITHIC D/A CONVERTER

Complete 6-bit voltage output DAC features settling time of 3 μsec max. P_d = 250 mW at +15 V; TTL/DTL compatible logic. Output voltage ranges of +10 V and ±5 V or ±10 V on bipolar models. Applications include audio encoding/decoding, programmable power supplies, positioning controls and analog meter drives. Packaged in 14-pin hermetic DIP.

PMI Type	Temperature Range (°C)	Nonlinearity Max. (%FS)	TC ppm/°C	Output Type	Net Each, Lots of 1-24	25-99	100-999
DAC-01Y	−55/+125	±0.45	80	Bipolar	$45.00	$36.00	$30.00
DAC-01BY	−55/+125	±0.45	120	Bipolar	37.50	30.00	25.00
DAC-01FY	−55/+125	±0.45	80	Unipolar	30.00	24.00	20.00
DAC-01CY	0/+70	±0.45	160	Bipolar	22.50	18.00	15.00
DAC-01HY	0/+70	±0.45	160	Unipolar	6.00	4.80	4.00
DAC-01DY	0/+70	0.8	160	Bipolar	9.75	7.80	6.50

DAC-03 10-BIT LOW COST MONOLITHIC D/A CONVERTER

Complete 10-bit voltage output DAC which also may be used for 8-bit and lower resolution applications. Bipolar output and internal reference with external reference (2-quadrant multiplying) capability. Fast 1.5 μsec settling time. Compatible with popular TTL, DTL and CMOS logic. P_d = 300 mW max. at ±15 V. Applications include CRT displays, data acquisition, A/D converters and servo positioning controls. Packaged in 18-pin hermetic DIP. Suffix **X1** indicates + 10 V output; suffix **X2** indicates +5 V output.

PMI Type	Temperature Range (°C)	Nonlinearity Max. (%FS)	TC (Typ.) ppm/°C	Net Each, Lots of 1-24	25-99	100-999
DAC-03ADX1 (X2)	0/+70	±0.1	60	$27.00	$21.60	$18.00
DAC-03BDX1 (X2)	0/+70	±0.1	60	21.00	16.80	14.00
DAC-03CDX1 (X2)	0/+70	±0.2	60	14.93	11.94	9.95
DAC-03DDX1 (X2)	0/+70	±0.4	60	11.93	9.54	7.95

Note: All tests performed at 25° C.

DAC-05 10-BIT PLUS SIGN D/A CONVERTER

Complete monolithic sign/magnitude coded DAC with voltage output and internal reference. External reference can be used. Settles in 1.5 μsec and is compatible with TTL, DTL and CMOS logic. Designed for Hi. Rel. applications. All devices receive 100% burn-in and are packaged in 18-pin hermetic DIP. Parameters listed below are guaranteed over full temp. range. Ideal for applications requiring accuracy and reliability such as, instrumentation, control and communication. Suffix **X1** indicates ±10 V output; suffix **X2** indicates ±5 V out.

PMI Type	Temperature Range (°C)	Nonlinearity Max. (%FS)	TC (FS) ppm/°C	Monotonicity (bits)	Net Each, Lots of 1-24	25-99	100-999
DAC-05AX1 (X2)	−55/+125	±0.2	60	10	$202.50	$162.00	$135.00
DAC-05BX1 (X2)	−55/+125	±0.3	90	9	127.50	102.00	85.00
DAC-05CX1 (X2)	−55/+125	±0.5	120	8	90.00	72.00	60.00
DAC-05EX1 (X2)	0/+70	±0.2	100	10	67.50	54.00	45.00
DAC-05FX1 (X2)	0/+70	±0.3	100	9	33.00	26.40	22.00
DAC-05GX1 (X2)	0/+70	±0.5	100	8	22.50	18.00	15.00

MUX-88 PROTECTED ANALOG MULTIPLEXER

Constructed with a proprietary BI-FET process, these monolithic 8-channel analog multiplexers feature overvoltage protection that is fail-safe with power loss, while offering low, constant "ON" resistance. A superior replacement for DG508, HI-508A and LF11508. These units provide performance advantages which include low (1.0 nA max.) leakage currents and fast settling time with low (−80dB) crosstalk to satisfy a wide variety of applications. These multiplexers do not suffer from latch-up or static charge blow-out problems associated with similar CMOS parts and operate from both TTL and CMOS logic levels with a break-before-make action.

PMI Type	Maximum "ON" Resistance Ohms	Maximum Output Leakage Current nA	Maximum Power Dissipation mW	Typical .025% Settling Time μS	Net Each, Lots of 1-24	25-99	100-999
MUX-88EQ	260	1.0	240	2.9	$11.25	$9.00	$7.50
MUX-88FQ	370	1.0	142	2.9	9.60	7.70	6.40

DAC-76 COMPANDING D/A CONVERTER

Monolithic 8-bit DAC features 72 dB dynamic range in 7-bit + sign format. Conforms with Bell System μ-255 companding law. True current outputs with −5 V to +18 V voltage compliance, multiplying reference inputs; compatible with MOS/BIPOLAR logic families. Guaranteed monotonicity over temperature range. 12-bit accuracy and resolution around zero scale. Ideal for 8-bit microprocessor and transducer interfaces, PCM telemetry, process controllers and audio applications. Packaged in 18-pin hermetic DIP.

PMI Type	Temperature Range (°C)	Step Nonlinearity and Accuracy	Drift Max. FS (Step)	Net Each, Lots of 1-24	25-99	100-999
DAC-76BX	−55/+125	±½ LSS	±¼	$49.50	$39.60	$33.00
DAC-76X	−55/+125	± 1 LSS	±½	34.50	27.60	23.00
DAC-76EX	0/+70	+½ LSS	±¼	14.25	11.40	9.50
DAC-76CX	0/+70	± 1 LSS	±½	12.00	9.60	8.00

DAC-100 10-BIT, 2-CHIP MONOLITHIC D/A CONVERTER

Complete current output binary-coded (complementary) DAC, 10-bit resolution may also be used for 8-bit and lower resolution applications. Operates from ±6 V to ±18 V. P_d = 80 mW at ±6 V. Fast 375 nsec settling time max. Current output for direct use in ADC applications. Internal feedback resistor provided for external op amp. All units are TTL/DTL logic compatible. For 10 V or ±5 V operation, order suffix **Q1, Q3,** and **Q5.** Order suffix **Q2** and **Q4** for 5 V or ±2.5 V full scale outputs. All parameters listed are tested at temperature range specified. Packaged in 16-pin hermetic DIP; 24-pin flat-pak available on request.

PMI Type	Temperature Range (°C)	Nonlinearity Max. (%FS)	TC ppm/°C	Net Each, Lots of 1-24	25-99	100-999
DAC-100ACQ3 (Q4)	0/+70	±0.05	60	$ 46.80	$ 37.44	$ 31.20
DAC-100BCQ3 (Q4)	0/+70	±0.1	60	30.60	24.48	20.40
DAC-100CCQ3 (Q4)	0/+70	±0.2	60	21.60	17.28	14.40
DAC-100DDQ3 (Q4)	0/+70	±0.3	120	17.93	14.34	11.95
DAC-100ACQ5	−55/+125	±0.05	60	150.00	120.00	100.00
DAC-100BBQ5	−55/+125	±0.1	30	160.80	128.64	107.20
DAC-100CCQ5	−55/+125	±0.2	60	67.00	54.00	45.00
DAC-100DDQ5	−55/+125	±0.3	120	52.50	42.00	35.00

DAC-06 TWO'S COMPLEMENT 10-BIT D/A CONVERTER

Complete 10-bit resolution voltage output monolithic DAC is similar to DAC-05, but features two's complement digital coding for direct interface with micro or minicomputers. Coding easily converted to straight or offset binary codes. Packaged in 18-pin hermetic DIP.

PMI Type	Temperature Range (°C)	Nonlinearity Max. (%FS)	TC (FS) ppm/°C	Monotonicity (bits)	Net Each, Lots of 1-24	25-99	100-999
DAC-06BX	−55/+125	±0.3	90	9	$127.50	$102.00	$85.00
DAC-06CX	−55/+125	±0.5	120	8	90.00	72.00	60.00
DAC-06EX	0/+70	±0.2	100	10	67.50	54.00	45.00
DAC-06FX	0/+70	±0.3	100	9	33.00	26.40	22.00
DAC-06GX	0/+70	±0.5	100	8	22.50	18.00	15.00

DAC-08 8-BIT HIGH SPEED MONOLITHIC D/A CONVERTER

Differential current output, binary-coded, multiplying DAC with 8-bit resolution and 85 nsec settling time. Universal digital logic interface. Operates over ±4.5 V to ±18 V power supply range, with 33 mW power consumption attainable at ±5 V supplies. Features outstanding application flexibility. Ideal for 8-bit, 1 μsec A/D converters, waveform generators, programmable power supplies, CRT displays. Guaranteed monotonicity over temperature range. Output voltage compliance −10 V to +18 V. Packaged in 16-pin hermetic DIP.

PMI Type	Temperature Range (°C)	Nonlinearity Max. (%FS)	TC ppm/°C	Net Each, Lots of 1-24	25-99	100-999
DAC-08AQ	−55/+125	±0.1	50	$13.50	$10.80	$ 9.00
DAC-08Q	−55/+125	±0.19	50	7.13	5.70	4.75
DAC-08HQ	0/+70	±0.1	50	4.50	3.60	3.00
DAC-08EQ	0/+70	±0.19	50	3.45	2.76	2.30
DAC-08CQ	0/+70	±0.39	80	3.08	2.46	2.05

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NE/SE527	High-Speed Voltage Comparator
NE/SE529	High-Speed Voltage Comparator
LM111/211/311	Voltage Comparator
LM119/219/319	Dual Voltage Comparator
LM139/239/339	Quad Voltage Comparator
LM193/293/393	Dual Voltage Comparator
LM2903	Dual Voltage Comparator
LM2901	Quad Voltage Comparator
MC3302	Quad Voltage Comparator
DATA ACQUISITION	
DAC-08/08A	8-Bit Multiplying D/A Converter
MC1408-6	8-Bit D/A Converter, 2 LSB Accuracy
MC1408-7	8-Bit D/A Converter, 1 LSB Accuracy
MC1408-8	8-Bit D/A Converter, ½ LSB Accuracy
MC1508-8	8-Bit D/A Converter, ½ LSB Accuracy
NE5007	8-Bit D/A Converter, 1 LSB Accuracy
NE/SE5008	8-Bit D/A Converter, ½ LSB Accuracy
NE/SE5009	8-Bit D/A Converter, ¼ LSB Accuracy
NE/SE5018	8-Bit D/A Converter Subsystem, ½ LSB Accuracy, V_{out}
NE/SE5019	8-Bit D/A Converter Subsystem, ¼ LSB Accuracy, V_{out}
NE/SE5118	8-Bit D/A Converter Subsystem, ½ LSB Accuracy, I_{out}
NE/SE5119	8-Bit D/A Converter Subsystem, ¼ LSB Accuracy, I_{out}
NE5020	10-Bit D/A Converter Subsystem, 1 LSB Accuracy, I_{out}
NE/SE5537	Low-Leakage Sample and Hold
LF198/398	Sample and Hold
DISPLAY DRIVERS	
NE587/9	7-Segment LED Display Driver
NE/SA594	Vacuum Fluorescent Display Driver
INTERFACE	
NE590	Addressable Peripheral Drivers
NE591	Addressable Peripheral Drivers
NE5090	Addressable Peripheral Drivers (Hi-Volt)
MC1488	Quad Line Driver
MC1489/1489A	Quad Line Receiver
DS8820	Dual-Differential Line Receiver
DS8820A	Dual-Differential Line Receiver
DS8830	Dual-Differential Line Driver
75S107	High-Speed, Dual Line Receiver
75S108	High-Speed, Dual Line Receiver
75S207	High-Speed, Dual Sense Amplifier for MOS Memories
75S208	High-Speed, Dual Sense Amplifier for MOS Memories
TRANSISTOR ARRAYS	
ULN2001/3/4	Darlington Transistor Array
CA3183	High-Voltage Transistor Array
CA3081	Transistor Array
CA3082	Transistor Array

OP AMPS	
NE/SE530	High-Slew Rate Op Amp
NE/SE531	High-Slew Rate Op Amp
NE/SE532	Dual Op Amp
NE/SU536	FET-Input Op Amp
NE/SE538	High-Slew Rate Op Amp
NE5512	H P Operational Amplifier
NE5514	H P Operational Amplifier
NE/SE5530	Dual High-Slew Rate
NE/SE5532	Dual Low-Noise, High-Slew Rate
NE/SE5532A	Dual Low-Noise, High-Slew Rate
NE/SE5533	Dual Low-Noise, High-Slew Rate
NE/SE5533A	Dual Low Noise High Slew Rate
NE/SE5534	Low-Noise, High-Slew Rate
NE/SE5534A	Low-Noise, High-Slew Rate
NE/SE5538	Dual High-Slew Rate
NE/SE5539	Ultra-High-Frequency Op Amp
MC1456	High-Performance Op Amp
MC1458/1558	Dual Op Amp
μA740C	FET-Input Op Amp
μA741/741C	General-Purpose Op Amp
μA747/747C	Dual Op Amp
μA748/748C	General Purpose Op Amp
LF355	BIFET-Input Op Amp
LF356	BIFET-Input Op Amp
LM301A	High-Performance Op Amp
LM125/224/324	Quad Op Amp
LM158/258/358	Dual Op Amp
NE/SE535	Dual High-Slew Rate Op Amp
NE/SE5535	Dual High-Slew Rate Op Amp
PHASE LOCKED LOOPS	
NE/SE564	Phase Locked Loop
NE/SE565	Phase Locked Loop
NE/SE566	Function Generator
NE/SE567	Tone Decoder PLL
POWER CONTROL CIRCUITS	
NE/SE550	Precision Voltage Regulator
μA723/723C	Precision Voltage Regulator
NE/SE5553/4	Dual Tracking Regulators
NE/SE5560	SMPS Control Circuit
NE/SE5561	SMPS Control Unit
SG1524, 2524, 3524	SMPS Control Circuit
TIMERS	
NE/SE558	Quad Timer
NE/SE555	Timer
NE/SE556	Dual Timer
NE/SE556-1	Dual Timer

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MSI SELECTION GUIDE

ARITHMETIC FUNCTIONS AND OPERATORS

Function	54/74 Type	Families			Bits
		Std.	S	LS	
Adders	283			X	4+4+Carry
Adder	—	—	82S83	—	4-Bit BCD
Arithmetic logic unit	—	—	82S82	—	4-Bit BCD
Arithmetic logic unit	181	X	X	X	4-Bit Binary
Comparator magnitude	85	X	X	X	4
Encoder, priority	147	X			10-to-4
Encoder, priority	148	X			8-to-3
Parity generator/checker	180	X			8-Bit Odd/Even
Parity generator/checker	280		X		8-Bit Odd/Even
Parity generator/checker	—		8262/S62		9-Bit Odd/Even
Shifter	350		X		4-Bit, 4-Way Shifter

COUNTERS, ASYNCHRONOUS (RIPPLE)

Function	54/74 Type	Families			Modulo
		Std.	S	LS	
Decade	90	X		X	2x5
Divide-by-12	92	X		X	2x6
Binary	93	X		X	2x8
Decade	—	8280		—	2x5
Binary	197			X	2x8
Decade	290			X	2x5
Binary	293			X	2x8
Dual decade	390			X	2x5x2x5
8-Bit binary	393			X	16x16
Dual decade	490			X	10x10

COUNTERS, SYNCHRONOUS

Function	54/74 Type	Families			Counter Types
		Std.	S	LS	
Decade	160	X		X	BCD, Master Reset
Binary	161	X		X	4-Bit, Master Reset
Binary	163	X		X	4-Bit, Synchronous Reset
U/D decade	168			X	BCD, Synchronous expansion
U/D binary	169			X	4-Bit, Synchronous expansion
U/D binary	191	X		X	4-Bit, U/D Mode Control
U/D decade	192	X		X	BCD, Separate U & D Clocks
U/D binary	193	X		X	4-Bit, Separate U & D Clocks

DECODERS/DEMULTIPLEXERS

Function	54/74 Type	Families			Features
		Std.	S	LS	
Dual 1-of-4	139		X	X	Separate address
Dual 1-of-4	155	X		X	Common address
Dual 1-of-4	156	X		X	O.C. outputs
1-of-8	138		X	X	3-enables
1-of-8	—	8250		—	Octal with enable
1-of-8	259			X	Active HIGH outputs
1-of-10	42	X		X	BCD, blank above "9"
1-of-10	45	X			80mA, 30V outputs
1-of-10	445			X	80mA, 7V outputs
1-of-16	154	X		X	2-enables

DECODERS/DISPLAY DRIVERS

Function	54/74 Type	Families			Features
		Std.	S	LS	
BCD-to-7-segment	—	—	NE586	—	Latched, 25mA constant current
BCD-to-7-segment	—	—	NE587	—	Latched, programmable constant current
BCD-to-7-segment	—	—	DS8880	—	80V, gas filled display tube driver

LATCHES, TRANSPARENT

Function	54/74 Type	Families			Features
		Std.	S	LS	
4-Bit D	75	X		X	True & Comp. outputs
4-Bit D	197			X	Also 4-Bit Counter
4-Bit D	375			X	True & Comp. outputs
4-Bit R-S	279	X		X	Switch debouncer
Dual 4-Bit	116	X			Gated enable, Master Reset
8-Bit D	363			X	3-State, MOS-compatible
8-Bit D	373		X	X	3-State
8-Bit	—	—	9334	—	Addressable
8-Bit	533		X	X	3-State

MEMORIES

Function	54/74 Type	Families			Features
		Std.	S	LS	
4x4 Register	170	X		X	Separate Read/Write Addresses
4x4 Register	670			X	LS170 with 3-state outputs
16x4 RAM	89		X	X	O.C., transparent while writing
16x4 RAM	189		X	X	3-State, disabled while writing
16x4 RAM	289		X	X	O.C., disabled while writing
16x4 RAM	—	—	3101A	—	O.C., disabled while writing
16x4 RAM	—	—	8225	—	O.C., disabled while writing

MULTIPLEXERS

Function	54/74 Type	Families			Features
		Std.	S	LS	
Quad 2-input	157	X	X	X	True outputs
Quad 2-input	158	X	X	X	Complement outputs
Quad 2-input	257		X	X	3-State "157", buffer outputs
Quad 2-input	258		X	X	3-State "158", buffer outputs
Quad 2-input	—	8266	—	—	Tue & Complement inputs
Quad 2-input	—	8233	—	—	True outputs
Quad 2-input	—	8234	—	—	Complement (O.C.) outputs
Quad 2-input	—	—	8235	—	True & Complement inputs open collector outputs
Quad 2-port	298	X		X	Register outputs
Dual 4-input	153	X	X	X	Separate enables
Dual 4-input	253		X	X	3-State "153"
8-input	151	X	X	X	True & Complement outputs
8-input	251		X	X	3-State "151", buffer outputs
8-input	—	8230	—	—	True & Complement outputs
8-input	—	8231	—	—	True & Complement open collector outputs
16-input	150	X			True & Complement outputs

REGISTERS, PARALLEL IN—PARALLEL OUT

Function	54/74 Type	Families			Features
		Std.	S	LS	
4-Bit	173	X		X	3-State outputs
4-Bit	175	X	X	X	True & Complement outputs, MR input
4-Bit	298	X		X	Multiplex data inputs
4x4	170	X		X	4-Addressable register
4x4	670			X	3-State LS170
6-Bit	174	X	X	X	Master Reset input
6-Bit	378			X	Clock Enable input
8-Bit	273		X	X	Master Reset input
8-Bit	377			X	Clock Enable input
8-Bit	364			X	3-State MOS-compatible outputs
8-Bit	374			X	3-State outputs
16-Bit	172		X		8x2, independent read & write ports

MSI SELECTION GUIDE (Continued)

REGISTERS, SHIFT-LOAD

Function	54/74 Type	Families			Features
		Std.	S	LS	
4-Bit	94	X			Parallel in-serial out
4-Bit	95	X		X	Separate shift and load clocks
4-Bit		8271			Asynchronous load, Master Reset
4-Bit	194	X	X	X	Shift right/left, parallel load
4-Bit	195	X	X	X	Shift right, parallel load
4-Bit	295			X	Shift-load, 3-state outputs
4-Bit	395			X	Expandable shift, 3-state outputs
5-Bit	96	X		X	Shift right, parallel load
8-Bit	164	X		X	Serial in-parallel
8-Bit	165	X			Parallel in-serial out
8-Bit	166	X			Parallel in-serial out
8-Bit	199	X			Universal, reversible, shift-load
Dual 8-Bit	—	—	8277	—	Dual, Serial in-serial out

8T INTERFACE SELECTION GUIDE

BUS TRANSCEIVERS

DUAL

8T30	TTL-to-MOS interface, 60mA sink, open collector transmit outputs, emitter follower drivers on MOS outputs

QUAD

8T26A	PNP inputs, $T_{PHL} = T_{PLH} = 14ns$ @ $C_L = 300pF$
8T28	Open collector, $T_{PHL} = T_{PLH} = 17ns \star C_L = 300pF$
8T34	10.4mA drive, 50mA sink, input hysteresis
8T38	Open collector, 50mA sink, input hysteresis
8T126	3.4 volt V_{OH}, 3-state, inverting
8T127	3.4 volt V_{OH}, 3-state, common controls, inverting
8T128	Same as 8T126 but non-inverting
8T29	Same as 8T127 but non-inverting

OCTAL

8T125	Inverting
8T245	Non-Inverting

BUFFERS/INVERTERS

HEX

8T93	Low Current PNP inputs, 7ns prop delays
8T95	48mA sink, 5.2mA source, 3-state non-inverting
8T96	Same as 8T96 but inverting
8T97	48mA sink, 5.2mA source, 3-state with split controls, non-inverting
8T98	Same as 8T97 but inverting

SEVEN SEGMENT DECODER/DRIVERS WITH ZERO SUPPRESSION AND LAMP TEST

8T04	Open Collector/Active Low
8T05	Resistor Pull-up/Active High
8T06	Open Collector/Active Low

LINE DRIVERS

DUAL

8T13	Drives 50 to 500 ohm transmission lines sources 75mA @ 2.4 volts TTL inputs
8T15	EIA RS-232B&C, MIL-STD-1880 and CCITT V24 interface
8T23	IBM 360/370 interface

QUAD

8T09	$I_{OL} = 40mA$, $T_{PHL} = T_{PLH} = 20ns$ @ $C_L = 300pF$ 3-state outputs

LINE RECEIVERS

DUAL

8T16	EIA RS-232 B&C, MIL-STD-1888 and CCITT V24 interface

TRIPLE

8T14	Input Hysteresis, 30K ohm input impedance
8T24	IBM 360/370 interface

QUAD

8T380	1Volt hysteresis, low input current, ideal CMOS-TTL interface

HEX

8T37	Input hysteresis, low input current

SPECIAL FUNCTIONS

MONOSTABLE MULTIVIBRATORS (ONE-SHOTS)

8T20	Bidirectional, differential input threshold = ±4mV WRT reference voltage
8T22	Inputs are level sensitive, triggers on rising or falling edge, retriggerable

DUAL SENSE AMP WITH LATCH

8T25	3-state, 8-pin package, MOS to TTL interface

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SELECTION GUIDE

Device	Organization	Output Circuit[1]	Output Logic[2]	Access Time(ns)[4]	Temperature Range[3]	Package	No. of Pins	Max I_{CC} (mA)[4]
CAMs								
10155	8x2	OE	—	13	C	F,N	18	140
RAMs								
82S25	16x4	OC	B	50	M,C	F,N	16	105
3101A	16x4	OC	B	35	M,C	F,N	16	105
54/74S189	16x4	TS	B	35	M,C	F,N	16	110
82S21	32x2	OC	T	50	C	F,N	16	130
82S16	256x1	TS	T	50	M,C	F,N	16	115
82S17	256x1	OC	T	50	M,C	F,N	16	115
82S09	64x9	OC	T	45	M,C	I,N	28	190
82S19	64x9	OC	B	35	M,C	I,N	28	190
82S210	256x9	TS	B	60	C	F,N	24	185
82S212	256x9	TS	B	45	C	F	24	185
8x350	256x8	TS	B	N/A	M,C	F	22	185
FPLAs								
82S100	16x48x8	TS	—	50	M,C	F,N	28	170
82S101	16x48x8	OC	—	50	M,C	F,N	28	170
82S152	18x32x10	OC	I/O	40	M,C	F,N	20	155
82S155	18x32x10	TS	I/O	40	M,C	F,N	20	155
FPGAs								
82S150	18x12	OC	I/O	30	M,C	F,N	20	155
82S151	18x12	TS	I/O	30	M,C	F,N	20	155
82S102	16x9	OC	—	35	M,C	F,N	28	170
82S103	16x9	TS	—	35	M,C	F,N	28	170
FPLSs								
82S104	16x48x8	OC	R	90	M,C	F,N	28	180
82S105	16x48x8	TS	R	90	M,C	F,N	28	180
82S154	16x32x12	OC	I/O, R	65	M,C	F,N	20	155
82S155	16x32x12	TS	I/O, R	65	M,C	F,N	20	155
82S156	16x32x12	OC	I/O, R	65	M,C	F,N	20	155
82S157	16x32x12	TS	I/O, R	65	M,C	F,N	20	155
82S158	16x32x12	OC	I/O, R	65	M,C	F,N	20	155
82S159	16x32x12	TS	I/O, R	65	M,C	F,N	20	155
PROMs								
82S23	32x8	OC	—	50	M,C	F,N	16	77
82S123	32x8	TS	—	50	M,C	F,N	16	77
10139	32x8	OE	—	20	C	F,N	16	145
82S126	256x4	OC	—	50	M,C	F,N	16	120
82S129	256x4	TS	—	50	M,C	F,N	16	120
10149	256x4	OE	—	20	C	F	16	150
10049	256x4	OE	—	20	C	F	16	150
82S130	512x4	OC	—	50	M,C	F,N	16	140
82S131	512x4	TS	—	50	M,C	F,N	16	140
82S115	512x8	TS	—	60	M,C	F,N	24	175
82S141	512x8	TS	—	60	M,C	F,N	24	175
82HS147	512x8	TS	—	45	*	F,N	20	155
82S137	1024x4	TS	—	60	M,C	F,N	18	140
82HS137	1024x4	TS	—	45	M,C	F,N	18	140
82LS181	1024x8	TS	—	150	M,C	F,N	24	80
82S180	1024x8	OC	—	70	M,C	F,N	24	175
82S181	1024x8	TS	—	70	M,C	F,N	24	175
82PS181	1024x8	TS	—	70	M,C	F,N	24	185
82S183	1024x8	TS	—	60	M,C	F,N	24	175
82S2708	1024x8	TS	—	70	M	F	24	185
82S185	2048x4	TS	—	100	M,C	I,N	18	120
82HS185	2048x4	TS	—	70	M,C	I,N	18	120
82S191	2048x8	TS	—	80	M,C	I,N	24	175
82HS191	2048x8	TS	—	60	*	F,N	24	175
82S195	4096x4	TS	—	70	*	F,N	20	155
82S321	4096x8	TS	—	80	*	I,N	24	185

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Bipolar LSI

SELECTION GUIDE

I/O INTERFACE	
8T31/8X31	8-Bit Bidirectional Port
8T32/8X32	Input/Output Port for 8X300
8T33	Input/Output Port for 8X300
8T35	Input/Output Port for 8X300
8T36/8X36	Input/Output Port for 8X300
8T39	Bus Expander for 8X300
8T58	Bus Expander for 8X300
8X41	Asynchronous Bidirectional Bus Extender
8X42	Synchronous 4-Input/4-Output Input/Output Port
8X320	Bus Interface Register Array
MEMORY (RAM)	
8X350	2048 Bit Bipolar RAM (256X8)
MICROPROCESSORS	
8X300	8-Bit Microcontroller
3002	2-Bit Centeral Processing Unit
SEQUENCERS	
8X02A	Control Store Sequencer
3001	Microprogram Control Unit
SPECIAL PURPOSE CIRCUITS	
8X330	Floppy Disk Formatter/Controller
8X01/9401	CRC Generator/Checker
9403	64-Bit FIFO Buffer Memory
8X60	FIFO RAM Controller

HOW TO ORDER

Signetics products are available in different packages and basically two temperature ranges. The correct ordering code or part number for the devices is an alphanumeric sequence. All devices are not obtainable in both temperature ranges or all package styles.

Package Styles

CK = Chip "S" visual and glassivation
D = Microminiature SO molded (epoxy)
E = Hermetic metal header
EC = DMOS Products TO-46 header
EE = DMOS Products TO-72 header
F = Hermetic CERDIP
FE = Hermetic CERDIP – 8 lead
H = Hermetic metal header
I = Hermetic laminated DIP
K = Hermetic metal header
N = DIP molded (epoxy)
P = DIP (ground pin) molded (epoxy)
Q = Hermetic flat pack
R = Hermetic flat pack
S = Plastic power (not dual-in-line)
TA = Hermetic metal header
U = Plastic power (not dual-in-line)
W = Hermetic flat pack
Y = Flat pack leads extended 4 sides

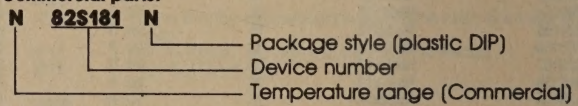
MOS Microprocessor

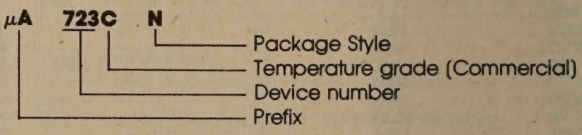
SELECTION GUIDE

MICROPROCESSORS AND MICROCOMPUTERS	
2650A, A-1	8-Bit Microprocessor
I/O PERIPHERAL INTERFACES	
2636	Programmable Video Interface
2637	Universal Video Interface
2651	Programmable Communications Interface
2652	Multi-Protocol Communications Controller
2653	Polynomial Generator-Checker
2661	Enhanced Programmable Communications Interface
MP8243	Input/Output Expander For 8048
2671	Programmable Keyboard and Communications Controller
2672	Programmable Video Timing Controller
LSI SUPPORT DEVICES	
2621	PAL TV Sync Generator
2622	NTSC TV Sync Generator
2670	Display Character and Graphics Generator
2673	Video Attributes Controller

ORDERING CODE EXAMPLES

Commercial parts:





Prefix

N, NE = 0° to +70°C (0° to +75°C for 8200 and 9300)
JB, S, SE = −55° to +125°C (Military)
SA = −40° to +85°C
SU = −25° to +85°C
CA = Second source to RCA part number
DS = Second source to National part number
LF = Second source to National part number
LM = Second source to National part number
MC = Second source to Motorola part number
SD = Signetics DMOS products
SG = Second source to Silicon General part number
μA = Second source to Fairchild part number
ULN = Second source to Sprague part number

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SELECTION GUIDE

Base No.	Package	Description
HEF4000B	D,F,N	Dual 3-Input NOR Gate and Inverter
HEF4001B	D,F,N	Quadruple 2-Input NOR Gate
HEF4001UB	D,F,N	Quadruple 2-Input NOR Gate
HEF4002B	D,F,N	Dual 4-Input NOR Gate
HEF4006B	D,F,N	18-Stage Static Shift Register
HEF4007UB	D,F,N	Dual Complementary Pair and Inverter
HEF4008B	D,F,N	4-Bit Binary Full Adder
HEF40097B	D,F,N	3-State Hex Non-Inverting Buffer
HEF40098B	D,F,N	3-State Hex Inverting Buffer
HEF40106B	D,F,N	Hex Schmitt Trigger Inverter
HEF4011B	D,F,N	Quadruple 2-Input NAND Gate
HEF4011UB	D,F,N	Quadruple 2-Input NAND Gate
HEF4012B	D,F,N	Dual 4-Input NAND Gate
HEF4013B	D,F,N	Dual D-Type Flip-Flop
HEF4014B	D,F,N	8-Bit Shift Register
HEF4015B	D,F,N	Dual 4-Bit Static Shift Register
HEF40160B	D,F,N	4-Bit Sync Decade Counter w/Async Reset
HEF40161B	D,F,N	4-Bit Sync Binary Counter w/Async Reset
HEF40162B	D,F,N	4-Bit Sync Decade Counter w/Sync Reset
HEF40163B	D,F,N	4-Bit Sync Binary Counter w/Sync Reset
HEF4016B	D,F,N	Quadruple Bilateral Switches
HEF40174B	D,F,N	Hex D-Type Flip-Flop
HEF40175B	D,F,N	Quadruple D-Type Flip-Flop
HEF4017B	D,F,N	5-Stage Johnson Counter
HEF4018B	D,F,N	Presettable Divide-by-N Counter
HEF40192B	D,F,N	4-Bit Up/Down Decade Counter
HEF40193B	D,F,N	4-Bit Up/Down Binary Counter
HEF40194B	D,F,N	4-Bit Bidirect Universal Shift Register
HEF40195B	D,F,N	4-Bit Universal Shift Register
HEF4019B	D,F,N	Quadruple 2-Input Multiplexer
HEF4020B	D,F,N	14-Stage Binary Counter
HEF4021B	D,F,N	8-Bit Shift Register
HEF4022B	D,F,N	4-Stage Divided-by-8 Johnson Counter
HEF4023B	D,F,N	Triple 3-Input NAND Gate
HEF4024B	D,F,N	7-Stage Binary Counter
HEF4025B	D,F,N	Triple 3-Input NOR Gate
HEF4027B	D,F,N	Dual J-K Flip-Flop
HEF4028B	D,F,N	1-of-10 Decoder
HEF4029B	D,F,N	Synchronous Up/Down Counter
HEF4030B	D,F,N	Quadruple Exclusive-OR Gate
HEF4031B	D,F,N	64-Stage Static Shift Register
HEF4035B	D,F,N	4-Bit Universal Shift Register
HEF4040B	D,F,N	12-Stage Binary Counter
HEF4041B	D,F,N	Quadruple True/Complement Buffer
HEF4042B	D,F,N	Quadruple D-Latch
HEF4043B	D,F,N	Quadruple R/S Latch with 3-State Outputs
HEF4044B	D,F,N	Quadruple R/S Latch with 3-State Outputs
HEF4046B	D,F,N	Micro-Power Phase Locked Loop
HEF4047B	D,F,N	Monostable/Astable Multivibrator
HEF4049B	D,F,N	Hex Inverting Buffer
HEF4050B	D,F,N	Hex Non-Inverting Buffer
HEF4051B	D,F,N	8-Channel Analog Mux/Demux
HEF4052B	D,F,N	Dual 4-Channel Analog Mux/Demux
HEF4053B	D,F,N	Triple 2-Channel Analog Mux/Demux
HEF4059B	F,N	Programmable Divide-by-N Counter
HEF4060B	D,F,N	14-Stage Binary Counter
HEF4066B	D,F,N	Quadruple Bilateral Switches
HEF4067B	F,N	16-Channel Analog Mux/Demux
HEF4068B	D,F,N	8-Input NAND Gate

Base No.	Package	Description
HEF4069UB	D,F,N	Hex Inverter
HEF4070B	D,F,N	Quadruple Exclusive OR Gate
HEF4071B	D,F,N	Quadruple 2-Input OR Gate
HEF4072B	D,F,N	Dual 4-Input OR Gate
HEF4073B	D,F,N	Triple 3-Input AND Gate
HEF4075B	D,F,N	Triple 3-Input OR Gate
HEF4076B	D,F,N	Quad D-Type Flip-Flop w/3-State Outputs
HEF4077B	D,F,N	Quadruple Exclusive NOR Gate
HEF4078B	D,F,N	8-Input NOR Gate
HEF4081B	D,F,N	Quadruple 2-Input AND Gate
HEF4082B	D,F,N	Dual 4-Input AND Gate
HEF4085B	D,F,N	Dual 2-Wide 2-Input AND-OR-Invert Gate
HEF4086B	D,F,N	4-Wide 2-Input AND-OR-Invert Gate
HEF4093B	D,F,N	Quadruple 2-Input NAND Schmitt Trigger
HEF4094B	D,F,N	8-Stage Shift and Store Bus Register
HEF4104B	D,F,N	Quad Low Volt to High Volt Translator
HEF4501B	D,F,N	BCD Up/Down Counter
HEF4502B	D,F,N	Strobed Hex Inverting Buffer
HEF4505B	F,N	64-Bit, 1 Bit per Word RAM
HEF4508B	F,N	Dual 4-Bit Latch
HEF4511B	D,F,N	BCD-to-7-Segment Latch Decoder/Driver
HEF4512B	D,F,N	8-Input Multiplexer with 3-State Output
HEF4514B	F,N	1-of-16 Decoder/Demux with Input Latches
HEF4515B	F,N	1-of-16 Decoder/Demux with Input Latches
HEF4516B	D,F,N	Binary Up/Down Counter
HEF4517B	F,N	Dual 64-Bit Static Shift Register
HEF4518	D,F,N	Dual BCD Up Counter
HEF4519B	D,F,N	Quadruple 2-Input Multiplexer
HEF4520B	D,F,N	Dual Binary Up Counter
HEF4521B	D,F,N	24-Stage Frequency Divider
HEF4522B	D,F,N	Programmable Div-by-N 4-Bit Counter (BCD)
HEF4526B	D,F,N	Programmable Div-by-N 4-Bit Counter (Bin)
HEF4527B	F,N	BCD Rate Multiplier
HEF4528B	D,F,N	Dual Retrig/Reset Monostable Multivibrator
HEF4531B	D,F,N	13-Input Parity Checker/Generator
HEF4532B	D,F,N	8-Input Priority Encoder
HEF4534B	F,N	Real Time 5-Decade Counter
HEF4538B	D,F,N	Precision Dual Monostable Multivibrator
HEF4539B	D,F,N	Dual 4-Input Multiplexer
HEF4541B	D,F,N	Programmable Timer
HEF4543B	D,F,N	BCD-to-7-Seg Latch/Decod/Driver for LCs
HEF4555B	D,F,N	Dual 1-of-4 Decoder w/Active High Outputs
HEF4556B	D,F,N	Dual 1-of-4 Decoder w/Active Low Outputs
HEF4557B	D,F,N	1-to-64-Bit Variable Length Shift Register
HEF4585B	D,F,N	4-Bit Magnitude Comparator
HEF4720B/V	F,N	256-Bit, 1 Bit-per-Word RAM
HEF4724B	D,F,N	8-Bit Addressable Latch
HEF4731V	F,N	Quad 64-Bit Static Shift Register
HEF4737B	F,N	Quad Static Decade Counter
HEF4738VP	N	IEC/IEE Bus Interface
HEF4739VP	N	Digital Voltmeter
HEF4750VP	F,N	Frequency Synthesizer
HEF4751VP	F,N	Universal Divider
HEF4752VP	F,N	A.C. Motor Controller
HEF4753V	F,N	Timing Circuit
HEF4754V	F,N	18 LCD Bargraph Display Driver

AMPLIFIERS

TBA915	Audio Amplifier
TBA915G	Audio Amplifier
TCA220	Triple Operational Amplifier
TCA520B	Operational Amplifier

LOCMOS LSI

HEF4738V	IEC/IEE Bus Interface
HEF4739V	Digital Voltmeter
HEF4750V	Frequency Synthesizer
HEF4751V	Universal Divider
HEF4752V	A.C. Motor Controller

MISCELLANEOUS

SAA1027	Stepper Motor Driver
SAA1049	Revolution Counter
TCA280A	Trigger Module
TDA1023	Time Proportional Triac Controller
TDA1024	Static Triac Controller
TDA1060	SMPS Controller
TDA3081	Transistor Array
TDA3082	Transistor Array
TDA3083	Transistor Array

GENERAL PURPOSE JFET'S AND AMPLIFIERS

Siliconix Type	Case TO-	Max. I_{GSS} nA	Min. BV_{GSS} V	Max. I_{DSS} mA	Min. g_{fs} μmho	Max. C_{iss} pF	Net Each, Lots of 1-99	Net Each, Lots of 100-999
2N2608*	18	10	30	4.5	1000	17	$1.21	$0.95
2N2609*	18	30	30	10	2500	30	1.21	.95
2N2843*	18	10	30	1	540	17	1.34	1.04
2N2844*	18	30	30	2.2	1400	30	2.77	2.16
2N3329*	72	10	20	3	1000	20	2.23	1.74
2N3330*	72	10	20	6	1500	20	2.05	1.60
2N3331*	72	10	20	15	2000	20	2.50	1.95
2N3332*	72	10	20	6	1000	20	1.96	1.53
2N3368	18	5	40	12	1000	20	1.34	1.04
2N3369	18	5	40	2.5	600	20	1.34	1.04
2N3370	18	5	40	.6	300	20	1.25	.97
2N3382*	72	15	30	30	4500	.....	4.20	3.28
2N3384*	72	15	30	30	7500	.....	7.51	5.87
2N3386*	72	15	30	50	7500	.....	4.20	3.28
2N3436	18	.5	50	15	2500	18	1.60	1.25
2N3437	18	.5	50	4	1500	18	1.42	1.11
2N3438	18	.5	50	1	800	18	1.96	1.53
2N3458	18	.25	50	15	2500	18	1.51	1.18
2N3459	18	.25	50	4	1500	18	1.60	1.25
2N3460	18	.25	50	1	800	18	1.87	1.46
2N3684	72	.1	50	7.5	2000	4	1.39	1.09
2N3685	72	.1	50	3	1500	4	1.75	1.37
2N3686	72	.1	50	1.2	1000	4	1.75	1.37
2N3687	72	.1	50	.5	500	4	2.32	1.81
2N3819	92	2	25	20	2000	8	.51	.42
2N3821	72	.1	50	2.5	1500	6	1.49	1.15
2N3822	72	.1	50	10	3000	6	1.38	1.06
2N3823	72	.5	30	20	3500	6	1.20	.93
2N3909*	72	10	20	15	1000	32	1.28	1.00
2N4117	72	.01	40	.1	70	3	.95	.74
2N4117A	72	.001	40	.1	70	3	1.22	.95
2N4118	72	.01	40	.24	80	3	.86	.67
2N4118A	72	.001	40	.24	90	3	1.04	.81
2N4119	72	.01	40	.6	100	3	.64	.50
2N4119A	72	.001	40	.6	100	3	.95	.74
2N4220	72	.1	30	3	1000	6	1.34	1.04
2N4220A	72	.1	30	3	1000	6	1.60	1.25
2N4221	72	.1	30	6	2000	6	1.25	.97
2N4221A	72	.1	30	6	2000	6	1.51	1.18
2N4222	72	.1	30	15	2500	6	1.16	.90
2N4222A	72	.1	30	15	2500	6	1.42	1.11
2N4223	72	.25	30	18	3000	6	1.16	.90
2N4224	72	.5	30	20	2000	6	.89	.69
2N4338	18	.1	50	.6	600	7	1.64	1.27
2N4339	19	.1	50	1.5	800	7	1.42	1.10
2N4340	18	.1	50	3.6	1300	7	.85	.67
2N4341	18	.1	50	9	2000	7	.71	.55
2N4416	72	.1	30	15	4500	4	.67	.53
2N4416A	72	.1	35	15	4500	4	.....	1.90
2N4867	72	.25	40	1.2	700	25	3.36	2.63
2N4867A	72	.25	40	1.2	700	25	5.51	4.31
2N4868	72	.25	40	3	1000	25	3.36	2.63
2N4868A	72	.25	40	3	1000	25	5.51	4.31
2N4869	72	.25	40	7.5	1300	25	3.09	2.42
2N4869A	72	.25	40	7.5	1300	25	5.15	4.03
2N5457	92	1	25	5	1000	7	.48	.41
2N5458	92	1	25	9	1500	7	.42	.36
2N5459	92	1	25	16	2000	7	.42	.36
2N5484	92	1	25	5	3000	5	.44	.38
2N5485	92	1	25	10	3500	5	.48	.41
2N5486	92	1	25	20	4000	5	.48	.41
2N5556	72	.1	30	2.5	1500	6	1.85	1.45
2N5557	72	.1	30	5	1500	6	1.60	1.25
2N5558	72	.1	30	10	1500	6	1.48	1.16
2N5668	92	2	25	5	1500	7	.64	.55
2N5669	92	2	25	10	2000	7	.60	.51
2N5670	92	2	25	20	3000	7	.60	.51
J201	92	.1	40	1	500	5	.68	.58
J201-18	92	.1	40	1	500	5	.72	.62
J202	92	.1	40	4.5	1000	5	.58	.50
J202-18	92	.1	40	4.5	1000	5	.62	.53
J203	92	.1	40	20	1500	5	.66	.56
J203-18	92	.1	40	20	1500	5	.70	.60
J204	92	.1	25	.....	.....	5	.64	.55
J204-18	92	.1	25	.....	.....	5	.72	.62
J210	92	.1	25	15	4000	....	.68	.58
J211	92	.1	25	20	7000	....	.58	.50
J212	92	.1	25	40	7000	....	.70	.60
J230	92	.25	40	3	1000	....	.60	.51
J230-18	92	.25	40	3	1000	....	.70	.60
J231	92	.25	40	6	1500	.....	.60	.51
J231-18	92	.25	40	6	1500	.....	.70	.60
J232	92	.25	40	10	2500	.....	.60	.51
J232-18	92	.25	40	10	2500	.....	.64	.55
J270*	92	.2	30	15	6000	.....	.72	.61
J270-18*	92	.2	30	15	6000	.....	.80	.68
J271*	92	.2	30	50	8000	.....	.72	.61
J271-18*	92	.2	30	50	8000	.....	.80	.68

GENERAL PURPOSE JFET'S AND AMPLIFIERS (Con't'd)

Siliconix Type	Case TO-	Max. I_{GSS} nA	Min. BV_{GSS} V	Max. I_{DSS} mA	Min. g_{fs} μmho	Max. C_{iss} pF	Net Each, Lots of 1-99	Net Each, Lots of 100-999
J300	92	.5	25	30	4500	5.5	$0.68	$0.58
J304	92	.1	30	15	4500	.....	.58	.54
J305	92	.1	30	8	3000	.....	.54	.46
J308	92	1	25	60	8000	7.5	.72	.61
J309	92	1	25	30	10000	7.5	.74	.63
J310	92	1	25	60	8000	7.5	.78	.67
MPF102	92	2	25	20	2000	7	.30	.26
MPF108	92	1	25	24	2000	6.5	.40	.34
MPF109	92	1	25	24	800	7	.44	.38
MPF111	92	100	20	20	500	.....	.32	.28
MPF112	92	100	25	25	1000	.....	.40	.34
PN4117A	92	.001	40	.09	70	3	....	.56
PN4118A	92	.001	40	.24	90	3	....	.53
PN4119A	92	.001	40	.6	200	3	.58	.49
PN4302	92	1	30	5	1000	6	.58	.50
PN4302-18	92	1	30	5	1000	6	.64	.55
PN4303	92	1	30	10	2000	6	.56	.48
PN4303-18	92	1	30	10	2000	6	.64	.55
PN4304	92	1	30	15	1000	6	.56	.48
PN4304-18	92	1	30	15	1000	6	.64	.55
PN4416	92	1	30	15	4500	4	.40	.34
PN5163	92	10	25	40	2000	20	.30	.26
U308	52	.15	25	60	10000	7.5	1.54	1.19
U309	52	.15	25	30	10000	7.5	1.63	1.26
U310	52	.15	25	60	10000	7.5	1.63	1.26
U311	72	.15	25	60	10000	7.5	3.00	2.35
U312	52	.1	25	30	6000	5	2.64	2.07
U320	39	3	25	500	75000	30	6.80	5.32
U321	39	3	25	250	75000	30	6.98	5.46
U322	39	3	25	700	75000	30	6.80	5.32
U1837	92	.25	30	25	4500	6	.60	.51
U1994	92	.1	30	15	4500	4	.54	.46

*P-channel; all others N-channel.

HIGH RELIABILITY JFET's

Siliconix Type	Case TO-	Max. I_{GSS} nA	Min. BV_{GSS} V	Max. I_{DSS} mA	Min. g_{fs} μmhos	Max. C_{iss} pF	Net Each, Lots of 1-99	Net Each, Lots of 100-999
2N2608JAN	18	10	30	4.5	1000	17	$1.93	$1.51
2N2609JAN	18	30	30	10	2500	30	1.93	1.51
2N4091JAN	18	.1	40	.....	.....	16	1.57	1.23
2N4091JANTX	18	.1	40	.....	.....	16	2.41	1.88
2N4092JAN	18	.1	40	.....	.....	16	1.57	1.23
2N4092JANTX	18	.1	40	.....	.....	16	2.41	1.88
2N4093JAN	18	.1	40	.....	.....	16	1.57	1.23
2N4093JANTX	18	.1	40	.....	.....	16	2.41	1.88
2N4856JAN	18	.25	40	.....	.....	18	1.57	1.23
2N4856JANTX	18	.25	40	.....	.....	18	2.37	1.86
2N4856JANTXV	18	.25	40	.....	.....	18	8.06	6.30
2N4857JAN	18	.25	40	100	.....	18	1.57	1.23
2N4857JANTX	18	.25	40	100	.....	18	2.37	1.86
2N4857JANTXV	18	.25	40	100	.....	18	8.06	6.30
2N4858JAN	18	.25	40	80	.....	18	1.57	1.23
2N4858JANTX	18	.25	40	80	.....	18	2.37	1.86
2N4858JANTXV	18	.25	40	80	.....	18	8.06	6.30
2N4859JAN	18	.25	30	.....	.....	18	1.57	1.23
2N4859JANTX	18	.25	30	.....	.....	18	2.37	1.86
2N4859JANTXV	18	.25	30	.....	.....	18	8.06	6.30
2N4860JAN	18	.25	30	100	.....	18	1.57	1.23
2N4860JANTX	18	.25	30	100	.....	18	2.37	1.86
2N4860JANTXV	18	.25	30	100	.....	18	8.06	6.30
2N4861JAN	18	.25	30	80	.....	18	1.57	1.23
2N4861JANTX	18	.25	30	80	.....	18	2.37	1.86
2N4861JANTXV	18	.25	30	80	.....	18	8.06	6.30

MOSFET's

Siliconix Type	Case TO-	*	Max. $V_{GS(th)}$ V	Max. $I_{D(on)}$ mA	Min. BV_{DSS} V	Max. C_{iss} pF	Net Each, Lots of 1-99	Net Each, Lots of 100-999
3N163	72	E	5	30	40	2.5	$2.11	$1.65
3N164	72	E	5	30	30	2.5	2.11	1.65
MFE823	18	E	6	.....	25	6	3.35	2.77

*Operating mode: D, depletion; E, enhancement.

OUR STOCKS ARE FULLY UP TO DATE WITH ALL THE LATEST PRODUCTS.

ASK ABOUT NEW OR UNLISTED ITEMS.

N-CHANNEL DUAL FET's

Siliconix Type	Case TO-	Max. I_{GSS} nA	Min. BV_{GSS} V	Max. I_{DSS} mA	Min. g_{fs} μmho	Max. C_{iss} pF	Net Each, Lots of 1-99	Net Each, Lots of 100-999
2N3921	71	1	50	10	1500	18	$10.74	$8.40
2N3922	71	1	50	10	1500	18	7.16	5.60
2N3954	71	.1	50	5	1000	4	6.52	5.10
2N3954A	71	.1	50	5	1000	4	8.13	6.36
2N3955	71	.1	50	5	1000	4	4.55	3.56
2N3955A	71	.1	50	5	1000	4	7.77	6.08
2N3956	71	.1	50	5	1000	4	3.49	2.73
2N3957	71	.1	50	5	1000	4	3.22	2.52
2N3958	71	.1	50	5	1000	4	3.13	2.45
2N4084	71	1	50	10	1500	18	6.00	4.69
2N4085	71	1	50	10	1500	18	4.48	3.50
2N5045	71	.25	50	8	1500	8	8.84	6.92
2N5046	71	.25	50	8	1500	8	6.69	5.24
2N5047	71	.25	50	8	1500	8	5.37	4.20
2N5196	71	.025	50	7	1000	6	9.92	7.76
2N5197	71	.025	50	7	1000	6	6.69	5.24
2N5198	71	.025	50	7	1000	6	4.90	3.84
2N5199	71	.025	50	7	1000	6	3.47	2.72
2N5452	71	.1	50	5	1000	4	13.43	10.50
2N5453	71	.1	50	5	1000	4	10.02	7.84
2N5454	71	.1	50	5	1000	4	4.83	3.78
2N5515	71	.25	40	7.5	1000	25	10.67	8.34
2N5516	71	.25	40	7.5	1000	25	8.48	6.64
2N5517	71	.25	40	7.5	1000	25	5.35	4.19
2N5518	71	.25	40	7.5	1000	25	3.56	2.79
2N5519	71	.25	40	7.5	1000	25	3.56	2.79
2N5520	71	.25	40	7.5	1000	25	11.17	8.74
2N5521	71	.25	40	7.5	1000	25	10.63	8.32
2N5522	71	.25	40	7.5	1000	25	7.77	6.08
2N5523	71	.25	40	7.5	1000	25	4.74	3.71
2N5524	71	.25	40	7.5	1000	25	4.30	3.36
2N5545	71	.1	50	8	1500	6	8.48	6.64
2N5546	71	.1	50	8	1500	6	6.73	5.26
2N5547	71	.1	50	8	1500	6	4.46	3.49
2N5564	71	.1	40	30	7500	12	9.04	7.07
2N5565	71	.1	40	30	7500	12	6.25	4.89
2N5566	71	.1	40	30	7500	12	3.47	2.72
2N5902	78	.005	40	.5	70	3	11.22	8.78
2N5903	78	.005	40	.5	70	3	8.57	6.71
2N5904	78	.005	40	.5	70	3	5.05	3.95
2N5905	78	.005	40	.5	70	3	3.29	2.58
2N5906	78	.002	40	.5	70	3	10.42	8.15
2N5907	78	.002	40	.5	70	3	8.63	6.75
2N5908	78	.002	40	.5	70	3	5.23	4.09
2N5909	78	.002	40	.5	70	3	3.44	2.69
2N5911	78	.1	25	40	5000	5	8.09	6.33
2N5912	78	.1	25	40	5000	5	4.51	3.53
U231	71	.1	50	5	1000	6	6.34	4.96
U232	71	.1	50	5	1000	6	4.31	3.37
U233	71	.1	50	5	1000	6	2.76	2.16
U234	71	.1	50	5	1000	6	2.58	2.02
U235	71	.1	50	5	1000	6	2.40	1.88
U257	78	.1	25	40	5000	5	2.72	2.13
U401	71	.025	50	10	2000	8	10.02	7.84
U402	71	.025	50	10	2000	8	8.86	6.93
U403	71	.025	50	10	2000	8	6.18	4.83
U404	71	.025	50	10	2000	8	4.39	3.43
U405	71	.025	50	10	2000	8	3.94	3.08
U406	71	.025	50	10	2000	8	4.51	3.49
U410	71	.2	40	6	1000	....	4.05	3.13
U411	71	.2	40	6	1000	....	4.05	3.13
U412	71	.2	40	6	1000	....	3.11	2.44
U421	78	.0002	40	1	300	3	10.61	8.30
U422	78	.0002	40	1	300	3	9.56	7.48
U423	78	.0002	40	1	300	3	7.66	5.99
U424	78	.001	40	1.8	300	3	10.78	8.43
U425	78	.001	40	1.8	300	3	6.52	5.10
U426	78	.001	40	1.8	300	3	4.73	3.66
U430	99	.15	25	30	10000	7.5	6.80	5.32
U431	99	.15	25	60	10000	7.5	6.80	5.32
U440	71	.5	25	30	4500	....	3.52	2.72
U441	71	.5	25	30	4500	....	3.30	2.55

*Plastic mini-DIP.

JFET VOLTAGE CONTROLLED RESISTORS

Suffix denotes channel material.

Siliconix Type	Case TO-	Min-Max $V_{GS(off)}$ Volts	Min-Max $r_{DS(on)}$ Ohms	Net Each, Lots of 1-99	Net Each, Lots of 100-999
VCR2N	18	3.5–7.0	20–60	$2.14	$1.67
VCR3P	72	3.5–7.0	70–200	1.78	1.39
VCR4N	18	3.5–7.0	200–600	1.42	1.11
VCR5P	72	3.5–7.0	300–900	1.87	1.46
VCR7N	72	2.5–5.0	4000–8000	1.42	1.11

JFET's FOR SWITCHES, CHOPPERS AND COMMUTATORS

Siliconix Type	Case TO-	Max. I_{GSS} nA	Max. $I_{D(OFF)}$ nA	Min. BV_{GSS} V	Max. I_{DSS} mA	Max. C_{iss} pF	Net Each, Lots of 1-99	Net Each, Lots of 100-999
2N3824	72	.1	.1	50	.....	6	$0.82	$0.64
2N3966	72	.1	1	30	.....	6	3.30	2.58
2N3970	18	.25	.25	40	150	25	1.60	1.25
2N3971	18	.25	.25	40	75	25	2.14	1.67
2N3972	18	.25	.25	40	30	25	2.68	2.09
2N4091	18	.2	.2	40	.....	16	.79	.61
2N4092	18	.2	.2	40	.....	16	.79	.61
2N4093	18	.2	.2	40	.....	16	.84	.65
2N4391	18	.1	.1	40	150	14	.88	.68
2N4392	18	.1	.1	40	75	14	.88	.68
2N4393	18	.1	.1	40	30	14	.99	.77
2N4856	18	.25	.25	40	.....	18	.97	.68
2N4856A	18	.25	.25	40	.....	10	1.09	.76
2N4857	18	.25	.25	40	100	18	.97	.68
2N4857A	18	.25	.25	40	100	10	1.09	.76
2N4858	18	.25	.25	40	80	18	.97	.68
2N4858A	18	.25	.25	40	80	10	1.09	.76
2N4859	18	.25	.25	30	.....	18	.61	.48
2N4859A	18	.25	.25	30	.....	10	.68	.53
2N4860	18	.25	.25	30	100	18	1.00	.70
2N4860A	18	.25	.25	30	100	10	1.14	.80
2N4861	18	.25	.25	30	80	18	1.03	.72
2N4861A	18	.25	.25	30	80	10	1.20	.84
2N5018*	18	2	10	30	.....	45	2.64	2.07
2N5019*	18	2	10	30	.....	45	2.64	2.07
2N5114*	18	.5	.5	30	90	25	2.74	2.12
2N5115*	18	.5	.5	30	60	25	4.47	3.49
2N5116*	18	.5	.5	30	25	25	2.85	2.20
2N5432	52	.2	.2	25	.....	30	3.90	3.05
2N5433	52	.2	.2	25	.....	30	3.36	2.63
2N5434	52	.2	.2	25	.....	30	3.36	2.63
2N5555	92	1	10	25	.....	5	.68	.58
2N5638	92	1	1	30	.....	10	.52	.45
2N5639	92	1	1	30	.....	10	.58	.50
2N5640	92	1	1	30	.....	10	.58	.50
2N5653	92	1	1	30	.....	10	.68	.58
2N5654	92	1	1	30	.....	10	.62	.53
J105	92	3	3	25	.....	.....	2.30	1.96
J105-18	92	3	3	25	.....	.....	2.40	2.04
J106	92	3	3	25	.....	.....	2.40	2.04
J106-18	92	3	3	25	.....	.....	2.50	2.13
J107	92	3	3	25	.....	.....	2.50	2.13
J107-18	92	3	3	25	.....	.....	2.60	2.21
J108	92	3	3	25	.....	.....	.76	.65
J108-18	92	3	3	25	.....	.....	.86	.73
J109	92	3	3	25	.....	.....	.84	.71
J109-18	92	3	3	25	.....	.....	.94	.80
J110	92	3	3	25	.....	.....	.94	.80
J110-18	92	3	3	25	.....	.....	1.04	.88
J111	92	1	1	35	.....	.....	.54	.46
J111-18	92	1	1	35	.....	.....	.58	.50
J112	92	1	1	35	.....	.....	.56	.48
J112-18	92	1	1	35	.....	.....	.64	.55
J113	92	1	1	35	.....	.....	.56	.48
J113-18	92	1	1	35	.....	.....	.64	.55
J114	92	1	1	25	.....	.....	.62	.53
J174*	92	1	1	30	100	....	.56	.48
J174-18*	92	1	1	30	100	....	.64	.55
J175*	92	1	1	30	60	....	.50	.43
J175-18*	92	1	1	30	60	....	.66	.56
J176*	92	1	1	30	25	....	.58	.49
J176-18*	92	1	1	30	25	....	.66	.56
J177*	92	1	1	30	20	....	.58	.49
J177-18*	92	1	1	30	20	....	.70	.60
PN4391	92	1	1	40	150	14	.44	.38
PN4391-18	92	1	1	40	150	14	.52	.45
PN4392	92	1	1	40	75	14	.44	.38
PN4392-18	92	1	1	40	75	14	.52	.45
PN4393	92	1	1	40	30	14	.44	.38
PN4393-18	92	1	1	40	30	14	.50	.43
P1086	92	2	10	30	.....	45	.62	.53
P1086-18	92	2	10	30	.....	45	.68	.58
P1087	92	2	10	30	.....	45	.62	.53
P1087-18	92	2	10	30	.....	45	.68	.58
U200	18	1	1	30	25	30	2.02	1.58
U201	18	1	1	30	75	30	2.11	1.65
U202	18	1	1	30	150	30	2.11	1.65
U290	52	1	1	30	.....	60	7.30	5.71
U291	52	1	1	30	.....	60	6.58	5.15
U304*	18	.5	.5	30	90	27	3.00	2.35
U305*	18	.5	.5	30	60	27	3.00	2.35
U306*	18	.5	.5	30	25	27	3.00	2.35
U1897	92	.4	.2	40	.....	16	.32	.28
U1897-18	92	.4	.2	40	.....	16	.40	.34
U1898	92	.4	.2	40	.....	16	.40	.34
U1898-18	92	.4	.2	40	.....	16	.48	.41
U1899	92	.4	.2	40	.....	16	.56	.48
U1899-18	92	.4	.2	40	.....	16	.60	.51

*P-channel; all others N-channel. **Prices on request.

P- AND N-CHANNEL ENHANCEMENT MODE POWER MOSFET's

All units contain a gate-to-source Zener diode to protect the gate from static charge build up.

GENERAL PURPOSE

Siliconix Type	Case TO-	Max. V_{DSS} V	Min. $V_{GS(th)}$ V	Max. I_D A	Diss. W	Net Each, Lots of 1-24	25-99	100-999
2N6656	3	35	0.8	2.0	25	$6.87	$6.26	$5.37
2N6657	3	60	0.8	2.0	25	5.08	4.63	3.98
2N6658	3	90	0.8	2.0	25	6.87	6.26	5.37
2N6659	39	35	0.8	2.0	6.25	4.68	4.26	3.66
2N6660	39	60	0.8	2.0	6.25	2.38	2.17	1.86
2N6661	39	90	0.8	2.0	6.25	4.68	4.26	3.66
VN10KM	237	60	0.3	0.5	1*	.59	.59	.47
VN30AA	3	35	0.8	2	25	3.30	3.01	2.58
VN30AB	39	35	0.8	2	8.33	1.79	1.63	1.40
VN35AA	3	35	0.8	2.0	25	5.27	4.80	4.12
VN35AB	39	35	0.8	2.0	6.25	3.83	3.49	2.99
VN40AF	202	40	0.8	2.0	15	.69	.69	.55
VN46AF	202	40	0.8	2.0	12.5	.93	.93	.75
VN64GA	3	80	0.8	12.5	60	9.35	8.52	7.32
VN66AF	202	60	0.8	2.0	12.5	1.28	1.16	1.00
VN67AA	3	60	0.8	2.0	25	4.35	3.97	3.40
VN67AB	39	60	0.8	2.0	6.25	1.90	1.74	1.49
VN67AF	202	60	0.8	2.0	15	1.02	.93	.80
VN88AF	202	80	0.8	2.0	12.5	1.41	1.29	1.10
VN89AA	3	90	0.8	2.0	25	5.27	4.80	4.12
VN89AB	39	90	0.8	2.0	6.25	2.98	2.71	2.33
VN89AF	202	80	0.8	2.0	15	1.28	1.16	1.00
VN90AA	3	90	0.8	2.0	25	5.08	4.63	3.98
VN90AB	39	90	0.8	2.0	8.33	2.81	2.56	2.19
VN33AJ	3	35	0.8	2.0	25	5.85	5.33	4.58
VN35AJ	3	35	0.8	2.0	25	4.83	4.40	3.78
VN66AJ	3	60	0.8	2.0	25	4.83	4.40	3.78
VN67AJ	3	60	0.8	2.0	25	4.32	3.94	3.38
VN98AJ	3	90	0.8	2.0	25	5.85	5.33	4.58
VN99AJ	3	90	0.8	2.0	25	5.17	4.71	4.04
VN33AK	39	35	0.8	2.0	6.25	4.25	3.88	3.33
VN35AK	39	35	0.8	2.0	6.25	3.91	3.56	3.06
VN66AK	39	60	0.8	2.0	6.25	3.57	3.25	2.79
VN67AK	39	60	0.8	2.0	6.25	3.15	2.87	2.46
VN98AK	39	90	0.8	2.0	6.25	3.91	3.56	3.06
VN99AK	39	90	0.8	2.0	6.25	3.32	3.02	2.59
VMP4	380	60	0.8	2.0	35	19.21	17.52	15.03
VN99AB	39	90	.....	0.9	6.25	3.32	3.02	2.59
VQ1001P	DIP	30	.....	0.85	1.0	17.67	15.34	13.39
VQ2001P	DIP	30	.....	0.6	1.0	18.14	15.75	13.75
VQ3001P	DIP	30	.....	0.6	1.0	18.90	16.42	14.33
IRF330	3	400	2.0	4.0	.....	12.51	10.21	9.30
IRF331	3	350	2.0	4.0	.....	10.30	8.18	7.45
IRF332	3	400	2.0	3.5	.....	10.60	8.65	7.88
IRF333	3	350	2.0	3.5	.....	9.36	7.64	6.96
IRF431	3	450	2.0	3.5	.....	11.17	9.11	8.30
IRF433	3	450	2.0	3.0	.....	10.35	8.44	6.69

*At $T_A = 25°$ C.

RF N-CHANNEL ENHANCEMENT MODE VMOS FET's

Siliconix Type	Test Freq. MHz	Power Out Watts	Typ. Gain dB	Min. BV_{DSS} Volts	Net Each, Lots of 1-24	25-99
DV1202S	175	2.5	10	50	$10.18	$ 8.61
DV1202W	175	2.5	10	50	8.14	6.89
DV1205S	175	5.0	10	50	13.94	11.78
DV1205W	175	5.0	10	50	11.15	9.43
DV1210S	175	10	10	50	16.82	14.22
DV1210W	175	10	10	50	14.75	12.47
DV1220S	175	20	10	50	21.86	18.48
DV1220W	175	20	10	50	19.11	16.16
DV1230T	175	30	10	50	27.12	22.93
DV1230W	175	30	10	50	23.68	20.02
DV1240T	175	40	10	50	32.83	27.75
DV1240W	175	40	10	50	28.66	24.23
DV2805S	175	5	10	80	11.00	10.10
DV2805W	175	5	10	80	8.74	8.02
DV2810S	175	10	10	80	14.43	13.25
DV2810V	175	10	10	80	20.90	17.86
DV2810W	175	10	10	80	11.58	10.63
DV2810X	175	10	10	80	16.56	14.15
DV2820S	175	20	10	80	25.56	23.46
DV2820V	175	20	10	80	33.15	28.32
DV2820W	175	20	10	80	21.28	19.53
DV2820X	175	20	10	80	22.10	18.89
DV2840S	175	40	10	80	47.26	43.09
DV2840V	175	40	10	80	47.82	40.86
DV2840W	175	40	10	80	37.78	34.67
DV2840X	175	40	10	80	45.39	38.78
DV2880T	175	80	10	80	89.96	82.57
DV2880U	175	80	10	80	89.96	82.57
DV2880V	175	80	10	80	94.48	80.72
DV2880W	175	80	10	80	74.91	68.76
DV2880X	175	80	10	80	91.80	78.43
DV28120T	175	120	10	80	99.67	91.48
DV28120U	175	120	10	80	99.67	91.48
DV28120V	175	120	10	80	119.75	102.32

MICROPOWER LINEAR IC's

Siliconix Type	Description	Net Each, Lots of 1-24	25-99
L144AL	Triple op amp. ±1.5 to ±18 V supply.	$19.54	$15.61
L144AP	±30 V differential input.	19.54	15.61
L144BL	Internally compensated. 0.4 V/μsec slew rate.	★	★
L144BP	Programmable supply current.	11.74	9.38
L144CJ	Drives large capacitive loads.	7.01	5.60
L161AL	Quad comparator. ±1.5 to ±18 V supply.	12.53	10.01
L161AP	Programmable supply current.	11.81	9.43
L161BL	3 V/μsec slew rate. ±30 V	★	★
L161BP	differential input. Sensing near	5.94	4.74
L161CJ	ground. CMOS compatible.	3.29	2.63

★Price available on request.

TELECOMMUNICATIONS PRODUCTS

Siliconix Type	Description	Net Each, Lots of 1-24	25-99
DF320DJ	Loop disconnect dialer. 2.5 to 5 V supply.	$ 7.15	$ 7.15
DF320DP	On chip osc. for 3.579545 MHz crystal. Redial capability. Hold capability delays impulsing. Low power.	21.52	16.14
DF322DJ	Loop disconnect dialer. Power on reset.	14.30	14.30
DF322DP	Selectable impulsing speeds. Selectable interdigit pauses.	21.52	16.14
DF331ACJ	μ255 Law CODEC. Low power dissipation.	8.95	6.68
DF332ACJ	Up to 16 kHz sampling rate. Open drain output. Provisions for signaling bit insertion. Zero code suppression.	7.84	5.85
DF328DJ	Multi Opt. Loop Disconnect dialer. Power on reset. Selectable mark/space ratio, impulsing speeds.	4.28	3.71

INTERFACE

DF169AK	Dual high voltage complementary	24.00	24.00
DF169AP	driver. Accepts TTL input,	29.10	29.10
DF412CJ	drives VMOS. Four digit multiplexed BCD to LCD display driver.	8.00	6.40

ANALOG TO DIGITAL CONVERTERS

Siliconix Type	Description	Net Each, Lots of 1-24	25-99
LD130CJ	3 digit A/D converter. Accuracy 0.1% ±1 count Auto zero. Auto polarity. 1 mV resolution. Buffered input. Internal clock. Overflow and underrange signals. TTL compatible. 1 to 60 samples/sec. 18 pins.	$11.15	$11.15
LD110CJ	3½ digit A/D converter. Accuracy	7.12	5.68
LD111ACJ	0.05% ±1 count. Auto zero. Auto polarity. Overrange and underrange signals. TTL compatible. Two voltage ranges, 1.999 V and 199.9 V. ⅓ to 12 samples/sec. Mux'd BCD output. 16 pins.	7.12	5.68
LD114CR	Multiple option digital processor. Accuracy 0.15% ±1 count. Auto zero. Auto polarity. TTL compatible. External latch inhibit control. Two voltage ranges, 1.999 V and 199.9 V. ⅓ to 12 samples/sec. Mux serial or parallel output. Overrange and underrange signals. 512 output for PLL clock. 28 pins.	28.71	28.71
LD120CJ	4½ A/D converter. Accuracy	9.20	7.35
LD121CJ	0.005% ±1 count. Auto zero. Auto polarity. TTL compatible. Internal clock. 1 to 5 samples/sec. Mux. BCD outputs. Two voltage ranges, 2.0 V and 200.00 mV. Linear to 28,500 counts. 25% inter-digit blanking.	21.42	21.42

Siliconix incorporated Analog Switching Circuits

Siliconix integrated circuit part numbers include letter prefix which denotes function and letter suffixes denote temperature range and package style. Function Letter Prefix: **D,** driver for FET switch; **DG, DGM,** drivers with FET switches; **G,** multiple FET switch; **SI,** second source item. First Letter Suffix: **A,** −55° C to +125° C military service; **B,** −20° C to +85° C industrial service; **C,** 0° C to +70° C industrial service; **D,** −40° C to +85° C industrial service. Final Letter Suffix: **A,** round TO-5; **J,** plastic DIP; **K,** TO-116 ceramic DIP; **L,** TO-86 Flatpac; **P,** metal-ceramic TO-116 DIP; **R,** 24-32 lead DIP.

DRIVERS WITH FET SWITCHES

Siliconix Type	*	†	Switch Configuration and Control	FET Type Switch	Standard Supply Voltages V	Switch Time t_{ON} µs	Switch Time t_{OFF} µs	Input Logic Level for ON Switch	Net Each, Lots of 1-24	25-99	100-999
DGM111AL▪, P	2	2	SPST 2-channel	PMOS	+10, −20, +5	0.3	1.0	0	$35.05	$21.87	$18.65
DGM122AL▪, P	4	2	2-channel double-pole multiplexer	PMOS	+10, −20, +5, 0	0.3	2.0	1	49.87	31.12	26.53
DG123AL▪, P	5	1	5-channel separate control	PMOS	+10, −20, 0	0.3	1.0	1	50.37	31.43	26.79
DG125AL▪, P	5	1	5-channel switch	PMOS	+10, −20, +5	0.3	2.0	0	50.37	31.43	26.79
DG126AL, P	4	4	DPST 2-channel	N-JFET	+12, −18, 0	0.6	1.6	1	31.49	19.65	16.75
DG129AL, P	4	4	DPST 2-channel	N-JFET	+12, −18, 0	0.6	1.6	1	39.87	24.88	21.21
DG133AL, P	2	2	SPST 2-channel	N-JFET	+12, −18, 0	0.6	1.6	1	28.74	17.93	15.29
DG134AL, P	2	2	SPST 2-channel	N-JFET	+12, −18, 0	0.6	1.6	1	19.99	12.47	10.63
DG139AL, P	4	4	DPDT	N-JFET	+12, −18, 0	0.8	1.6	.....	39.87	24.88	21.21
DG140AL, P	4	4	DPST 2-channel	N-JFET	+12, −18, 0	1.0	2.5	1	49.87	31.12	26.53
DG141AL, P	2	2	SPST 2-channel	N-JFET	+12, −18, 0	1.0	2.5	1	37.99	23.71	20.21
DG142AL, P	4	4	DPDT	N-JFET	+12, −18, 0	0.8	1.6	.....	31.49	19.65	16.75
DG143AL, P	2	2	SPDT	N-JFET	+12, −18, 0	0.8	1.6	.....	19.99	12.47	10.63
DG144AL, P	2	2	SPDT	N-JFET	+12, −18, 0	0.8	1.6	.....	28.74	17.93	15.29
DG145AL, P	4	4	DPDT	N-JFET	+12, −18, 0	1.0	2.5	.....	49.87	31.12	26.53
DG146AL, P	2	2	SPDT	N-JFET	+12, −18, 0	1.0	2.5	.....	37.99	23.71	20.21
DG151AL, P	2	2	SPST 2-channel	N-JFET	+15, −15, 0	1.0	2.5	1	33.24	20.74	17.68
DG152AL, P	2	2	SPST 2-channel	N-JFET	+15, −15, 0	0.6	1.5	1	19.49	12.16	10.37
DG153AL, P	4	4	DPST 2-channel	N-JFET	+15, −15, 0	1.0	2.5	1	38.12	23.78	20.28
DG154AL, P	4	4	DPST 2-channel	N-JFET	+15, −15, 0	0.6	1.5	1	27.87	17.39	14.82
DG161AL, P	2	2	SPDT	N-JFET	+15, −15, 0	1.0	2.5	.....	33.24	20.74	17.68
DG162AL, P	2	2	SPDT	N-JFET	+15, −15, 0	0.8	1.5	.....	19.99	12.47	10.63
DG163AL, P	4	4	DPDT	N-JFET	+15, −15, 0	1.0	2.5	.....	38.12	23.78	20.28
DG164AL, P	4	4	DPDT	N-JFET	+15, −15, 0	0.8	1.5	.....	31.49	19.65	16.75
DG172AL▪, P	4	1	4-channel multiplexer	PMOS	+10, −20, +5, 0	0.3	0.75	0	45.93	28.66	24.43
DG180AA	2	2	SPST 2-channel	N-JFET	+20, −10, +5, 0	0.30	0.25	0	38.49	24.02	20.48
DG180AL▪, P	2	2	SPST 2-channel	N-JFET	+20, −10, +5, 0	0.30	0.25	0	47.62	29.71	25.33
DG181AA‡	2	2	SPST 2-channel	N-JFET	+10, −20, +5, 0	0.15	0.13	0	34.99	21.83	18.61
DG182AA‡	2	2	SPST 2-channel	N-JFET	+10, −20, +5, 0	0.15	0.13	0	32.24	20.12	17.15
DG183AL▪, P	4	4	DPST 2-channel	N-JFET	+20, −10, +5, 0	0.30	0.25	1	62.54	39.02	33.27
DG184AL▪, P‡	4	4	DPST 2-channel	N-JFET	+10, −20, +5, 0	0.15	0.13	1	57.99	36.19	30.85
DG185AL▪, P‡	4	4	DPST 2-channel	N-JFET	+10, −20, +5, 0	0.15	0.13	1	55.49	34.63	29.52
DG186AA	2	2	SPDT 1-channel	N-JFET	+20, −10, +5, 0	0.30	0.25	1	38.49	24.02	20.48
DG186AL▪, P	2	2	SPDT 1-channel	N-JFET	+20, −10, +5, 0	0.30	0.25	1	47.62	29.71	25.33
DG187AA‡	2	2	SPDT	N-JFET	+10, −20, +5, 0	0.15	0.13	.....	34.99	21.83	18.61
DG188AA‡	2	2	SPDT	N-JFET	+10, −20, +5, 0	0.15	0.13	.....	32.24	20.12	16.15
DG189AL▪, P	2	2	SPDT 2-channel	N-JFET	+20, −10, +5, 0	0.30	0.25	1	63.87	39.85	33.98
DG190AL, P‡	4	4	SPDT 2-channel	N-JFET	+10, −20, +5, 0	0.15	0.13	.....	57.99	36.19	30.85
DG191AL, P‡	4	4	SPDT 2-channel	N-JFET	+10, −20, +5, 0	0.15	0.13	.....	55.49	34.63	29.52
DG200AA♯	2	2	SPST 2-channel	CMOS	+15, −15, 0	1.0	0.5	0	16.35	10.20	8.70
DG200AP	2	2	SPST 2-channel	CMOS	+15, −15, 0	1.5	1.0	1	18.05	11.26	9.60
DG201AP	4	4	SPST 4-channel	CMOS	+15, −15, 0	1.5	1.0	1	23.80	14.85	12.66
DG501AP	8	1	8-channel MUX, binary decode plus enable	PMOS	+5, −22	1.0	0.6	1	26.93	16.80	14.32
DG503AP	8	1		PMOS	+10, −20	1.0	0.6	1	29.55	18.44	15.72
DG506AR♯•	16	1	16-channel DG501	CMOS	+15, −15, 0	1.5	1.0	1	57.05	35.60	30.35
DG507AR♯•	16	2	8-channel MUX, binary decode plus enable	CMOS	+15, −15, 0	1.5	1.0	1	57.05	35.60	30.35
DG508AP♯•	8	1		CMOS	+15, −15, 0	1.5	1.0	1	28.30	17.66	15.06
DG509AP♯•	8	2	4-channel SPST MUX, binary decode plus enable	CMOS	+15, −15, 0	1.5	1.0	1	28.30	17.66	15.06
DG300AA	2	2	SPST 2-channel	CMOS	+15, −15, 0	.3	.25	1	17.89	11.16	9.52
DG301AA	2	2	SPDT	CMOS	+15, −15, 0	.3	.25	.....	17.89	11.16	9.52
DG302AP	4	4	DPST 2-channel	CMOS	+15, −15, 0	.3	.25	1	32.99	20.59	17.55
DG303AP	4	4	SPDT 2-channel	CMOS	+15, −15, 0	.3	.25	.....	32.99	20.59	17.55
DG304AA	2	2	SPST 2-channel	CMOS	+15, −15, 0	.25	.15	1	17.89	11.16	9.52
DG305AA	2	2	SPDT	CMOS	+15, −15, 0	.25	.15	.....	17.89	11.16	9.52
DG306AP	4	4	DPST 2-channel	CMOS	+15, −15, 0	.25	.15	1	31.87	19.88	16.95
DG307AP	4	4	SPDT 2-channel	CMOS	+15, −15, 0	.25	.15	.....	31.87	19.88	16.95
DG381AA	2	2	SPST 2-channel	CMOS	+15, −15, 0	.3	.25	1	17.97	11.21	9.56
DG384AP	4	4	DPST 2-channel	CMOS	+15, −15, 0	.3	.25	1	39.49	24.64	21.01
DG387AA	2	2	SPDT	CMOS	+15, −15, 0	.3	.25	.....	17.97	11.21	9.56
DG390AP	4	4	SPDT 2-channel	CMOS	+15, −15, 0	.3	.25	.....	39.49	24.64	21.01

*Sources. †Drains. ‡Low power; fast break-before-make; constant "on" resistance. §Break-before-make-operation; 0.25 µs typical. ♯Complementary MOS; low power. •Break-before-make-operation. ▪Minimum order quantity of 100. ▲Contact factory.

Same as above except **B** temperature range (−20° C to +85° C).

Siliconix Type	Net Each, Lots of 1-24	25-99	100-999	Siliconix Type	Net Each, Lots of 1-24	25-99	100-999	Siliconix Type	Net Each, Lots of 1-24	25-99	100-999
DG180BA	$19.24	$12.01	$10.24	DG186BA	$19.24	$12.01	$10.24	DG200BA	$ 7.85	$ 4.90	$ 4.18
DG181BA	17.49	10.91	9.30	DG187BA	17.49	10.91	9.30	DG506BR	34.75	21.68	18.49
DG182BA	16.12	10.06	8.57	DG188BA	15.62	9.74	8.31	DG507BR	34.75	21.68	18.49
DG184BP	28.13	17.55	14.96	DG189BP	31.87	19.88	16.95	DG508BP	21.43	13.37	11.40
DG185BP	27.08	16.89	14.40	DG190BP	28.13	17.55	14.96	DG509BP	21.43	13.37	11.40
				DG191BP	27.87	17.39	14.82				

See preceding page for integrated circuit ordering information.

DRIVERS FOR PMOS FET SWITCHES

DTL, RTL and TTL compatible. MOS type SI3705 break-before-make switching.

Siliconix Type	Sources	Drains	Switch Configuration and Control	Standard Supply Voltage V	Switch Time t_{ON} µs	Switch Time t_{OFF} µs	Input Logic Level For ON Switch	Net Each, Lots of 1-24	25-99	100-999
SI3705142K*	8	1	SP8T and all OFF binary decode + enable	+5, −22	1.0	1.0	1	$15.99	$15.99	$11.18
SI3705143K*								14.56	14.56	10.18
SI3705192K†								13.27	13.27	9.28
SI3705193K†								12.13	12.13	8.48

*−55° C to +85° C. †0° C to +70° C.

MULTIPLE CHANNEL PMOS SWITCHES

For applications such as sequential switching (commutation), signal processing, modulation and A-to-D converters. The MOS FET is normally OFF and performs a SPST function. **A** Operating Temperature: −55° C to +125° C; BV_{DSS} = −30 V min.; $I_{S(OFF)}$ and I_{GSS} = −0.5 nA max.; $V_{GS(th)}$ = −2 V to −6 V; C_{gs} = 3.0 pF max.; C_{ds} = 0.4 pF max.; C_{sb} = 3.5 pF max. **B** Operating Temperature: −25° C to +85° C; BV_{DSS} = −25 V min.; $I_{S(OFF)}$ and I_{GSS} = −5.0 nA max.; $V_{GS(th)}$ = −2 V to −6 V; C_{ds} = 0.4 pF typ.; C_{sb} = 3.5 pF typ.

Siliconix Type	Sources	Drains	Gates	Switch Type and Description	Pull Up On Gate	Max. r_{DS} at 25° C Condition Best Ohms	Worst Ohms	Net Each, Lots of 1-24	25-99	100-999
G115AP	6	1	6	SP6T	Yes	100	450	$25.87	$16.14	$13.76
G118AL,	6	1	6	SP6T	No	100	450	25.87	16.14	13.76
G119AL	6	2	3	DP3T, 3-channel differential	Yes	100	450	25.87	16.14	13.76
G122AL	4	2	2	DPDT, 2-channel differential	Yes	100	450	21.24	13.25	11.30
G123AL	4	2	4	2 x SPDT	Yes	100	450	21.24	13.25	11.30
G123AP						100	450	21.24	13.25	11.30

DRIVERS FOR FET SWITCHES, LAMPS AND RELAYS

Siliconix Type	Function and Uses	Standard Supply Voltages	Net Each, Lots of 1-24	25-99	100-999
D123AL*, P	6 separate drivers	−20.0	$23.49	$14.66	$12.50
D125AL*, P		−20, +5	23.49	14.66	12.50
D129AL*, P	4-channel 50 V	−30, +5.0	35.24	21.99	18.75

*Price available on request.

CURRENT REGULATOR DIODES

Siliconix Type	Case TO-	I_f mA	I_f Tol. %	Max. V_L V	Min. Z_d Mohms	Net Each 1-99	100-999
CR022	18	0.22	10	1.00	13.0	$2.91	$2.50
CR024	18	0.24	10	1.00	10.0	2.91	2.50
CR027	18	0.27	10	1.00	9.0	2.91	2.50
CR030	18	0.30	10	1.00	8.0	2.91	2.50
CR033	18	0.33	10	1.00	6.6	2.91	2.50
CR039	18	0.39	10	1.05	4.1	6.78	5.82
CR043	18	0.43	10	1.05	3.3	2.91	2.50
CR047	18	0.47	10	1.10	2.7	2.91	2.50
CR056	18	0.56	10	1.20	1.9	2.91	2.50
CR062	18	0.62	10	1.30	1.55	2.91	2.50
CR068	18	0.68	10	1.15	1.35	2.60	2.23
CR075	18	0.75	10	1.20	1.15	2.60	2.23
CR082	18	0.82	10	1.25	1.00	2.60	2.23
CR091	18	0.91	10	1.29	0.88	2.60	2.23
CR100	18	1.00	10	1.35	0.80	5.23	4.49
CR110	18	1.10	10	1.40	0.70	2.97	2.55
CR120	18	1.20	10	1.45	0.64	2.47	2.12
CR130	18	1.30	10	1.50	0.58	2.60	2.23
CR140	18	1.40	10	1.55	0.54	2.60	2.23
CR150	18	1.50	10	1.60	0.51	2.60	2.23
CR160	18	1.60	10	1.65	0.475	2.60	2.23
CR180	18	1.80	10	1.75	0.42	2.60	2.23
CR200	18	2.00	10	1.85	0.395	9.11	7.82
CR220	18	2.20	10	1.95	0.37	2.47	2.12
CR240	18	2.40	10	2.00	0.345	2.47	2.12
CR270	18	2.70	10	2.15	0.32	2.47	2.12
CR300	18	3.00	10	2.25	0.30	2.32	1.99
CR330	18	3.30	10	2.35	0.28	2.40	2.06
CR360	18	3.60	10	2.50	0.265	2.40	2.06
CR390	18	3.90	10	2.60	0.255	2.47	2.12
CR430	18	4.30	10	2.75	0.245	2.47	2.12
CR470	18	4.70	10	2.90	0.235	2.89	2.48
CRR024	18	0.24	25	1.00	9.0	2.13	1.83
CRR036	18	0.36	25	1.05	4.1	2.13	1.83
CRR056	18	0.56	25	1.32	1.5	2.13	1.83
CRR080	18	0.8	25	1.39	0.8	2.13	1.83
CRR125	18	1.25	25	1.55	0.54	2.13	1.83
CRR195	18	1.95	25	1.95	0.37	1.98	1.70
CRR290	18	2.90	25	2.25	0.28	1.98	1.70
CRR430	18	4.30	25	2.95	0.225	1.98	1.70

CURRENT REGULATOR DIODES (CONTINUED)

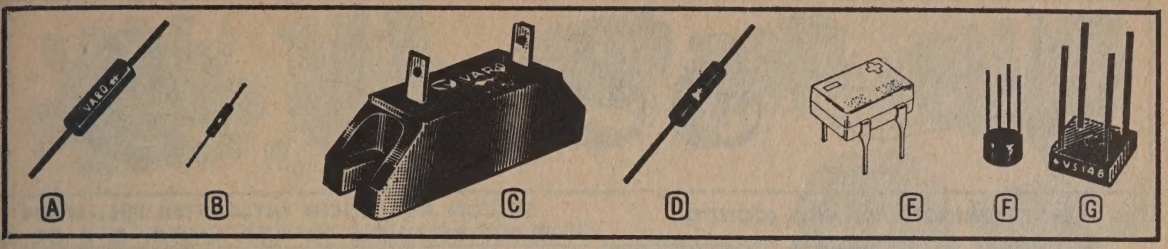
Siliconix Type	Case TO-	I_f mA	I_f Tol. %	Max. V_L V	Min. Z_d Mohms	Net Each 1-99	100-999
J500	92	0.24	20	1.20	5.0	$1.13	$0.93
J501	92	0.33	20	1.30	3.0	1.73	1.43
J502	92	0.43	20	1.50	2.0	1.73	1.43
J503	92	0.56	20	1.70	1.4	1.73	1.43
J504	92	0.75	20	1.90	1.0	1.73	1.43
J505	92	1.00	20	2.10	0.6	1.73	1.43
J506	92	1.40	20	2.50	0.4	1.84	1.52
J507	92	1.80	20	2.80	0.25	1.73	1.43
U508	18	0.31	20	1.10	4.10	1.96	1.62
J508	92	2.40	20	3.10	0.25	2.05	1.69
J509	92	3.00	20	3.50	0.20	1.73	1.43
J510	92	3.60	20	3.90	0.20	1.73	1.43
J511	92	4.70	20	4.20	0.15	1.96	1.62

LOW LEAKAGE JFET DIODES

Siliconix Type	Case TO-	Diode	Maximum I_R pA	Maximum BV_R Volts	Maximum C pF	Net Each, Lots of 1-99	100-999
DPAD1	72	Dual	1	120	0.8	$3.79	$2.97
DPAD2	72	Dual	2	120	0.8	3.29	2.58
DPAD5	72	Dual	5	120	0.8	3.01	2.35
DPAD10	72	Dual	10	...	2.0	2.79	2.18
DPAD20	72	Dual	20	...	2.0	2.33	1.82
DPAD50	72	Dual	50	...	2.0	1.97	1.54
DPAD100	72	Dual	100	...	2.0	1.79	1.40
JPAD50	92	Single	20	...	2.0	.60	.51
JPAD100	92	Single	50	...	2.0	.52	.44
JPAD200	92	Single	100	...	2.0	.48	.41
JPAD500	92	Single	500	...	2.0	.44	.37
PAD1	18	Single	1	120	0.8	1.57*	1.23#
PAD2	18	Single	2	120	0.8	1.47	1.15
PAD5	18	Single	5	120	0.8	1.43	1.12
PAD10	18	Single	10	...	2.0	1.39	1.09
PAD20	18	Single	20	...	2.0	1.25	.98
PAD50	18	Single	50	...	2.0	.89	.69
PAD100	18	Single	100	...	2.0	.76	.60

*Lots of 1–24. #Lots of 25–99.

Varo Silicon Rectifiers



DIFFUSED SILICON RECTIFIERS

SERIES VF HIGH VOLTAGE RECTIFIERS (FIG. A)

Compact, low cost rectifiers for high voltage, low current use. Epoxy encapsulated ¼″ round package with tinned copper leads. Fast Recovery types have 250 nsec max. reverse recovery time with I_F=2 mA and I_R=4 mA. **Half Cycle Surge:** 3 amps maximum at 60 Hz. **Operating Temperature:** −55° C to +150° C.

Varo No.	Av. I_o mA	PIV V	Lgth.	Standard Type V_F	Standard Type Net Ea., Lots 1-99	Standard Type Net Ea., Lots 100-999	Fast Recovery* V_F	Fast Recovery* Net Ea., Lots 1-99	Fast Recovery* Net Ea., Lots 100-999
VF5	130	5000	1″	10	$1.95	$1.67	12	$2.15	$1.83
VF7	115	7000	1″	12	2.08	1.77	16	2.29	1.94
VF10	100	10,000	1″	15	2.37	2.05	18	2.61	2.22
VF12	100	12,000	1″	18	2.67	2.27	22	2.93	2.49
VF15	90	15,000	2″	30	2.81	2.39	30	3.09	2.63
VF20	90	20,000	2″	32	3.59	3.05	25	3.94	3.35
VF25	85	25,000	2″	35	4.47	3.80	44	4.92	4.18
VF30	80	30,000	3″	45	5.37	4.57	48	5.89	5.01
VF40	45	40,000	3″	75	7.12	6.05	75	7.82	6.65
VF50	40	50,000	3″	80	8.17	6.94	90	8.97	7.63

*Add suffix **X** to Varo Number.

SERIES VA/VB HIGH VOLTAGE RECTIFIERS (FIG. B)

High reliability miniature rectifiers in epoxy encapsulated package. Low leakage current. Withstand 500G shock, 100 Hz vibration with peak acceleration of 10G. **DC Reverse Current:** .05 μA at PIV at 25° C (fast recovery types, 0.3 μA); 5.0 μA at 100° C (fast recovery, 60 μA). **Reverse Recovery:** Fast recovery types, 250 nsec. **Max. Half Cycle Surge:** 3 amps at 60 Hz. **Operating Temperature:** −55° to +150° C. **Size:** VA series, .060″ dia. x .150″ long; VB, .100″ dia. x 0.4″ long; leads 0.4″ long.

Varo No.	PIV V	Standard Type I_o mA	Standard Type V_F	Standard Type Net Ea., Lots 1-99	Standard Type Net Ea., Lots 100-999	Fast Recovery Type* I_o mA	Fast Recovery Type* V_F	Fast Recovery Type* Net Ea., Lots 1-99	Fast Recovery Type* Net Ea., Lots 100-999
VA10	1000	50	4	$1.49	$1.12	40	6	$1.96	$1.47
VA15	1500	50	4	1.57	1.19	40	6	2.10	1.58
VA20	2000	50	4	1.69	1.27	40	6	2.24	1.69
VA25	2500	50	4	1.81	1.37	20	8	2.38	1.80
VA30	3000	25	6	2.10	1.58	20	8	3.08	2.31
VA35	3500	25	6	2.92	2.19	.....	.....	2.14	1.56
VB10	1000	100	5	1.54	1.17	50	6	2.30	1.74
VB20	2000	100	5	1.73	1.31	50	6	2.71	2.06
VB30	3000	50	10	2.04	1.55	25	12	2.96	2.26
VB40	4000	50	10	2.22	1.70	25	12	3.45	2.62
VB50	5000	50	10	2.60	1.98	25	12	4.18	3.17
VB60	6000	50	10	2.83	2.16	.....	.....	4.63	3.51

*Add suffix **X** to Varo VA/VB Number.

SERIES VC HIGH VOLTAGE POWER RECTIFIERS (FIG. C)

High voltage, high current rectifiers with low leakage current; 1 to 2 amps average DC output. Epoxy encapsulated package. **DC Reverse Current:** Standard, 1 μA max. at 25° C, 40 μA max. at 100° C; Fast recovery, 2 μA max. at 25° C, 60 μA max. at 85° C. **Reverse Recovery:** Fast recovery types, 300 nsec. **Maximum Half Cycle Surge:** Standard, 50 amps at 60 Hz, non-recurrent; Fast recovery types, 35 amps. **Insulation Strength:** 10,000 VDC minimum. **Oper. Temp.:** −50° C to +125° C. **Size:** 3″ x ¼″ x ¼″.

Varo No.	PIV Volts	Standard Type V_F† V	Standard Type I_o Amps	Standard Type Net Ea., Lots 1-99	Standard Type Net Ea., Lots 100-999	Fast Recovery Type* V_F† V	Fast Recovery Type* I_o Amps	Fast Recovery Type* Net Ea., Lots 1-99	Fast Recovery Type* Net Ea., Lots 100-999
VC20	2000	4	2	$5.56	$4.28	4.8	2	$6.40	$4.92
VC30	3000	6	2	5.91	4.55	7.2	2	6.78	5.22
VC40	4000	8	2	6.26	4.82	9.6	2	7.19	5.53
VC50	5000	10	1.5	6.61	5.08	12.0	1.5	7.60	5.83
VC60	6000	12	1.5	6.96	5.35	14.4	1.5	7.99	6.15
VC70	7000	12	1.5	7.30	5.62	14.4	1.5	8.40	6.45
VC80	8000	14	1	7.65	5.89	16.8	1	8.80	6.76

*Add suffix **X** to Varo No. (e.g., VC20**X**). †At 100 mA.

SERIES VG HIGH VOLTAGE RECTIFIERS (FIG. D)

High voltage, medium current rectifiers with low leakage current in minimum sized epoxy encapsulated package. Withstand 500G shock, 100 Hz vibration with peak acceleration of 10G. **DC Reverse Current:** 1 μA at peak inverse voltage at 25° C. **Reverse Recovery:** Fast recovery types, 250 nsec. **Maximum Half Cycle Surge:** 3 amps at 60 Hz. **Operating Temperature:** Standard, −55° C to +150° C; Fast recovery, −55° C to +85° C. **Size:** .160″ dia. x 0.6″ lg.; leads 0.75″ long.

Varo No.	PIV Volts	Standard Type I_o mA	Standard Type V_F V	Standard Type Net Ea., Lots 1-99	Standard Type Net Ea., Lots 100-999	Fast Recovery Type* I_o mA	Fast Recovery Type* V_F V	Fast Recovery Type* Net Ea., Lots 1-99	Fast Recovery Type* Net Ea., Lots 100-999
VG1	1000	100	5	$0.89	$0.73	50	6	$0.94	$0.76
VG2	2000	100	5	.94	.76	50	6	.98	.79
VG3	3000	50	10	1.07	.85	25	12	1.09	.88
VG4	4000	50	10	1.14	.92	25	12	1.25	1.00
VG5	5000	50	12	1.34	1.07	25	14	1.47	1.17
VG7	7000	25	14	1.42	1.13	10	16	1.55	1.24
VG10	10000	25	20	1.62	1.29	10	24	1.78	1.42
VG12	12000	10	24	1.72	1.37	5	30	1.89	1.51
VG15	15000	10	30	1.91	1.53	5	36	2.11	1.68
VG20	20000	10	40	2.26	1.80	5	50	2.48	1.98

*Add suffix **X** to Varo No. (e.g., VG1**X**).

NOTE: If operated over 10,000 volts/inch in length, devices should be immersed in oil or re-encapsulated.

DIB 1 AMP DUAL-IN-LINE BRIDGE (FIG. E)

Miniature DIP package suitable for automatic handling, testing and inserting. Pins on standard 0.10″ grid spacing. Glass-passivated diodes. **Average DC Forward Current:** 1 Amp at T_A = 40° C. **Peak Surge Current:** 25 Amps, ½ cycle at 60 Hz. **Maximum DC Reverse Current** (per diode): 5 μA at T_A = 40° C; 0.5 mA at T_A = 150° C. **Forward Voltage Drop** (per diode): 1.2 Volts. **Operating/Storage Temperature:** −50° to +150° C. **Size:** .370″ l. x .240″ w. x .140″ d. Moisture-resistant epoxy case.

Varo No.	Fig.	Maximum V_{RM} (Wkg.) Volts	Maximum V_R (rms)	Maximum I_o Amp	Net Each, Lots of 1-24	Net Each, Lots of 25-99	Net Each, Lots of 100-999
VM08	E	50	35	1	$1.12	$0.92	$0.58
VM18	E	100	70	1	1.16	.97	.63
VM28	E	200	140	1	1.25	1.03	.66
VM48	E	400	280	1	1.33	1.10	.69
VM68	E	600	420	1	1.40	1.22	.77
VM88	E	800	560	1	1.95	1.62	1.02
VM108	E	1000	700	1	2.15	1.79	1.15

EPOXY BRIDGE RECTIFIERS

1-AMP I_o (FIG. F)

VE27, VE47 and VE67: Controlled avalanche types with 200 watts max. power dissipation in $V_{(BR)}$ region for 100 μsec; 1 watt continuous. **VE18, VE28, VE48 and VE68:** Non-controlled avalanche types. **VE18X, VE28X and VE48X:** Fast recovery types with 200 nsec max reverse recovery time. **Peak Surge Current:** 4 amps max., 1 sec at 60 Hz; one-cycle, 25 amps max. (non-recurrent). **Reverse Current:** 10 mA max. at 150° C; 10 μA DC at 40° C. **Operating/Storage Temp.:** −50° to +150° C. **Size:** .32″ dia. x .2″.

Varo No.	V_R/V_{RM} V	Max. V_R (RMS)	V_{FM} V/ Leg	Avalanche Volts Min.	Avalanche Volts Max.	Net Each, Lots of 1-24	Net Each, Lots of 25-99	Net Each, Lots of 100-999
VE27	200	140	1.2	250	700	$2.73	$2.22	$1.68
VE47	400	280	1.2	450	900	2.97	2.40	1.84
VE67	600	420	1.2	650	1100	3.64	2.92	2.22
VE18	100	70	1.2	.....	.....	2.08	1.67	1.23
VE28	200	140	1.2	.....	.....	2.27	1.84	1.39
VE48	400	280	1.2	.....	.....	2.18	2.00	1.52
VE68	600	420	1.2	.....	.....	2.96	2.48	1.87
VE18X	100	70	1.5	.....	.....	2.81	2.27	1.78
VE28X	200	140	1.5	.....	.....	3.10	2.51	1.98
VE48X	400	280	1.5	.....	.....	3.39	2.73	2.18

2-AMP I_o (FIG. G)

VS247, VS447 and VS647: Controlled avalanche types with 300 watts max. power dissipation in $V_{(BR)}$ region for 100 μsec; 1 watt continuous. **VS148, VS248, VS448 and VS648:** Non-controlled avalanche types. **VS148X, VS248X and VS448X:** Fast recovery types with 200 nsec max. reverse recovery time. **Peak Surge Current:** 8 amps, 1 sec at 60 Hz; one-cycle, 50 amps (non-recurrent). Fast recovery types, 6 amps, 1 sec; one-cycle, 35 amps. **Reverse Current:** 10 mA max. at 150° C; 10 μA DC at 40° C. **Insulation Strength:** 2000 VDC, circuit to case. **Operating/Storage Temperature:** −50° to +150° C. **Size:** .600″ sq. x .200″.

LISTING CONTINUED ON FOLLOWING PAGE

Varo Silicon Rectifiers

EPOXY BRIDGE RECTIFIERS (CONT'D.)

Varo No.	V_R/V_{RM} V	Max. V_R (rms)	V_{FM} V/ Leg	Avalanche Volts Min.	Avalanche Volts Max.	Net Each, Lots of 1-24	25-99	100-999
VS247	200	140	1.2	250	700	$2.57	$2.05	$1.56
VS447	400	280	1.2	450	900	2.78	2.23	1.77
VS647	600	420	1.2	650	1100	3.41	2.74	2.14
VS148	100	70	1.2	.....	.....	1.95	1.57	1.17
VS248	200	140	1.2	.....	.....	2.13	1.72	1.29
VS448	400	280	1.2	.....	.....	2.32	1.88	1.42
VS648	600	420	1.2	.....	.....	2.91	2.34	1.81
VS148X	100	70	1.5	.....	.....	3.10	2.50	1.98
VS248X	200	140	1.5	.....	.....	3.43	2.76	2.18
VS448X	400	280	1.5	.....	.....	3.74	2.62	2.39

6-AMP I_O (FIG. A)

VH247, VH447 and VH647: Controlled avalanche types with 400 watts max. power dissipation in $V_{(BR)}$ region for 100 μsec; 2 watts continuous. **VH148, VH248, VH448 and VH648:** Non-controlled avalanche types. **Peak Surge Current:** 25 amps, 1 sec at 60 Hz; one-cycle, 100 amps (non-recurrent). **Reverse Current:** 10 mA max. at 150° C; 10 μA at 40° C. **Insulation Strength:** 2000 VDC. **Oper./Storage Temp.:** −50° to +150° C. **Size:** .600″ sq. x .200″.

VH247	200	140	1.2	250	700	$3.81	$3.05	$2.40
VH447	400	280	1.2	450	900	4.39	3.51	2.75
VH647	600	420	1.2	650	1100	5.05	4.04	3.18
VH148	100	70	1.2	.....	.....	2.97	2.38	1.86
VH248	200	140	1.2	.....	.....	3.32	2.64	2.07
VH448	400	280	1.2	.....	.....	3.84	3.06	2.39
VH648	600	420	1.2	.....	.....	4.44	3.54	2.77

10-AMP I_O (FIG. A)

VJ247, VJ447 and VJ647: Controlled avalanche types with 400 watts max. power dissipation in $V_{(BR)}$ region for 100 μsec; 2 watts continuous. **VJ148, VJ248, VJ448 and VJ648:** Non-controlled avalanche types. **VJ148X, VJ248X, VJ448X and VJ648X:** Fast recovery types with 200 nsec (t_{rr}). **Peak Surge Current:** 30 amps, 1 sec at 60 Hz; one cycle, 100 amps (non-rec.). **Reverse Current:** 10 nA at 150° C. **Insulation Strength:** 1500 VDC. **Oper./Storage Temp.:** −50° to +150° C. **Size:** .600″ sq. x .200″.

VJ247	200	140	1.3	250	700	$4.90	$3.93	$3.07
VJ447	400	280	1.3	450	900	5.16	4.11	3.23
VJ647	600	420	1.3	650	1100	5.95	4.75	3.50
VJ148	100	70	1.3	.....	.....	3.84	3.07	2.41
VJ248	200	140	1.3	.....	.....	4.27	3.42	2.65
VJ448	400	280	1.3	.....	.....	4.53	3.61	2.80
VJ648	600	420	1.3	.....	.....	5.24	4.19	3.06
VJ148X	100	70	1.5	.....	.....	5.15	4.11	3.15
VJ248X	200	140	1.5	.....	.....	5.84	4.61	3.44
VJ448X	400	280	1.5	.....	.....	6.35	5.08	3.86
VJ648X	600	420	1.5	.....	.....	7.00	5.59	4.23

15 AMP AND 30 AMP EBR EPOXY BRIDGE RECTIFIERS (FIG. B)

VL Series, 15 A; VK Series, 30 A; both have controlled avalanche types with 600 W (VL) and 1500 W (VK) power dissipation in $V_{(BR)}$ region for 100 μsec. **Peak Surge Currents:** (VL) 30 A; (VK) 75 A for 1 sec. at 60 Hz, T_C = 80° C. **Reverse Current:** (VL) 5 μA at rated V_{RM}, T_J = 40° C; 0.5 mA at T_J = 175° C. (VK) 10 μA at rated V_{RM}, T_J = 40° C; 1 mA at T_J = 175° C. **Insulation Strength, circuit-to-case:** 2200 VDC. **Operating/Storage Range:** −50° C to +175° C. **Size:** .76″ square. Fast recovery types available.

Varo No.	Fig.	Maximum V_{RM} (Wkg.) Volts	Maximum V_R (rms)	Maximum I_O Amps	Maximum $V_{(BR)}$ Min.	Net Each, Lots of 1-24	25-99	100-999
VL048	B	50	35	15	...	$6.05	$4.84	$3.73
VL148	B	100	70	15	...	6.29	5.03	3.86
VL247	B	200	140	15	250	7.45	5.96	4.57
VL248	B	200	140	15	...	6.47	5.17	3.96
VL447	B	400	280	15	450	7.66	6.12	4.70
VL448	B	400	280	15	...	6.66	5.32	4.08
VL647	B	600	420	15	650	8.62	6.90	5.19
VL648	B	600	420	15	...	7.52	5.99	4.51
VL848	B	800	560	15	...	8.04	6.43	4.89
VL1048	B	1000	700	15	...	8.50	6.76	5.19
VK048	B	50	35	30	...	6.94	5.57	4.26
VK148	B	100	70	30	...	7.12	5.69	4.36
VK247	B	200	140	30	250	8.44	6.73	5.16
VK248	B	200	140	30	...	7.35	5.87	4.49
VK447	B	400	280	30	450	8.79	7.02	5.38
VK448	B	400	280	30	...	7.64	6.10	4.68
VK647	B	600	420	30	650	9.39	7.48	5.71
VK648	B	600	420	30	...	8.16	6.51	4.97
VK848	B	800	560	30	...	9.34	7.47	5.67
VK1048	B	1000	700	30	...	9.88	7.90	5.99

SILICON AVALANCHE INTEGRATED FULL-WAVE BRIDGE RECTIFIERS 10 AMP I_O (FIG. C, D OR E)

Electrically insulated welded package offers minimum size, minimum thermal resistance and maximum mounting ease. **Average DC Forward Current:** 10 amps at 100° C case temp. **Peak Surge Current:** 100 amps, one cycle at 60 Hz. **Avalanche Power Dissipation:** 600 watts, 100 μsec square wave. **Maximum DC Reverse Current:** .2 mA/leg, T_C = 160° C max. **Forward Voltage Drop:** 1.3 volts/leg at 10 amps. **Insulation Strength:** 2000 VDC min. **Operating/Storage Temperature:** −65° C to +160° C. **Size:** .752″ dia. x .405″ h. Terminals, .420″ long with .070″ dia. hole in each. Also available with flag terminals .400″ long x .187″ with .110″ dia. hole in each (add **/F** to Varo No.). **Mounting:** Press-fit, Fig. C; TO-3 flange, Fig. D (add **/T** to Varo No.); single stud, Fig. E (add **/S** to Varo No.).

Varo No.	Fig.	V_{RM} (Wkg.) Volts	Max. V_R (rms)	Avalanche Volts Min.	Avalanche Volts Max.	Net Each, Lots of 1-24	25-99	100-999
1N4436	C	200	140	250	500	$8.06	$6.43	$4.70
1N4437	C	400	280	450	700	9.64	7.67	5.63
1N4438	C	600	400	650	900	13.17	10.52	7.67

SILICON AVALANCHE INTEGRATED FULL-WAVE BRIDGE RECTIFIERS 25 AMP I_O (FIG. C, D OR E)

Electrically insulated welded package offers minimum size, minimum thermal resistance and maximum mounting ease. **Average DC Forward Current:** 25 amps at 100° C case temp. **Peak Surge Current:** 250 amps, one cycle at 60 Hz. **Avalanche Power Dissipation:** 1500 watts, 100 μsec square wave. **Maximum DC Reverse Current:** 5 mA/leg, T_C = 180° C. **Maximum Forward Voltage Drop:** 1.5 volts/leg at 25 amps. **Insulation Strength:** 2000 VDC min. **Operating/Storage Temperature:** −65° C to +160° C. **Size:** .752″ dia. x .405″ h. Available with flag terminals only, .400″ long x .187″ with .110″ dia. hole in each. **Mounting:** Press-fit, Fig. C; TO-3 flange, Fig. D; (add **/T** to Varo No.); single stud, Fig. E (add **/S** to Varo No.).

Varo No.	Fig.	V_{RM} (Wkg.) Volts	Max. V_R (rms)	Avalanche Volts Min.	Avalanche Volts Max.	Net Each, Lots of 1-24	25-99	100-999
VT200	C	200	140	250	700	$9.90	$7.90	$5.85
VT400	C	400	280	450	900	12.45	9.86	7.47
VT600	C	600	420	650	1100	17.43	13.86	10.00

HIGH EFFICIENCY RECTIFIERS

Rectifiers feature 20% non-repetitive reverse overvoltage protection, low thermal resistance, extremely low leakage at high temperature, high surge capability, very fast switching speeds, and glass passivation.

Varo No.	V_{RRM} Volts	V_R Volts	I_O Amps	I_{FSM} Amps	Fig.	Net Each, Lots 1-99	100-999
VHE1401	50	35	10	150	F	$ 1.50	$1.20
VHE1402	100	70	10	150	F	1.76	1.41
VHE1403	150	105	10	150	F	1.94	1.50
VHE1404	200	140	10	150	F	2.28	1.76
VHE2401*	50	35	20	150	G	2.30	1.84
VHE2402*	100	70	20	150	G	2.71	2.17
VHE2403*	150	105	20	150	G	2.98	2.30
VHE2404*	200	140	20	150	G	3.50	2.70
VHE701	50	35	30	500	H	5.16	3.45
VHE702	100	70	30	500	H	6.19	4.13
VHE703	150	105	30	500	H	6.68	4.46
VHE704	200	140	30	500	H	7.42	4.95
VHE2601*	50	35	50	500	I	7.75	5.17
VHE2602*	100	70	50	500	I	8.80	5.87
VHE2603*	150	105	50	500	I	9.97	6.65
VHE2604*	200	140	50	500	I	11.73	7.82
VHE801	50	35	70	1000	J	7.70	4.82
VHE802	100	70	70	1000	J	8.55	5.36
VHE803	150	105	70	1000	J	9.50	5.95
VHE804	200	140	70	1000	J	10.45	6.55

*Center-tapped.

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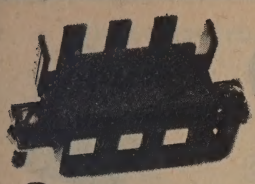
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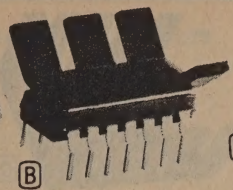
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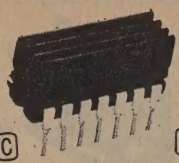
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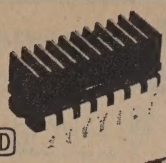
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FOR DIP PACKAGES—14 AND 16 PIN

Thermalloy Number	Fig.	Thermal Resis. °C/W	Features	Size (Inches) L. x W. x H.	Net Each, Lots of 1-24	25-99	100-499
6007A	A	20	2 Piece	1.24 x .750 x .370	$1.09	$0.83	$0.63
6010B	B	34	Epoxy bond	.75 x .604 x .212	.26	.20	.15
6011B	C	30	Epoxy bond	.75 x .250 x .190	.63	.48	.36
6012B	D	30	Epoxy bond	.73 x .250 x .190	.63	.48	.36
6020A	E	18	Snap-in	1.00 x .725 x .500	.72	.55	.42

FOR TO-5 PACKAGES

Two-piece heat sinks with 4-40 threaded mounting holes.

Thermalloy Number	Fig.	Thermal Resis. °C/W	Features	Size (Inches) Dia. x Hght.	Net Each, Lots of 1-24	25-99	100-499
2210A	F	46	Single thru hole	.625 x .407	$ 2.14	$1.62	$1.24
2210B	F	46	Single thru hole	.625 x .407	1.69	1.29	.98
3005A	G	.....	Matched pairs	1.250 x .375	11.73	8.91	6.80
2212B-5	I	30	Indiv. holes	1.062 x .375	3.62	2.75	2.10
2207/PR11B	J	40	Indiv. holes	.812 x .347	3.65	2.78	2.12

FOR TO-5 PACKAGES

Press-in-place, circular convection cooling flanges.

2224B*	K	92	.180" I.D.	.500 x .235	$0.65	$0.50	$0.38
2225B	L	46	.315" I.D.	.750 x .400	.65	.49	.38
2226B	M	54	.315" I.D.	.750 x .250	.60	.46	.35
2227B	N	21	.315" I.D.	1.250 x .400	1.32	1.01	.77
2228B	O	34	.315" I.D.	.875 x .531	1.03	.78	.59

*For TO-18 package.

FOR TO-5 PACKAGES

Press-in-place (except for 1101A and 1103A).

1116A	P	16♯	.315" I.D.	.351 x .370	$1.43	$1.08	$0.83
1116B	P	16♯	4-40 thd.	.351 x .400	.71	.54	.41
1130B	Q	15♯	4-40 thd.	.375 x .400	3.12	2.37	1.81
1131B	Q	15♯	10-32 stud	.875 x .493	3.53	2.68	2.05
1132B	Q	15♯	6-32 stud	.375 x .493	3.53	2.68	2.05
1101A	R	9.5♯	10-32 stud	.500 x .390	1.93	1.47	1.12
1103A	R	9.5♯	4-40 thd.	.500 x .390	2.05	1.56	1.19
1115B	S	68	.317" I.D.	.375 x .400	.30	.23	.17

♯Mounted on a 6" x 6" x 1/16" aluminum board.

GEAR TYPE HEAT SINKS FOR TO-5 PACKAGES

2257R	T	62	.318" I.D.	.500 x .250	$0.25	$0.19	$0.15
2230B-5	U	48	.317" I.D.	.750 x .250	.51	.39	.30

FOR TO-5 PACKAGES

Finned Pennysinks, outperform featherweights.

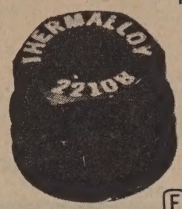
Thermalloy Number	Fig.	Thermal Resis. °C/W	Features	Size (Inches) L. x W. x H.	Net Each, Lots of 1-24	25-99	100-499
1136B	W	27	Low cost	.75 x .75 x .375	$0.33	$0.25	$0.19

INSUL-COTE

INSUL-COTE consists of a reliable THERMALFILM, mica or other insulator pre-coated with Thermalcote thermal grease, neatly packaged and heat sealed as necessary between two strips of 2¼" wide tape. One side of the tape is separated into pull tabs for easy opening, or the tape may be "peeled" lengthwise to expose the insulator.

Thermalloy Number	For Case Style	Net per 1000, Lots of 2000-4000	6000-8000	10000-24000
INSUL-COTE WITH THERMALFILM I				
43-03-1AP	TO-3	$154.70‡	$121.03‡	$91.00‡
43-03-2AP	TO-3	154.70‡	121.03‡	91.00‡
43-03-3AP	TO-3	154.70‡	121.03‡	91.00‡
43-03-4AP	TO-3	154.70‡	121.03‡	91.00‡
43-66-2AP	TO-66	154.70‡	121.03‡	91.00‡
43-77-2AP	Plastic power	154.70‡	121.03‡	91.00‡
INSUL-COTE WITH .002/.003" MICA				
56-03-2AP	TO-3	$141.10	$110.39	$83.00
56-66-2AP	TO-66	141.10	110.39	83.00
56-77-2AP	Plastic power	130.05	101.75	76.50

‡Per thousand.



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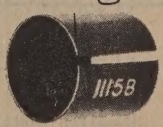

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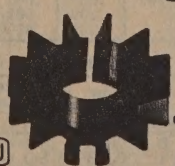
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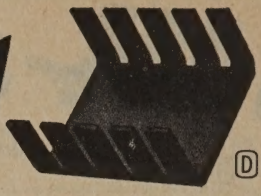
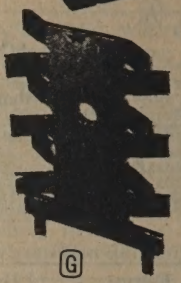
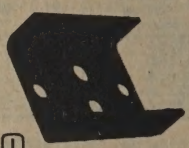
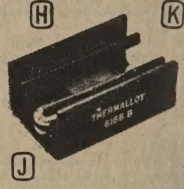
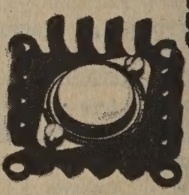










FOR PLASTIC PACKAGES

Labor saving, clip-on heat sinks.

Thermalloy Number	Fig.	Thermal Resis. °C/W	For Case Style	Size (Inches) L. x W. x H.	Net Each, Lots of 1-24	25-99	100-499
6038B	A	18	TO-220	1.0 x .50 x 1.18	$0.57	$0.43	$0.33
6047B	B	24	TO-202	.8 x .30 x .85	.27	.20	.16
6045B	C	26	TO-220	1.0 x .35 x .75	.41	.31	.24
6109PB	D*	17	TO-220	.71 x 1.00 x .50	.35	.27	.20
6110PB	D*	21	TO-220	1.18 x 1.00 x .50	.33	.25	.19

FOR PLASTIC PACKAGES

Thermalloy Number	Fig.	Thermal Resis. °C/W	Features	Size (Inches) L. x W. x H.	Net Each, Lots of 1-24	25-99	100-499
6106B	D	17	2 s/c devices	1.18 x 1.0 x .50	$0.42	$0.32	$0.24
6030B†	F	13	Vert. mount	1.0 x .50 x 1.187	.45	.34	.26
6025B†	G	22	Vert. mount	.875 x .25 x 1.25	.33	.25	.19

†Available with tinned tabs.

FOR TO-3 AND TO-66 PACKAGES

High-performance coolers.

Thermalloy Number	Fig.	Thermal Resis. °C/W	Style	Size (Inches) L. x W. x H.	Net Each, Lots of 1-24	25-99	100-499
6060B	H	7	TO-3/66	2.0 x 1.75 x .375	$0.40	$0.30	$0.23
6061B	H	6	TO-3/66	2.0 x 2.25 x .375	.45	.34	.26
6103B	I	11	TO-3	1.531 x 1.25 x .515	1.23	.93	.71
6103C	I	13	TO-3	1.531 x 1.25 x .515	.95	.72	.55
6166B	J	14	TO-66	1.312 x .89 x .609	1.26	.96	.73
6168B	J	14	TO-66	1.312 x .89 x .609	1.36	1.04	.79
6013B	K	9.7	TO-3	1.88 x 1.4 x .500	.73	.55	.42
6014B	K	7.2	TO-3	1.88 x 1.4 x .75	.80	.61	.46
6015B	K	5.3	TO-3	1.88 x 1.4 x 1.0	.88	.67	.51
6016B	K	4.3	TO-3	1.88 x 1.4 x 1.25	.95	.72	.55
6001B-2	L	7.2	TO-3	1.81 x 1.81 x .50	1.11	.84	.64
6002B-2	L	6.1	TO-3	1.81 x 1.81 x .75	1.29	.98	.75
6003B-2	L	5.2	TO-3	1.81 x 1.81 x 1.0	1.47	1.12	.85
6004B-2	L	4.2	TO-3	1.81 x 1.81 x 1.25	1.62	1.23	.94
6051B	N	7.4	TO-3	1.78 x 1.78 x .50	.68	.51	.39
6052B	N	5.9	TO-3	1.78 x 1.78 x .75	.88	.67	.51
6053B	N	4.4	TO-3	1.78 x 1.78 x 1.0	1.00	.76	.58
6054B	N	3.3	TO-3	1.78 x 1.78 x 1.25	1.20	.91	.70

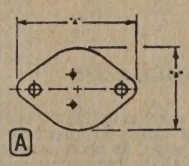
*With 6-32 mounting stud(s) swaged in place.

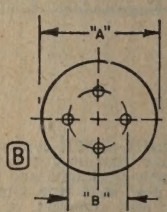
SEMICONDUCTOR INSULATORS

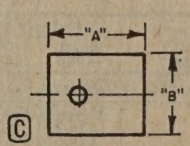
THERMALFILM INSULATORS

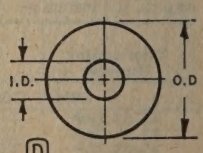
Thermalfilm I plastic insulators are .002" thick and will not crack, peel, chip or fracture. 5400 volts/mil. −260° C to +400° C.

Thermalloy No.	Fig.	For Case Style	Size (Inches) A	Size (Inches) B	Net per 1000, Lots of 1000-4000	5000-9000	10000-24000
43-03-1	A	TO-3	1.730	1.250	$64.13	$44.89	$33.75
43-03-2	A	TO-3	1.655	1.063	64.13	44.89	33.75
43-03-3	A	TO-3	1.655	1.063	64.13	44.89	33.75
43-03-4	A	TO-3	1.563	1.050	64.13	44.89	33.75
43-05-1	B	TO-5	.390	.200	36.04	25.23	18.97
43-18-1	B	TO-18	.250	.100	36.04	25.23	18.97
43-66-1	A	TO-66	1.312	.762	55.63	38.94	29.28
43-66-2	A	TO-66	1.312	.762	55.63	38.94	29.28
43-77-2	C	Plas. pwr.	.687	.562	36.04	25.23	18.97
43-02-10	D	Stud	.203	.562	36.04	25.23	18.97
43-02-25	D	Stud	.265	.812	47.37	33.16	24.93









ALUMINUM OXIDE AND BERYLLIUM OXIDE INSULATORS

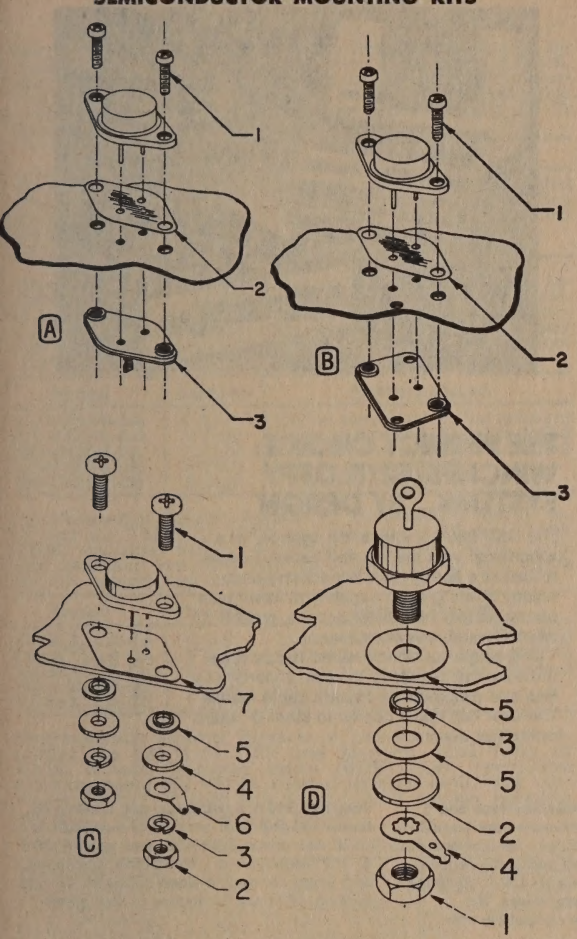
Thermalloy No. Beryl. Oxide	Thermalloy No. Aluminum Oxide	Fig.	For Case Style	Size (Inches) A	Size (Inches) B	Net Each, Lots of 1-24	25-99	100-499
4005	.....	B	TO-5	.360	.200	$1.00	$0.77	$0.63
4003	.....	A	TO-3	1.561	1.050	5.68	4.35	3.58
4066	.....	A	TO-66	1.250	.700	3.91	2.99	2.46
B470-235-40	.....	D	.....	.233	.470	1.89	1.45	1.19
B800-260-62	.....	D	.....	.260	.800	4.82	3.69	3.04
.....	4103	A	TO-3	1.561	1.050	1.44	1.11	.91
.....	4166	A	TO-66	1.250	.700	.98	.75	.62

HARD ANODIZED ALUMINUM

Hard coated per MIL-A8625 Type III. .020" thick aluminum. 400 VDC.

Thermalloy Number	Fig.	For Case Style	Size (Inches) A	Size (Inches) B	Net Each, Lots of 1-24	25-99	100-499
4726A	A	TO-3	1.793	1.063	$0.41	$0.31	$0.23
4703A	A	TO-3	1.793	1.063	.41	.31	.23

SEMICONDUCTOR MOUNTING KITS



MOUNTING KITS WITH SOCKETS

Thermalloy Number	Fig.	For Case Style	Net Each, Lots of 1-24	25-99	100-499
4875	A	TO-3	$1.19	$0.90	$0.69
4876	B	TO-3	1.13	.86	.65
MOUNTING KITS WITHOUT SOCKETS					
4804	C	TO-3	$1.43	$1.08	$0.83
4813	C	TO-66	1.43	1.08	.83
4860	D	DO-4	1.43	1.08	.83
4870	D	DO-5	1.43	1.08	.83

THERMALCOTE THERMAL JOINT COMPOUND

Non-toxic insulating thermal joint compound improves transfer of heat energy across metal-to-metal surfaces between transistor or rectifier case and heat sink. Conducts heat approximately 30 times better than air and more than 4 times better than silicon grease. Opaque, white compound is stable—neither cakes nor runs from −40° F to +400° F.

Thermalloy Number	Description	Net Each, Lots of 1-24	25-99	100-499
249	1 oz. tube	$ 2.88	$2.43	$1.86
250	2 oz. jar	3.96	3.34	2.55
251	1 lb. can	10.49	8.85	6.76

THERMALBOND THERMALLY CONDUCTIVE EPOXY ADHESIVE

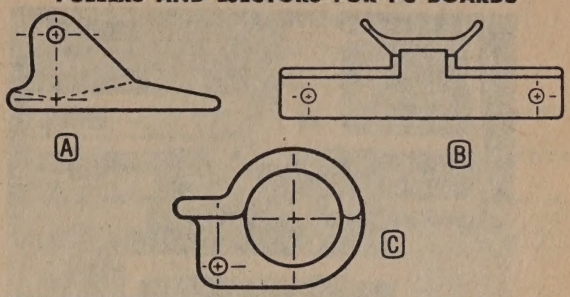
Provides exceptional adhesion and has a coefficient of thermal expansion compatible with aluminum, copper and brass. Excellent for thermally bonding semiconductors and other components to chassis or heat sinks.

Thermalloy No. 4951 3½ oz. jar—Net Each, Lots of 1–24 ..... **$ 9.72**

Thermalloy No. 4952 7 oz. jar—Net Each, Lots of 1–24. **$11.81**

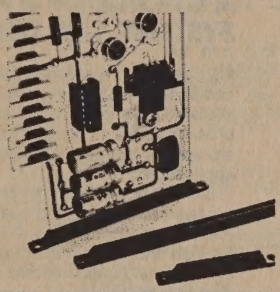
PRICES SUBJECT TO CHANGE WITHOUT NOTICE

PULLERS AND EJECTORS FOR PC BOARDS



Thermalloy Number	Fig.	Description	Net Each, Lots of 1-24	25-99	100-499
5005-08N	A	Ejector	$0.31	$0.24	$0.18
5005-09N	B	Puller	.38	.29	.22
5005-25N	C	Ejector-puller	.38	.29	.22

CARD GUIDES



Thermalloy Number	Size (Inches) L. x W. x H.	Net Each, Lots of 1-24	25-99	100-499
8827-2	2.00 x .23 x .21	$0.38	$0.29	$0.22
8827-3	3.50 x .23 x .21	.43	.32	.25
8827-5	5.00 x .23 x .21	.38	.29	.22

SEMICONDUCTOR LEAD-CONVERSION PADS

Thermalloy Number	Converts Lead Spacing From	To	No. of Leads	Size (Inches) O.D. x Max. Thck.	Price* Code
7717-7	TO-18	TO-5	4	.250 x .125	B
7717-43	TO-18	TO-5	4	.275 x .050	A
7717-44	TO-18	TO-5	4	.305 x .125	A
7717-93	TO-18	.150″*	4	.195 x .065	A
7717-2	.100″*	.200″*	3	.305 x .125	A
7717-130	.05 in-line	TO-5	3	.230 x .040	A
7717-107	.200″*	.350″*	8	.430 x .130	B
7717-19	.200″*	.400″*	8	.500 x .275	C
7717-21	.200″*	.400″*	10	.500 x .275	C
7717-119	.200″*	.420″*	10	.500 x .275	C

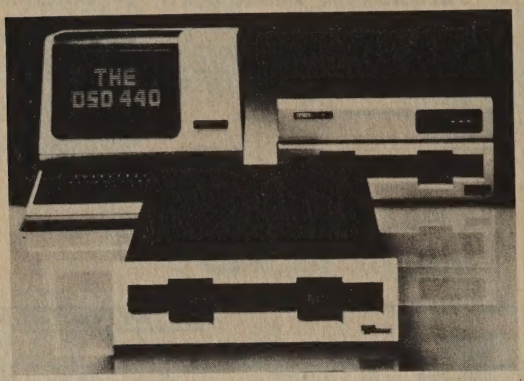
*Circle diameter.

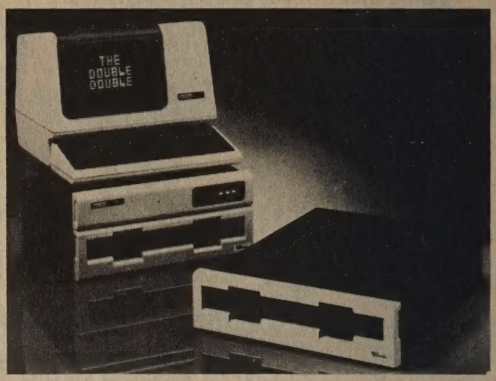
SEMICONDUCTOR MOUNTING PADS

Thermalloy Number	For Case Style	No. of Leads	Size (Inches) O.D. x Max. Thck.	Price* Code
7717-16	TO-18	4	.200 x .020	A
7717-18	TO-18	4	.200 x .060	A
7717-46	TO-18	4	.200 x .060	A
7717-89	TO-18	4	.250 x .080	A
7717-3	TO-5	3 or 4	.344 x .075	A
7717-4	TO-5	4	.375 x .075	A
7717-5	TO-5	4	.350 x .125	A
7717-15	TO-5	4	.350 x .020	A
7717-22	TO-5	3	.343 x .075	A
7717-79	TO-5	3	.355 x .038	A
7717-122	TO-5 IC	8	.365 x .070	A
7717-86	TO-5	3	.343 x .075	A
7717-8	TO-5 IC	8	.375 x .075	A
7717-10	TO-5 IC	10	.375 x .075	B
7717-30	TO-5 IC	10	.375 x .075	A
7717-38	TO-5 IC	8	.375 x .075	B
7717-81	TO-5	8	.290 x .125	B
7717-81	TO-18	6	.290 x .125	B

★ PRICE CODES (NYLON)

Price Code	Net per 1000, Lots of 500-900	1000-4900	5000-9900	10000-24900
A	$ 82.80	$ 55.20	$ 41.40	$34.50
B	92.40	61.60	46.20	38.50
C	230.40	153.60	115.20	96.00





A CHOICE OF 4 FLOPPY SYSTEMS...BY DESIGN

We offer you the broadest selection of DEC®-compatible floppy disk storage systems available. And that's important, because a broader selection enables you to match data storage to your specific needs and applications.

All DSD floppy systems provide built-in hardware bootstrap and complete DEC RX02 compatibility. They offer a low profile 5¼ inch chassis, choice of domestic and international configurations, and complete documentation.

THE PERFECT CHOICE: WINCHESTER/FLOPPY SYSTEMS...BY DESIGN

The DSD 880 combines the capacity of a winchester with the I/O and back-up capabilities of a floppy disk. Winchester technology offers greater capacity at lower cost per megabyte with faster access, greater reliability and less maintenance.

The single- or double-sided floppy drive provides the capability to copy important files and programs on transportable media. The user can make copies to store or share with other users.

Choose DSD 430 for lowest entry cost. Our lowest-cost floppy system gives you a pair of single-sided, double-density drives for DEC LSI-11. Don't let the low price scare you. DSD 430 offers full RX02 compatibility with built-in hardware bootstrap and complete LSI-11/23 four-level interrupt support.

Choose DSD 440 for high reliability and ease of service. If you are looking for the best in single-sided floppy systems for your LSI-11 *or* PDP®-11, you'll want DSD 440. The big plus is extensive stand-alone self-testing HyperDiagnostics™ that simplify troubleshooting.

Choose DSD 470 for low-cost double-sided drives. It is a double-sided, double-density floppy system with twice the capacity of DEC RX02. DSD 470 can be configured to use single- or double-sided diskettes.

Choose DSD 480 for double-sided drives and IBM/DEC file exchange. This intelligent floppy system includes HyperDiagnostics for selectable self-testing and display. And with our optional software program, EXCHNG™ (available on diskette), the DSD 480 can translate IBM formatted files written on IBM machines to DEC format and vice versa.

Choose DSD 4140 controller/interface board with confidence. We've unbundled our popular dual wide DSD 4140 controller/interface board for OEMs who have unique packaging requirements. The DSD 4140 interfaces LSI-11 computers to a pair of eight-inch floppy drives. The controller/interface is fully compatible with RX02 hardware.

The DSD 880 is a better buy and a better fit than RX02 and RL01 combos or dual RL01 or RL02 disk drives. DSD 880 gives you 7.8, 20.8 or 31.2 megabytes of ultra-reliable winchester with single- or double-sided floppy for I/O and backup. All in just 5¼ inches of rack space.

Choose the features you want	DSD 430	DSD 440	DSD 470	DSD 480	DSD 880 D/xx	DSD 880 S/xx
Self-testing HyperDiagnostics		■		■	■	■
Single board controller/interface	■		■			
LSI-11 interface	■	■	■	■	■	■
PDP-11 interface		■		■	■	■
IBM/DEC file exchange				■		
LSI-11/23 multi-level interrupt support	■		■		■	■
RX01 emulation		■		■		
RX02 emulation	■	■	■	■	■	■
RL01/RL02 emulation					■	■
Capacity (MB)	1	1	2	2	8.8 21.8 32.2	8.3 21.3 31.7

PRICES LISTED ARE FOR GUIDANCE ONLY

PACKAGED SYSTEMS

SYSTEM

Microcomputer General Purpose or Development System including the LSI-11/2 CPU and memory, 64K byte MOS RAM, extended arithmetic chip, bootstrap loader, 4-serial-line interface board, cable, disk controller, two 5.2M byte removable cartridge disk drives (RL01), cabinet assembly, and RT-11 Real-Time operating system.

System	Terminal	Software Support
SR-VXLLB-AA	LA38	Digital supported/digital installed
SR-VXLLB-BA	VT100	Digital supported/digital installed
SR-VXLLB-CA	LA120	Digital supported/digital installed
SR-VXLLB-BK	VT100	License to copy RT-11
SR-VXLLB-CK	LA120	License to copy RT-11

Microcomputer General Purpose or Development System including the LSI-11/2 CPU and memory, 64K byte MOS RAM, extended arithmetic chip, bootstrap loader, 4-serial-line interface board, cable, floppy disk controller, dual drive floppy disk with 1.0M byte capacity (RX02) disk interface, cabinet assembly, and RT-11 Real-Time operating system.

System	Terminal	Software Support
SR-VXSSB-AA	LA38	Digital supported/digital installed
SR-VXSSB-BA	VT100	Digital supported/digital installed
SR-VXSSB-CA	LA120	Digital supported/digital installed
SR-VXSSB-BK	VT100	License to copy RT-11
SR-VXSSB-CK	LA120	License to copy RT-11

Microcomputer General Purpose or Development System including the LSI-11/23 CPU and memory, 128K byte MOS RAM, bootstrap loader, 4-serial-line interface board, cable disk controller, two 5.2M byte removable cartridge disk drives (RL01), cabinet assembly, and RT-11 Real-Time system.

System	Terminal	Software Support
SR-WXLLA-AA	LA38	Digital supported/digital installed
SR-WXLLA-BA	VT100	Digital supported/digital installed
SR-WXLLA-CA	LA120	Digital supported/digital installed
SR-WXLLA-BK	VT100	License to copy RT-11
SR-WXLLA-CK	LA120	License to copy RT-11

Microcomputer General Purpose or Development System including the LSI-11/23 CPU and Memory, 128K bytes of RAM, console, bootstrap loader (BDV11-AA), 4-serial-line interface board (DLV11-J), console terminal cable, disk controller (RLV11), 2 hard disk drives (RL02), cabinet assembly, and RT-11 real-time operating system.

System	Terminal	Software Support
SR-WXMMA-AA	LA38	Digital supported/digital installed
SR-WXMMA-BA	VT100	Digital supported/digital installed
SR-WXMMA-CA	LA120	Digital supported/digital installed
SR-WXMMA-BK	VT100	License to copy RT-11
SR-WXMMA-CK	LA120	License to copy RT-11

Microcomputer General Purpose; or Development System including the LSI-11/23 CPU and memory. 128K byte MOS RAM, bootstrap loader, 4-serial-line interface board, cable, floppy disk controller, dual drive floppy disk with 1.0M byte capacity (RX02) disk interface, cabinet assembly, and RT-11 Real-Time operating system.

System	Terminal	Software Support
SR-WXSSA-AA	LA38	Digital supported/digital installed
SR-WXSSA-BA	VT100	Digital supported/digital installed
SR-WXSSA-CA	LA120	Digital supported/digital installed
SR-WXSSA-BK	VT100	License to copy RT-11
SR-WXSSA-CK	LA120	License to copy RT-11

BOX

LSI-11/2 CPU with 32K or 64K byte RAM memory, power supply, fixed and floating point instruction set (KEV11), bootstrap/diagnostic/PROM module (BDV11-AA), and 4×9 backplane (H9273) in rack-mountable chassis. Expansion space of six dual or three quad slots.

System	Memory
11/03-LH	32K byte
11/03-LJ	32K byte
11/03-LK	64K byte
11/03-LL	64K byte

LSI-11/23 CPU with 128K or 256K byte RAM memory. Power supply, bootstrap/diagnostic/PROM/terminator module (BDV11-AA), 4-serial-line interface board (DLV11-J), and 4×9 backplane (H9273) in rack-mountable chassis. Expansion space of four dual or two quad slots. (11/23-AB, 11/23-AD is 220V).

System	Memory
11/23-AA	128K byte
11/23-AB*	128K byte
11/23-AC	256K byte
11/23-AD*	256K byte

*For 220 VAC operation; others 110 VAC.

MICROPROCESSOR BOARDS

(All modules are dual height unless otherwise noted)

LSI-11/2

KD11-HA LSI-11/2 Central Processor Unit (CPU).
One module.

KD11-HF LSI-11/2 plus 8K bytes of RAM.
Two modules.

KD11-GF LSI-11/2 CPU plus 8K byte multifunction option module.
Two modules.

KD11-GC LSI-11/2 CPU plus 32K byte multifunction option module.
Two modules.

KD11-RD LSI-11/2 CPU plus 32K byte multifunction option MXV11 modules. Includes license to copy RT2 for use on a single CPU. Prerequisites: license to use RT-11 (V4 or later); 64K byte total RAM.
Three modules.

LSI-11/23

KDF11-AA LSI-11/23 Central Processor Unit (CPU) with Memory Management Unit (MMU).
One module.

KDF11-AC LSI-11/23 Central Processor Unit.
One module.

KDF11-HK LSI-11/23 with MMU plus 256K byte RAM (MSV11-DD, qty 4).
Five modules.

KDF11-LK LSI-11/23 with MMU plus 256K byte RAM (MSV11-LK).
Two modules.

KDF11-RD LSI-11/23 CPU plus two 32K byte multifunction option modules. Includes license to copy RT² for use on a single CPU.
Prerequisites: license to use RT-11 (V4 or later). CPU permits addressing to 64K bytes maximum. MMU not included. 64K byte total RAM.
Three modules.

KDF11-RE LSI-11/23 CPU with MMU plus 32K byte multifunction option. Plus additional 64K bytes of RAM.
Includes 96K byte total RAM. Includes license to copy RT² for use on a single CPU.
Prerequisite: license to use RT² (V4 or later).
Three modules.

FALCON SCB-11/21

KXT11-AA 16-bit single board computer for use in low cost, real-time, microcomputer applications which execute software out of PROM memory. Includes the following features: 40-pin PDP-11 base-level instruction set, 4K byte RAM, battery backup hooks, two pairs of 28-pin memory sockets for on-board PROM and/or RAM memory, 24-line parallel I/O port, real-time clock, LSI-11 BUS interface.

PROCESSOR OPTIONS

FPF11 Hardware floating point option to enhance LSI-11/23, PDP-11/23. Up to six times improvement in floating point performance over KEF11-AA.
One quad height module. 2 ribbon cables.

KEF11-AA Floating point instruction set option for LSI-11/23 CPU, 40-pin DIP.
NOTE: Requires a CPU with MMU.

KEV11 Fixed and floating point instruction set (EIS/FIS) for LSI-11/2 CPU. 40-pin DIP.

KPV11-A Power sequencer/Real-time clock.

KPV11-B Power sequencer/Bus terminator/Clock.

KTF11-AA Memory Management Unit (MMU) for LSI-11/23. 40-pin DIP.

KTF11-VA Memory Management Unit and floating point option for LSI-11/23 (KTF11-AA, KEF11-AA).

KUV11-UH WCS (Writeable Control Store) kit.

KWV11-A Programmable Crystal Clock with frequencies from 100 Hz to 1 MHZ plus 60-cycle and external input.
One quad-height module.

CONTINUED ON FOLLOWING PAGE

EXPANSION MEMORIES

MCV11-DA Q-bus MOS memory using CMOS RAM and on-board battery back-up on a dual module. 8K bytes.

MCV11-DC Q-bus MOS memory using CMOS RAM and on-board battery back-up on a dual module. 32K bytes.

MRV11-AA PROM/RAM memory unit. Maximum capacity 8K byte.

MRV11-BA PROM memory unit.

MRV11-C High density PROM/ROM Module. Accepts customer supplied erasable UVPROM, fusible link PROM or masked ROM devices in all current 24-pin standard and proposed formats from 1K×8 bits to 4K × 8 bits. Single board. One module.

MSV11-DC 32K byte RAM including on board refresh. One module.

MSV11-DD 64K byte RAM including on board refresh. One module.

MSV11-ED 64K byte RAM with parity and on board refresh. One module.

MSV11-LF 128K byte RAM with full function parity and on-board refresh. One module.

MSV11-LK 256K byte RAM with full function parity and on-board refresh. One module.

MXV11-AA Multifunction option. Includes 8K byte RAM, 60 Hz crystal clock, two serial line units, supports RS-423 (compatible with RS232C) at baud rates from 150 to 38400. Accepts two customer-supplied 5V 24-pin UVPROM or fusible link PROM chips which can be configured either as 8K bytes of program memory or 512 byte bootstrap. One module.

MXV11-AC Multifunction option. Same as MXV11-AA except includes 32K bytes of RAM.

MXV11-A2 Bootstrap PROM's for MXV11-AA and MXV-11-AC, includes boot support for TU58, RLV11, RKV11, RXV21, RXV11.

INTERFACE OPTIONS

AAV11-A 12-bit, 4-channel (buffered), D/A converter. Output ranges: +2.56V, +5.12V, +10.24V, 0-5.12V, 0-10.24V. One quad-height module.

ADV11-A 12-bit, 16-channel, single-ended, (8-channel differential) A/D converter. Input ranges: +5.12V. Sample and hold circuitry. 50 microsecond conversion time. One quad-height module.

DRV11 Parallel Line Interface. 16-bit diode-clamped input; 16-bit latched-drive output. Protocol and control signals. Suggested cables: BC07D or BC08R. BC08R can be used as a diagnostic cable. One quad-height module.

DRV11-B Parallel Line Interface. 16-bit diode-clamped input; 16-bit latched-drive ouput. Protocol and control signals. Suggested cables: BC07D or BC08R. BC08R can be used as a diagnostic cable. One module.

DRV11-J High density, parallel line interface. 64 programmable tri-state input/output lines. Protocol and control signals. Up to 16 interrupts on bit change. Suggested cable: BC05W. One module.

DRV11-P Bus interface foundation module.

IBV11-A General Purpose Instrument Bus interface. Conforms to IEEE standard 488-1975 and allows up to 15 instruments to be added to LSI-11 system. Includes cable to first instrument (BN11A-04). One module.

DC003-KA Interrupt Logic IC for LSI-11 Bus Interface. 18-pin DIP. Package of 18 IC's.

DC004-KA Protocol Logic IC for LSI-11 Bus Interface. 20-pin DIP. Package of 18 IC's.

DC005-KA Transceiver Logic IC for LSI-11 Bus Interface. 20-pin DIP. Package of 18 IC's.

DC006-KA Word Count/Bus Address Logic IC for LSI-11 Bus Interface. 20-pin DIP. Package of 18 IC's.

DC010-KA Direct Memory Access Logic IC for LSI-11 Bus Interface. 20-pin DIP. Package of 18 IC's. LSI-11 Program Control.

DCK11-AA Bus Interface CHIP Kit. Contains: 1 DC004, and 4 DC005 IC's.

DCK11-AB LSI-11 Direct Memory Access Bus Interface CHIP Kit. Contains: 1 DC003, 1 DC004, 4 DC005, 2 DC006, and 1 DC010 IC.

DCK11-AC One Bus Interface CHIP Kit. Program transfer. Contains wire-wrap board (M9512) and cable (BC07D-10).

DCK11-AD LSI-11 Direct Memory Access Bus Interface CHIP Kit. Contains wire-wrap board (M9512) and cable (BC07D-10).

VK170-CA Serial Video Option. One module.

VK170-DA Starter kit for LSI-11 video module. Includes keyboard, 3 cables, and VK170-CA module.

COMMUNICATION OPTIONS

DLV11-E Modem controlling RS-232C/CCITT V.24 serial line unit with programmable baud rates from 50 to 19200 and selectable character length, parity bit, and stop bits. One module. Suggested cable: BC05C.

DLV11-F Serial interface. Optically isolated 20mA current loop or RS-232C interface levels. Selectable stop and data bits; baud rates from 50-19200. One module. Suggested cables: BC01V (EIA), BC05C (EIA), or BC05M (current loop).

DLV11-J Four independently configurable serial lines. Supports RS-422 and RS-423 (compatible with RS-232C). Selectable parity, data, and step bits. Baud rates from 150 to 38400. One module. Requires one cable per line (BC21B-05, BC20-N-05, or DKV11-KA).

DLV11-KA RS-423 to 20mA single in-line converter plus support for 110 baud for use with the DLV11-J or MXV11. Includes a 3 ft. (1m) cable for interconnection to DLV11-J or MXV11. Does not occupy space in the backplane.

DPV11-DA Synchronous serial line interface; single line, bit oriented; supports EIA RS499, RS422, RS423 (compatible with RS-232C), CCITT V.25, SDLC, HDLC, ADCCP, DDCMP, and BISYNC. Full- or half-duplex operation at speeds up to 56,000 baud with CRC-16 generation and checking, and modem controls for auto-answering capability. Not software compatible with the DUV11-DA. One module. Suggested cable: BC26L-25.

DPV11-DB Synchronous serial line interface same as DPV11-DA except includes the following items: H3259 turn-around connector, BC26L-25 cable (RS-232-C/25 pen connector) diagnostic and print set.

DUV11-DA Synchronous Line Interface; supports RS-232C, CCITT, BISYNC, and DDCMP. Full-duplex transmission at speeds up to 19200 baud. Interfaces to Bell Series 200 modems. Includes modem cable. One quad-height module.

DZV11-B Four-line asynchronous multiplexer for RS-232C/CCITT V.24 interface. Includes modem control, programmable speed, character length parity and stop bits; 50 to 9600 baud. Includes BC11U-25 cable 25 ft. (7.6m) long with 40-pin Berg to four, 25-pin RS232C female connectors. One quad-height module.

DF01-A Acoustic Telephone Coupler.

DF02-AA 300 baud modem.

DF02-AC 300 baud modem with auto-call.

DF03-AA 300/1200 BPS modem originate and auto-answer.

DF03-AC DF03-AA plus auto-originate.

PERIPHERALS

RLV11-AK A 5.2M byte, top loading removable cartridge disk subsystem for LSI-11 systems. Two quad-height modules. Requires H9273-A backplane or BA11-N series box.

RL01-AK Add-on 5.2M byte top loading removable cartridge disk drive.

RLV21-AK A 10.4M byte, top loading removable cartridge disk subsystem for LSI-11 systems. Two quad-height modules. Requires H9273-A backplane or BA11-N series box.

RL02-AK Add-on 10.4M byte top loading removable cartridge disk drive.

RXV21-BA Dual-drive, double-density floppy disk subsystem, 1M byte capacity plus one LSI-11 DMA interface module.

RL01-AA RL01/RL02 disk cartridge cleaner, 120V.

RL01K-DC RL01 Disk Cartridge.

RL01K-EF RL01 Disk Cartridge (error free).

RL02K-DC RL02 Disk Cartridge.

RL02K-EF RL02 Disk Cartridge (error free).

RX01K-10 RX01/RX02 Floppy Diskettes. Box of 10.

RX01K-MT Diskette Holder.

RKR02 Disk Carrier. Protective Case.

REV11-A Refresh/Bootstrap Diagnostic/Terminator Option.

REV11-C Refresh/Bootstrap Diagnostic.

TU58-AB Single drive tape cartridge subsystem with 256K byte capacity. Connects to standard serial interface with EIA RS-232C, RS-422 or RS-423. Baud rates are selectable from 150 to 38,400. Suggested cables: BC20N-05 or BC21B-05.

TU58-BB Dual drive tape cartridge subsystem with 512K byte capacity.

TU58-EA Dual drive tape cartridge system with 512K byte capacity. Includes power supply and enclosure.

TU58-DA Dual drive tape cartridge subsystem in a 19" rack mount enclosure with a power supply. Asynchronous serial interface required.

TU58-K Tape cartridge for TU58.

TUC01 Tape cleaning kit.

CONTINUED ON FOLLOWING PAGE

PERIPHERALS (CONT'D)

PB11-AY Desk-Top Universal PROM PROGRAMMER with a 25 ft. (7.6m) Null Modem EIA cable for connection to RT-11 (V34 or later) system (11/03 to 11/34) using a serial interface (DLV11-E, DLV11-F, DLV11-J) with RS232C cable. Includes customer supported/customer installed software on RX01 floppy disk. Adapter kit must be purchased wih the unit.

PB11-AQ Same as PB11-AY except software on RL01 disk.

PB11K-AA Adapter kit for 82S129, 82S131 fusible link PROMs.

PB11K-AB Adapter kit for 2708 UVPROMs.

PB11K-AC Adapter kit for 82S181, 82S191 fusible link PROMs.

PB11K-AD Adapter kit for 2716, 2732 UVPROMs.

TERMINALS

LA100 Letterprinter 100. Dot-matrix, nine wire, impact printer offering a wide range of features: selectable print speed and print quality in 3 modes, bit-map graphics compatible with VT-125, selectable horizontal character and vertical line spacing, programmable font capability.

LA120-AA DECwriter III keyboard printer. 132-column, 7×7 dot matrix, 180-cps smart bi-directional printing designed for serial 1200 baud communication, 20mA current loop interface optional 60 Hz.

LA120-DA DECwriter III keyboard printer with numeric pad which operates on RS-232C standard. 132-column. 7×7 dot matrix, 180-cps smart bi-directional printing designed for serial 1200 baud communications. Universal power supply: 50/60 Hz, 115/230 VAC. 20mA current loop interface optional.

LA120-RA DECwriter III receive-only printer which operates on RS-232C standard. 132-column. 7×7 dot matrix. 180-cps smart bi-directional printing designed for serial 1200 baud communications. Universal power supply: 50/60 Hz, 115/230 VAC. 20mA current loop interface optional.

LA120 OPTIONS

LA12X-AL 20mA option.
LA12X-BL 18-key numeric pad.
LA12X-CL 10', 14-pin EIA cable. BC×4× equivalent.
LA12X-DC 4K expandable buffer FIFO.
LA12X-FL French Canadian Character Set.
LA12X-RL APL Character set.
LA12X-SL European Character Set.
LAXX-KB LA120 caster set.
LAXX-KC LA120 work surface shelf.
LAXX-KD LA120 wire shelf.
LAXX-NC LA120 deep paper basket.
LAXXR-12 Kit of 12 LA120 ribbons.

LA34-AA DECwriter IV LA34-DA with following additional features: forms handling, subscript and superscript, alternate character sets (print only) selectable last character visibility, keyboard selectable parity and local echo, auto-disconnect for unattended operation.

LA34-RA DECwriter IV.30 cps, receive only. Printer with both character and graphics module.

LA34R-03 LA34/LA38 Ribbon Cartridge.
LA34R-12 LA34/LA38 Ribbon Cartridge.

LA34 OPTIONS

LAX34-AL Tractor Option.
LAX34-CL 20mA interface.
LAX34-HL Keycaps for APL Transmit usage.
LAX34-JL Key caps for international character set.
LAX34-KL 18-key numeric pad.
LAX34-LL Low paper switch.
LAX34-PL Paper out switch.
LAX34-RL Roll paper holster.
LAX34-SL Stand for LA34.
LAX34-SM Caster set.
LAX34-SP Paper Catcher.
LAX34-SQ Paper shelf.
LAX34-SW Paper Tray.
LAX34-XL Extended logic option without buffer. Provides auto answerback, APL, non-volatile storage of set-up parameters, keyboard mapping, split baud rates, VT100 business line graphics character set. 50-9600 baud transmission rate.

LAX34-XM Extended logic option with 2K buffer.

VT100 OPTIONS

VT100-AA Video terminal with detached keyboard, EIA version, universal power supply.

VT1XX-AB Advanced video option for VT100.

VT101 Bounded video terminal with same functionality as basic VT100. No functional upgrade option. Plug compatible with VT100. In addition, the VT101 offers local echo feature needed for non-digital systems. Operator-oriented features allow users to customize video terminal to suit specific application needs.

VT100 OPTIONS (CONT'D)

VT103-AA LS1-11 video terminal with built-in 4×4 LSI-11 backplane. LSI-11 Bus on slots A/B and C/D will accept 8 double-height or 4 quad-height modules (modules not included). Backplane is not compatible with the RLV11 or RLV21 options.

VT103-BA Same as VT103-AA plus factory installed dual drive TU58.

VT1X3-MM VT103 maintenance module. Features processor halt/enable and line time clock enable switches, plus run light and DCOK light. Only works in slot 8 of VT103 backplane.

VT131 Bounded video terminal with same functionality as basic VT100 plus VT100 advanced video and printer port options as standard features. Also includes local EDIT/Block-mode feature useful on non-digital systems (not supported by digital operating system). Plug compatible with a VT100 but identifies itself to a host system as a VT131.

VT132-AA VT100 plus buffered editing and batch capabilities.

VT1XX-AA 20mA option.
VT1XX-AB Advanced video option.
VT1XX-AC Printer port.
VT1XX-AE VT100 formed contrast filter.
VT1XX-AR Anti-glare screen for VT100.
VT1XX-CB Graphics options for VT100/VT132.
VT1XX-ST Table with casters for VT100.

VT18X-AC Personal/office computing upgrade option for the VT100 video terminal. Allows any VT100 terminal to be used as a personal/office computer to use CP/M operating system. Includes one printed circuit board containing a Z80 processor, 64K RAM memory and up to 8K ROM, dual 5 1/4" mini floppy disk drives, and necessary mounting hardware and cables to convert any VT100 terminal.
Available only as an upgrade option.

ACCESSORIES AND OPTIONS

BA11-ME 4 × 4-slot expansion box which includes the H9270 backplane (LSI-11 bus on slots A/B and C/D) and the H780 slave power supply. Accepts up to 8 double-height or 4 quad-height modules. Dimensions: 3.5 in. × 19 in. × 13.5 in. (8.9 cm × 48.3 cm × 34.3 cm). Not compatible with the RLV11 or RLV21 options.

BA11-NE 4 × 9-slot expansion box which includes the H9273-A backplane (LSI-11 bus on slots A/B only) and a 240-watt power supply. Accepts up to 9 double-height or 9 quad-height modules. Compatible backplane for the RLV11 and RLV21 options. Dimensions: 5.2 in. × 19 in. × 22.7 in. (13.2 cm × 48.3 cm × 57.8 cm).

BA11-VA 2 × 4-slot box which includes the H9281-BA backplane and a 47-Watt power supply. Accepts up to 4 double-height modules. Universal power supply: 50/60 Hz, 115/230 VAC. Dimensions: 3.6 in. × 13.4 in. × 11.7 in. (9.2 cm × 34 cm × 29.7 cm).

BC01V-25 RS-232C 25 ft. cable used with DLVII-F.
BC03L-05 15-conductor cable. H856 44-position connector and filtered EIA RS232 male connector.
BC03M-25 Null modem cable (25 ft.).
BC03M-50 EIA null modem ext. 50 ft.
BC03M-AC EIA null modem ext. 100 ft.
BC05C-25 RS232C 110 cable (25 ft.) used with DLVII-E or DLV11-F.
BC05D-25 RS-232C extension cable (25 ft.).
BC05M-04 Current loop cable.
BC05M-2C Current loop cable (2.5 ft.) used with DLV11-F.
BC05W-04 50-conductor signal cable (4 ft.).
BC05W-10 50-conductor signal cable (10 ft.).
BC05W-25 50-conductor signal cable (25 ft.).
BC07D-10 10-ft., 40-conductor, flat ribbon cable.
BC07D-15 Flat ribbon cable (15-ft., 40-conductor) used on DRV11, AAV11, ADV11.
BC08R-01 DRV11 maintenance cable.
BC08R-06 40-conductor ribbon cable. Shielded 6 ft.
BC084-10 40-conductor ribbon cable. Shielded 10 ft.
BC08R-12 Flat ribbon cable (12 ft. 40 conductor).
BC08R-25 40 conductor ribbon. Shielded 25 ft.
BC20N-05 R5232C null modem cable used on DLVII-J (5 ft.).
BC20Y-25 TU58 Cable (25 ft.).
BC202-25 TU58 Cable (25 ft.).
BC21B-05 I/O cable, 5 ft., used with DLVII-J.
BC215-25 Communication cable.
BC21T-05 Keyboard cable.
BC21V-15 Video cable.
BCV1A-10 Bus Cable/Assembly 10 ft.
BCV1B-06 Bus Cable/Assembly 6 ft.
BCV1B-10 Bus Cable/Assembly 10 ft.
BC22A-10 EIA null modem ext. cable 10 ft.
BC22A-25 EIA null modem ext. cable 25 ft.
BC22B-10 EIA modem ext. cable 14 conductor, 25 ft.
BC22B-25 EIA modem ext. cable 14 conductor, 25 ft.
BC26L-25 Cable for DPVII-DA.
BCV11-AA Bootstrap/Diagnostics/PROM option module.
BN01A-04 Instrument-to-instrument cable (12 ft.).
BN11A-04 IBVII-to-instrument cable.
DDV11-B Expander backplane, 6 × 9, 18-bus slots.

CONTINUED ON FOLLOWING PAGE

SOFTWARE PRODUCTS

RT-11 PRODUCTS

RT-11 REAL-TIME OPERATING SYSTEM

Designed for the single user. Includes single job monitor and foreground/background monitor. RT-11 system programs include EDIT, MACRO-11, LINKER, ODT and utilities. Minimum hardware: any LSI-11 with 16K bytes of RAM. (32K bytes of RAM for foreground/background operation).

RT²—RT-11 RUN TIME SYSTEM

Real-time operating system for single-user, run-time-only environment. This license is for selected modules in RT-11 which provide run-time support for application software written in MACRO-11 or FORTRAN. Optionally supports BASIC or APL. Includes the RT-11 monitor, device handlers, and file maintenance utilities. Does not include any program development utilities such at EDIT, MACRO-11, LINKER, or ODT. Minimum hardware: any LSI-11 with 16K bytes of RAM. MINIMUM ORDER: 50. Prerequisite: RT-11.

INSTRUMENT BUS SUBROUTINES (FOR USE WITH IBV11)

A library of FORTRAN IV callable subroutines which allow the user to control the IEEE 488-1975 General Purpose Instrument Bus by sending commands and controlling data transfer on as many as eight IBV11 boards. Minimum hardware: any LSI-11 with 32K bytes of RAM and one IBV11-A.

FORTRAN/RT-11

Optimizing extended superset of the ANSI standard FORTRAN IV language running under RT-11. Minimum hardware: any LSI-11 with 32K bytes of RAM. Prerequisite: RT-11.

BASIC-11/RT-11

Single user superset of Dartmouth Standard BASIC language processor. Minimum hardware: any LSI-11 with 32K bytes of RAM. Prerequisite: RT-11.

MULTI-USER BASIC/RT-11

Supports up to 8 users. Ability to run either foreground or background concurrently with other jobs. Minimum hardware: LSI-11/2, RXV11 (controller and drive) Line frequency clock, 56K bytes of RAM, and RT-11 FB monitor with multi-terminal support. Prerequisie: RT-11

SSP-11/RT-11

Scientific Subroutine Package for FORTRAN/RT-11 is a collection of over 100 mathematical and statistical routines commonly required in scientific programming. Prerequisite: RT-11 and FORTRAN/RT-11.

FMS-11/RT-11—FORMS MANAGEMENT SYSTEM

A set of utilities and subroutines that allow form applications for the VT100 video terminal to be developed easily in MACRO-11, BASIC-11, and FORTRAN. FMS-11 applications may be developed under RT-11 and executed under either the RT-11 or RT² operating systems. Minimum hardware for development: LSI-11/2 with 56K bytes of RAM and a VT100; for execution: LSI-11/2 with 16K bytes of RAM and a VT100. Prerequisite: RT-11.

RT-11 2780/3780 PROTOCOL EMULATOR

The RT-11 2780/3780 Protocol Emulator runs under the RT-11 FB or XM monitor on a suitably equipped RT-11 system, providing emulation of an IBM 2780 or 3780 Remote Batch Terminal. Any RT-11 supported peripheral can be used to receive files or as a source of files for transmission. RT-11 2780/3780 features include line testing facilities, and facilies for unattended operation. Line speeds up to 9600 baud are supported on most processors. A DUV11 synchronous communications interface is required.

RSX-11M PRODUCTS

RSX-11M OPERATING SYSTEM

A disk-based, real-time operating system supporting multi-tasking, dynamic memory management, interactive program development, and a wide range of programming languages. Minimum hardware: LSI-11/23 with 64K bytes of RAM, console terminal, clock, RLV11, and bootstrap.

RSX-11S OPERATING SYSTEM

Provides a run-time environment for execution tasks which have been generated by an RSX-11M, RSX-11D, or IAS development system. Minimum hardware: 16K bytes of RAM, LSI-11/2 or LSI-11/23, and line-time clock. Prerequisite: RSX-11M.

BASIC-11/RSX-11M

A superset of standard BASIC implemented as an incremental compiler; compatible with BASIC-11/RT-11. Prerequisite: RSX-11M.

BASIC-PLUS-2/RSX-11M

A superset of Standard BASIC to allow production of more complex and efficient programs. BASIC-PLUS-2 is a compiler language and includes an interactive debugger. Prerequisite: RSX-11M.

FORTRAN IV/RSX-11M

Optimizing extended superset of the ANSI Standard FORTRAN IV language running under RSX-11M; compatible with FORTRAN/RT-11. Prerequisite: RSX-11M.

FORTRAN IV-PLUS/RSX-11M

A superset of FORTRAN IV. Compiler creates highly optimized code assuming availability of the KEF11-AA (floating point instruction set.) Prerequisite: RSX-11M.

SSP-11/RSX-11M

Scientific Subroutine Package for FORTRAN IV/RSX-11M and FORTRAN IV-PLUS/RSX-11M is a collection of over 100 mathematical and statistical routines commonly used in scientific programming. Prerequisite: RSX-11M and either FORTRAN IV or FORTRAN IV-PLUS.

RMS-11K/RSX-11M—RECORD MANAGEMENT SERVICES

Provides keyed access, ISAM (Index sequential access method) record management services for RSX-11M. Prerequisite: RSX-11M.

FMS-11/RSX-11M—FORMS MANAGEMENT SYSTEM

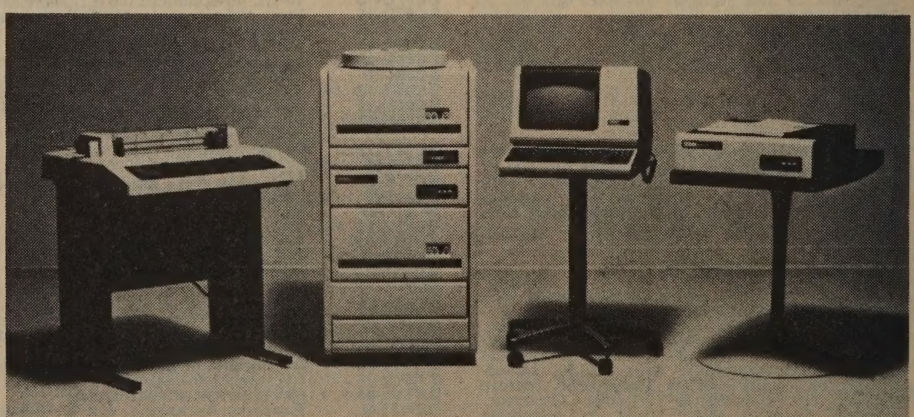
Is a set of utilities and subroutines that allow form applications for the VT100 video terminal to be developed easily in MACRO-11, BASIC-11, BASIC-PLUS-2, FORTRAN IV, and RSX-11M or RSX-11S operating systems. Prerequisite: RSX-11M.

LSI-11 SYSTEM DIAGNOSTICS

Diagnostics for LSI-11, LSI-11/2, LSI-11/23, peripherals and communications option on three cartridges.

MICROPOWER/PASCAL

A set of software tools designed for development of a complete solution to RealTime product needs. May be used with the following microcomputers: 16-bit SCB-11/21, LSI-11/2, or LSI-11/23 board level or box level PDP-11 microcomputers. Its design center represents a superset of the Pascal language defined by Jensen and Wirth that includes extensions to provide concurrent processing of RealTime tasks. Designed to be modular so that you can develop target system programs without excess overhead. This is an extended RealTime Pascal language that serves boh your application and system implementation programming needs.



F8 MICROPROCESSOR DEVELOPMENT SYSTEM

The Formulator family of development equipment is a group of products designed to help users develop F8 microprocessor-based equipment. They range in ability and cost from the low end—the Formulator Mark I—to the most powerful unit—the Formulator Mark III FD. The Formulator products are upward compatible. Thus, users who obtain a Mark I can add functions to the system to make it a Mark II. Likewise, the owner of a Mark II can update it to a Mark III FD. Two Growth packages are available for this. Supporting the Formulator family of products is a complete line of functional modules including Memory, I/O and DMA. These cards plug directly into the Formulator cardframe.

FORMULATOR MARK I

The Formulator Mark I is a low cost hardware development system. The processor board contains a CPU, PSU (with Fairbug program), a DMI, RAM memory (1000 bytes), teletype interface circuit and the circuitry to drive the Formulator bus.

HARDWARE	SOFTWARE
Processor board	Formulator user's guide
Card cage and motherboard	Hardware reference manual
Cable to teletype, TI silent 733 or Hazeltine 1500	
Cable kit	

Fairchild Formulator Mark I—Net Each.....**$1047.00**

FORMULATOR MARK II

The Formulator Mark II is a complete software-hardware development system. In addition to the processor board and main-frame, the Mark II includes a 16K byte RAM board and Formulator software.

HARDWARE	SOFTWARE
Processor board	Assembler program
16K byte RAM module	Editor program
Card cage and motherboard	Monitor program
Cable to teletype, TI silent 733 or Hazeltine 1500	Debug program
	Diagnostic package
	Hardware reference manual

Fairchild Formulator Mark II—Net Each.....**$1882.00**

FORMULATOR MARK III FD

The Formulator Mark III FD is a complete tabletop 8-bit microcomputer used for hardware and software development of an F8 microprocessor system. It is designed to operate with either a Model 33 teletype, a TI silent 733, a Hazeltine 1500 terminal and a Centronics 779 printer. The terminal and printer are available from Fairchild.

HARDWARE	SOFTWARE
Mainframe	Assembler program
Console with firmware	Editor program
Processor module	Monitor program
16K bytes of memory	Debug program
Communications module	Diagnostic package
Quad I/O port module	User's guide
Cable kit	Hardware reference manual
Power supply	
Peripheral interconnect cable	
Extender board	
Universal breadboard	

Fairchild Formulator Mark III—Net Each.....**$5295.00**

ORDERING INFORMATION

F 9 5 0 8 0 1 X X X

Formulator Systems
- 0—Mark I
- 1—Mark II
- 2—Mark III

Power Supplies
- 0—100 volts 50/60 Hz (Mark III only)
- 1—115 volts 50/60 Hz (Mark III only)
- 2—220 volts 50/60 Hz (Mark III only)
- 3—Mark I or Mark II

Software Options
- 1—HP Compatible configuration (Mark III only) Software loads into low memory. See Note 1. Includes cable to HP terminal. Operating system on tape cartridge.
- 2—TTY compatible configuration (Mark II or Mark III) Software loads into low memory. See Note 1. Includes cable to teletype. Operating system on paper tape.
- 3—Hazeltine/Silent 733 compatible configuration (Mark II or Mark III) Software loads into low memory. See Note 1. Includes cable to Hazeltine/Silent 733. Operating system on tape cassette.
- 4—HP compatible configuration (Mark III only) Software loads into high memory. See Note 2. Includes cable to HP terminal. Operating system on tape cartridge.
- 5—TTY compatible configuration (Mark III only) Software loads into high memory. See Note 2. Includes cable to teletype. Operating system on paper tape.
- 6—Silent 733 compatible configuration (Mark III only) Software loads into high memory. See Note 2. Includes cable to silent 733. Operating system on tape cassette.

Note 1: The Low Memory version of the Formulator operating system uses memory locations 0FFF to 3FFF to hold the operating system. Locations 0000 to 0FFF and 4000 to FFFF are available for user programs while the operating system is loaded. Thus, in a 16K byte system, the user area extends from location 0000 to 0FFF.

Note 2: The High Memory version of the Formulator operating system uses memory locations D000 to FFFF to hold the operating system. Locations C000 to CFFF are used as a workspace for the operating system. Thus, the operating system must have 16K bytes present to operate properly. Users wishing to run programs beginning at location 0 will have to add memory at the lower order addresses. When a Formulator is ordered with the high memory version of the operating system, at least an additional 4K bytes of RAM should be purchased for the operating system to function properly.

GROWTH PACKAGE I

Contains the material to convert the Formulator Mark I to the Formulator Mark II. Contains 16K byte RAM module and Formulator Mark II operating system.

Fairchild No. F895080132 Growth Package I, Teletype Compatible—Net Each.....**$956.25**

Fairchild No. F895080133 Growth Package I, Silent 733 Compatible—Net Each.....**$956.25**

GROWTH PACKAGE II

Contains the material to convert the Formulator Mark II to the Formulator Mark III. Contains quad I/O module, communications module, power supply, fan, console control modules, internal cable wiring, breadboard, extender board, I/O cable, peripheral cable, Mark III operating system and cabinet.

Fairchild No. F895080141 Growth Package II, HP Compatible—Net Each.....**$2453.82**

Fairchild No. F895080142 Growth Package II, Teletype Compatible—Net Each.....**$2453.82**

Fairchild No. F895080143 Growth Package II, Silent 733 Compatible—Net Each.....**$2453.82**

GROWTH PACKAGE III

Contains the material to convert either a Formulator Mark II or Mark III to floppy disk operation. Contains interface module, bootstrap loader module, cables and software on a diskette.

Fairchild No. F895080150 Growth Package III—Net Each.....**$750.00**

PCB MODULE OPTIONS

Note: The F8 Formulator has 9 free slots. Each PCB option requires one Formulator slot.

PROCESSOR MODULE (SBS/05)

This module is the central processing unit for F8 development system (Mark I, Mark II and Mark III) and contains 3850 CPU, Fairbug PSU, communication I/O to TTY or RS232C terminal, full Formulator baseboard compatibility and 1K static RAM.

Fairchild No. F895080303 Processor Module—Net Each.....**$396.00**

BYTE PARALLEL INTERFACE MODULE

Contains 8-bit data field control; high power buffered lines; 8- or 16-bit bidirectional word parallel operation; switch settable I/O port address, peripheral identification code and interrupt vector address; interface to line printer, high speed paper tape punchers and readers and a wide variety of programmable instruments.

Fairchild No. F895085007 Byte Parallel Interface Module—Net Each.....**$247.00**

ROM SIMULATION MODULE

Contains sockets for two 3851, 3856 or 3857 PS devices and allows PSU devices to operate in the Formulator system.

Fairchild No. F895085003 ROM Simulation Module—Net Each.....**$132.00**

I/O LIGHT DISPLAY BOARD

32 red LED's indicate status of 32 I/O lines of quad I/O Module or 16 lines of Processor Module.

Fairchild No. F895089003 I/O Light Display Board—Net Each.....**$176.00**

COMMUNICATIONS MODULE

Contains 13 switch selectable BAUD rates; switch selectable I/O port address, interrupt vector, peripheral device identification code; selectable interface to 20 milliamp current loop, RS232C or differential TTL drive receive; reader/run control for Auto-Reader TTY.

Fairchild No. F895085001 Communications Module—Net Each.....**$326.92**

QUAD I/O PORT MODULE

Contains four 8-bit I/O ports (32 lines), switch selectable interrupt vector addresses, switch selectable I/O port address and peripheral device identification code, two external interrupts and selectable interrupt priority.

Fairchild No. F895085002 Quad I/O Port Module—Net Each.....**$300.00**

MEMORY OPTIONS

Note: The F8 Formulator has 9 free slots. Each Memory Option requires one Formulator slot.

4K BYTE STATIC RAM MODULE

Switch selectable board address. Low power—80 microamps/bit. Write protect switch allows ROM simulation.

Fairchild No. F895082004 Static RAM Module—Net Each.....**$294.00**

16K BYTE DYNAMIC RAM MODULE

No additional refresh logic required. 16K x 8 or 32K x 4 configuration switch or program selectable.

Fairchild No. F895083016 Dynamic RAM Module—Net Each.....**$800.00**

4K BYTE PROM MODULE

16 sockets for 93446 PROM's. Switch selectable memory page.

Fairchild No. F895084001 PROM Module—Net Each. **$140.00**

F8 MICROPROCESSOR DEVELOPMENT SYSTEM (Cont'd)

PROM PROGRAMMER OPTIONS

PROM PROGRAMMER

Software lookup table accommodates device programming parameters—number of words, word length, burn time, wait time, retry conditions, etc. Burn pulse amplitude and fuse time are manually adjustable. Can program 93436, 93446, 93438, 93448, 2704 or 2708. Handles fusible link or ultraviolet erasable. Supplied with socket boards for 93436 and 93438.

Fairchild No. F895086001 PROM Programmer—Net Each.....**$765.00**

Fairchild No. F895086005 Programmer Interface Board with socket for 93436 or 93446—Net Each.....**$88.00**

Fairchild No. F895086006 Programmer Interface Board with socket for 93438 or 93448—Net Each.....**$88.00**

Fairchild No. F895086004 Programmer Interface Board with socket for 2704—Net Each.....**$88.00**

Fairchild No. F895086003 Programmer Interface Board with socket for 2708—Net Each.....**$88.00**

APPLICATION OPTIONS

FORMULATOR BASE BOARD AND CARD CAGE

Contains 13 slots including 9 general purpose and 4 for CPU and console.

Fairchild No. F895080500 Base Board and Card Cage—Net Each.....**$512.00**

UNIVERSAL BREADBOARD

Accepts 14, 16, 18, 22, 24 and 40 pin packages. Will accommodate 44 16-pin packages.

Fairchild No. F895089001 Universal Breadboard—Net Each.....**$85.00**

EXTENDER BOARD

Fairchild No. F895089002 Extender Board—Net Each. **$104.00**

PERIPHERAL OPTIONS

Fairchild No. F895081500 (60 Hz)—Hazeltine 1500 terminal. Net Each.....**$1560.00**

Fairchild No. F895081499 (50 Hz)—Hazeltine 1500 terminal. Net Each.....**$1560.00**

Fairchild No. F895080779 (60 Hz)—Centronics 779 Serial Printer. Net Each.....**$1530.00**

Fairchild No. F895080778 (50 Hz)—Centronics 779 Serial Printer. Net Each.....**$1530.00**

CABLE OPTIONS

Fairchild No. F895089913 Cable from communications module to H-P. 8 feet—Net Each.....**$90.00**

Fairchild No. F895089914 Cable from quad I/O module to breadboard. 6 feet—Net Each.....**$116.61**

Fairchild No. F895089915 Cable from communications module to teletype module 33 (20 mA loop, full duplex). 8 feet. Net Each.....**$90.00**

Fairchild No. F895080030 Cable connector and hood assembly—Net Each.....**$15.00**

Fairchild No. F895089917 Cable from parallel interface board to high speed paper tape reader—Net Each.....**$90.00**

Fairchild No. F895089921 Cable from communications module to silent 733. 8 feet—Net Each.....**$90.00**

Fairchild No. F895089916 Cable from processor board to teletype—Net Each.....**$90.00**

Fairchild No. F895089923 Cable from 0CM1 to teletype.—Net Each.....**$90.00**

Fairchild No. F895089924 Cable from processor board to silent 733—Net Each.....**$90.00**

Fairchild No. F895089925 Cable from processor board to parallel paper tape reader—Net Each.....**$98.13**

F8 SUPPORT PRODUCTS

F8 DESIGN KIT

A fully assembled and tested F8 Microcomputer System. The board includes an F8 CPU (3850), SMI (3853) with the Fairbug development programs and eight 2102 RAM's (1K bytes). The kit is supplied with F8 literature and a programming manual.

Fairchild No. F8KIT1A Design Kit—Net Each.....**On Request**

ONE-CARD MICROCOMPUTER (080CM1)

A fully assembled and tested microcomputer board for use in OEM applications. The board includes an F8 CPU, F8 SMI, F8 PSU (with Fairbug), a 1K byte RAM and sockets for 2K PROM and 2K EROM.

Fairchild No. F895089005 One-Card Microcomputer—Net Each.....**$193.79**

F8 SOFTWARE

Fairchild No. F895081507 Cross Assembler for minicomputer (card deck)—Net Each.....**$106.00**

Fairchild No. F895081512 Mark III to H-P Interface, high memory Net Each.....**$106.00**

Fairchild No. F895081513 Mark III to Teletype Interface, high memory—Net Each.....**$106.00**

Fairchild No. F895081514 Mark III to Silent 733 Interface, high memory—Net Each.....**$106.00**

Fairchild No. F895081515 Mark II to Teletype Interface—Net Each.....**$106.00**

Fairchild No. F895081516 Mark II to Silent 733 Interface—Net Each.....**$106.00**

Fairchild No. F895081517 Mark III to Teletype Interface, low memory—Net Each.....**$106.00**

Fairchild No. F895081518 Mark III to Silent 733 Interface, low memory—Net Each.....**$106.00**

Fairchild No. F895081519 Mark III to H-P Interface, low memory—Net Each.....**$106.00**

F8 LITERATURE

Fairchild No. F867095665 F8 User's Guide. An in-depth description of the F8 components. It includes a detailed specification of each device including signal timing and system configuration. Net Each.....**$6.50**

Fairchild No. F867095664 F8 Guide to Programming. An introduction to machine language and assembly language programming for the F8 microprocessor system. Net Each.....**$6.50**

Fairchild No. F867095649 Formulator User's Guide. An explanation of how to use the Formulator system to convert source programs, written in F8 assembly language, into object programs which can be debugged under software control. Net Each.....**$6.50**

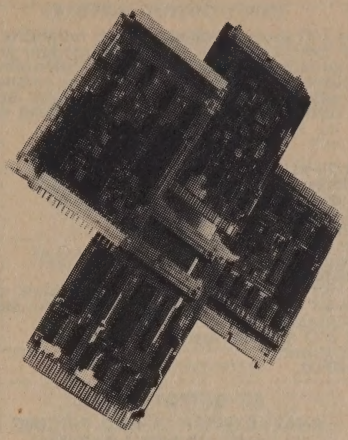
Fairchild No. F867095648 Formulator Hardware Reference Manual. An in-depth technical description of the F8 Formulator system, its component sub-systems and optional capabilities available through characteristics, theory of operation and detailed description of interface signals. Net Each.....**$6.50**

F6800 MICROCOMPUTER PRODUCTS

Fairchild Number	Description	Net Each, Lots of 1-24	25-99	100-999
F68A00P	1.5 MHz CPU	$ 7.65	$ 6.75	$ 6.18
F68A00S		12.16	10.72	9.82
F68A10P	128 byte RAM	5.31	4.69	4.29
F68A21P	1.5 MHz PIA	3.94	3.48	3.19
F68A21S		7.65	6.75	6.18
F68A40P	1.5 MHz PTM	9.26	8.17	7.48
F68A40S		13.44	11.86	10.86
F68A50P	1.5 MHz ACIA	3.86	3.41	3.12
F68A50S		5.47	4.83	4.42
F68A52P	1.5 MHz SSDA	4.51	3.98	3.64
F68A52S		6.28	5.54	5.07
F68A54P	1.5 MHz ADLC	21.74	19.17	17.55
F68A54S		29.22	22.77	23.60
F68B00P	2.0 MHz MPU	8.69	7.67	7.02
F68B00S		13.85	12.31	11.18
F68B10P	128 byte RAM	4.27	3.76	3.45
F68B10S		5.96	5.25	4.81
F68B21P	2.0 MHz PIA	4.51	3.98	3.64
F68B21S		8.69	7.67	7.02
F68B40P	2.0 MHz PTM	11.19	9.87	9.04
F68B40S		16.02	14.13	12.95
F68B50P	2.0 MHz ACIA	4.43	3.91	3.58
F68B50S		6.28	5.54	5.07
F68B52P	2.0 MHz SSDA	5.15	4.54	4.16
F68B52S		7.16	6.32	5.79
F68B54P	2.0 MHz ADLC	24.55	21.66	19.83
F68B54S		33.00	29.11	26.65
F6800P	1.0 MHz MPU	6.68	5.89	5.40
F6800S		10.63	9.37	8.58
F6800CP		8.86	7.81	7.15
F6800CS		14.17	12.50	11.44
F6800DLQB		24.95	22.00	20.15
F6800DMQB		29.00	25.55	23.40
F6802P	MPU clock & 128 bytes	9.58	8.45	7.74
F6802S	RAM 32 bytes	13.52	11.93	10.92
F6802DLQB	power down	33.15	30.95	28.35
F6802DMQB		40.80	36.00	32.95
F6808P	MPU & clock, no	16.76	15.96	12.99
F6808S	on-board	10.71	9.44	8.65
F6810P	128 bytes RAM	3.30	2.91	2.67
F6810S		4.59	4.05	3.71
F6810DLQB		13.35	11.80	10.80
F6810DMQB		15.60	13.75	12.60
F6820P	1.0 MHz PIA	3.46	3.05	2.80
F6820S		6.68	5.89	5.40
F6820DLQB		22.20	19.60	17.95
F6820DMQB		25.60	22.60	20.65
F6821P	1.0 MHz PIA	3.46	3.05	2.80
F6821S		6.08	5.89	5.40
F6821DLQB		22.20	19.60	17.95
F6821DMQB		25.60	22.60	20.65
F68316AP	PEPBUG	15.15	13.20	11.50
F6840P	1.0 MHz PTM	7.73	6.82	6.24
F6840S		11.19	9.87	9.04
F6847P	1.0 MHz VDG	12.72	11.22	10.27
F6847S		17.15	15.12	12.99
F68488P	1.0 MHz GPIA	9.98	8.80	8.06
F68488S		14.41	12.71	11.64
F6850P	1.0 MHz ACIA	3.38	2.98	2.73
F6850S		4.75	4.19	3.84
F6850DLQB		22.20	12.65	11.55
F6850DMQB		16.65	14.70	13.45
F6852P	1.0 MHz SSDA	3.94	3.48	3.19
F6852S		5.47	4.83	4.42
F6852DLQB		16.40	14.50	13.25
F6852DMQB		18.85	16.60	15.20
F6854P	1.0 MHz ADLC	18.92	16.69	15.28
F6854S		25.36	22.37	20.48
F6856P	1.0 MHz SPCC	40.00	34.30	29.50
F6856S		49.25	42.20	36.30
F6882P	MPU & clock & 128	8.37	7.38	6.76
F6882S	bytes RAM (8 bytes power down)	13.12	12.07	10.60

BUS COMPATIBLE INPUT/OUTPUT CONTROL SYSTEMS

The Bus Compatible Input/Output Control Systems make it easy to equip your RM-65™, Multibus™, EXORciser II®, or STD microcomputer bus for industrial control. Interface cards, cable, input/output modules, and module boards are available from a single source. Eurocards and VDE spec modules are also available.



PARALLEL INPUT/OUTPUT CARDS

GPBI/O CARD—Used with the RM-65 bus. Contains 16 buffered, bidirectional I/O lines for general TTL interface and I/O control. Eurocard versions are also available.

GPSI/O CARD—Used with the RM-65 bus. Contains 32 nonbuffered, bidirectional I/O lines for general MOS interface and I/O control with Gordos' buffered I/O modules. Eurocard versions are also available.

GS191/O CARD—Used with the Multibus (IEEE-796). Contains 72 buffered, bidirectional, bit-programmable I/O lines for general TTL interface or I/O control. Permits any configuration of I/O modules. Interrupt Controller 8259 and Programmable Timer 8253 are also provided.

G6801/O CARD—Used with the EXORciser II bus. Contains 32 buffered, bidirectional I/O lines for general TTL interface or I/O control.

G7507I/O CARD—Used with the STD bus. Contains 24 buffered, bidirectional I/O lines for general TTL interface or I/O control.

DATA CONVERSION CARDS

DA-410 CARD—Supports the RM-65 bus with four 10-bit digital-to-analog converters.

AD-10 CARD—Provides 10-bit analog-to-digital conversion, 8 dual or 16 single-ended channels.

SERIAL INTERFACE SYSTEM (RS-422 COMPATIBLE)

The Serial Interface System provides twisted-pair serial link between a host controller and other serial systems, plus a wide variety of parallel I/O peripherals including the STD bus. A converter is available to link these serial cards to the RS-232C based Systems. Contact manufacturer for further information.

PARALLEL I/O CARDS SPECIFICATIONS AND PRICING

Interface Cards					Interconnection Cables*			I/O Module Requirements		
Bus	Gordos Part No.	Max. No. of I/O Lines	I/O Lines*	No. of Available 16 Bit Timers On Board	Part No.	No. Req'd.	Number Supplied Standard	Module Compatibility†	Current Sinking Capability	Net Each, Lots of 1-9
RM-65	GPBI/O	16	B	2	CP8001	1	1	S or B	24 mA	$240.00
RM-65 Euro	GPBI/O-E	16	B	2	CP8001	1	1	S or B	24 mA	249.00
RM-65	GPSI/O	32	N	4	CP8001	1 or 2	1	B	1.6 mA	240.00
RM-65 Euro	GPSI/O-E	32	N	4	CP8001	1 or 2	1	B	1.6 mA	249.00
STD	G7507I/O	24	B	0	CA-x‡	1	0	S or B	20 mA	185.00
EXORciser II	G6801/O	32	B	4	CP-8001	1 or 2	0	S or B	24 mA	375.00
Multibus	G5191/O	72	B	3	CA-x‡	1, 2, or 3	0	S or B	24 mA	431.00

*B—Buffered; N—Nonbuffered. †S—Standard; B—Buffered. *Prices on request. ‡Specify length (ft.) when ordering.

DATA CONVERSION CARDS SPECIFICATIONS AND PRICES

Bus	Number	Conversion Type	Resolution (Bits)	Number of Channels	Characteristics	Connections (Part Numbers)	Net Each, Lots of 1-9
RM-65	DA-410	Digital-to Analog	10	4	Unipolar (0 to 10.23 V) or Bipolar (−5.12 to 5.11V)	Molex .156" 2139 R	$350.00
RM-65 Euro	DA-410-E						359.00
RM-65	AD-10	Analog-to Digital	10	8 dual or 16 single-ended	Gain-programmable instrumentation amp. Sample-and-hold circuit. Programmable analog filter with bypass switch.	Optional—CP8003 Cable (3 ft. 50-conductor, color coded ribbon cable wih socket connector on one end).	390.00
RM-65 Euro	AD-10-E						399.00

WRITE US FOR INFORMATION AND PRICING ON ALL NEW OR

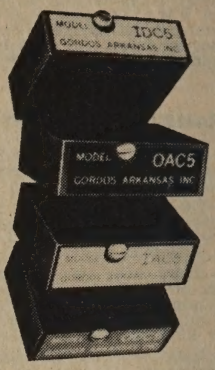
UNLISTED ITEMS. NO SPECIAL ORDER NUMBERS NECESSARY,

JUST USE THE MANUFACTURER'S MODEL NUMBERS.

INPUT/OUTPUT MODULES AND BOARDS

INPUT/OUTPUT MODULES

The Gordos I/O modules offer the high reliability and cost advantages of hybrid construction. Each module is functionally tuned and optimized during manufacture, providing module-to-module uniformity in the field. Thick film technology is used to provide superior thermal properties, noise immunity, and shock and vibration resistance for use in harsh environments.



SPECIFICATIONS

- 5, 15, or 24 volt logic compatible.
- Line voltages up to 280 VAC or 200 VDC.
- 600 V blocking and VDE specs available.
- 2500 VAC photo isolation.
- Zero voltage turn-on (AC output).
- Excellent surge protection.
- Component values laser trimmed to ±0.3%.
- Room temperature encapsulated.
- −30 to +80° C. temperature range for output modules.
- −30 to +60° C. temperature range for input modules.
- Single hold-down screw.
- Buffered I/O modules are also available.
- U.L. recognized.
- CSA certified.

AC OUTPUT MODULE
CHARACTERISTICS AND PRICING
(3 AMP CURRENT RATING)

Gordos Part No.	Input Volts (VDC)	Max. Input Current (mA)	Signal Pick-up Voltage (VDC)	Switching Voltage (VAC)	Peak Repetitive Voltage	Net Each, Lots of 1-9
OAC5	3-8	16@5V	3	12-140	400	$13.36
OAC5A	3-8	16@5V	3	24-280	500	13.76
OAC15	9-18	16@15V	6	12-140	400	13.36
OAC15A	9-18	16@15V	6	24-280	500	13.76
OAC24	18-32	12@24V	12	12-140	400	13.36
OAC24A	18-32	12@24V	12	24-280	500	13.76

DC OUTPUT MODULE
CHARACTERISTICS AND PRICING

Gordos Part No.	Input Volts (VDC)	Max. Input Current (mA)	Signal Pick-up Voltage (VDC)	Max. Load Volts (DC)	Max. Output Current (DC)	Net Each, Lots of 1-9
ODC5	3-8	16@5V	3	60	3 A	$11.64
ODC5A	3-8	16@5V	3	200	1 A	31.04
ODC15	9-18	16@15V	9	60	3 A	11.64
ODC15A	9-18	16@15V	9	200	1 A	31.04
ODC24	18-32	12@24V	18	60	3 A	11.64
ODC24A	18-32	12@24V	18	200	1 A	31.04

AC INPUT MODULE
CHARACTERISTICS AND PRICING

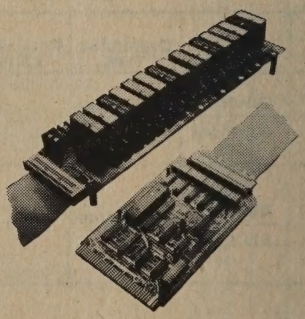
Gordos Part No.	Logic Supply Volts (VDC)	Max. Logic Supply Current (mA)	Input Line Voltage (VAC)	Net Each, Lots of 1-9
IAC5	4.5-6	12 @ 6V	90-140	$11.76
IAC5A	4.5-6	12 @ 6V	180-280	12.20
IAC15	12-18	15 @ 18V	90-140	11.76
IAC15A	12-18	15 @ 18V	180-280	12.20
IAC24	20-30	18 @ 30V	90-140	11.76
IAC24A	20-30	18 @ 30V	180-280	12.20

DC INPUT MODULE
CHARACTERISTICS AND PRICING

Gordos Part No.	Logic Supply Volts (VDC)	Max. Logic Supply Current (mA)	Input Line Voltage (VDC)	Net Each, Lots of 1-9
IDC5	4.5-6	12 @ 6V	10-32	$10.96
IDC15	12-18	15 @ 18V	10-32	10.96
IDC24	20-30	18 @ 30V	10-32	10.96

MODULE BOARDS

Plug-compatible logic contacts on 8, 16, and 24-position boards.
Screw terminal logic connection on 4-position boards.
Barrier strips wih screw terminals for load connections.
Circuitry for pull-up resistors.
5 amp field replaceable fuses.
LED status indicators.



BOARD PRICING

PB BOARDS	Net Each, Lots of 1-9	PB BOARDS	Net Each, Lots of 1-9
PB 4	$20.50	PB 16	$62.50
PB 8	38.00	PB 24	97.50

OUR STOCKS ARE FULLY UP TO DATE WITH ALL THE LATEST PRODUCTS.

ASK ABOUT NEW OR UNLISTED ITEMS.

MICROCOMPUTER DEVELOPMENT SYSTEMS

Intel Number	Description	Net Each
MDS-120	Intellec Series II Model 120. Package contains CRT chassis with power supply, fans, cables, 6-slot cardcage, 2000-character CRT, keyboard, floppy disk drive with 250,000 byte capacity, and two electronic boards, each with its own CPU. System provides 32K RAM, 4K ROM, MULTIBUS interface with multiprocessor and DMA capability, 8-level nested priority interrupt system, real-time clock, interfaces for two serial ports, high-speed paper tape reader/punch, line printer, universal PROM programmer, and software.	*
MCI-120/48-Kit	Includes Model MDS-120 plus MDS-D48 Macroassembler for the MCS-48 family of microprocessors.	$6990.00
DS-120/80-Kit	Includes Model MDS-120 plus Model 302 Relocatable Macroassembler for the 8080 and 8085 microprocessors.	6990.00
MDS-225	Intellec Series II Model 225. Includes CRT chassis with power supply, fans, cables, 6-slot cardcage, 2000-character CRT, keyboard, floppy disk driver with 250,000 byte capacity, and two electronic boards, each with its own CPU. System provides 64K RAM, 4K ROM, MULTIBUS bus with multiprocessor and DMA capability, 8-level nested priority interrupt system, real-time clock, interfaces for two serial ports, high-speed paper tape reader/punch, line printer, universal PROM programmer, and software.	11,500.00
DS-235 Kit	Includes Model 225 plus Model 720 Dual Double Density floppy subsystem.	16,500.00
DS-245 Kit	Includes Model 225 plus Model 740 Hard Disk subsystem.	23,500.00
DS-286 Kit	Includes Model 286 Microcomputer Development System tailored for iAPX 88/86 applications. Package contains CRT, keyboard, 192K RAM, floppy disk drive with 250,000 bytes capacity, dual processor ISIS-II disk operating software, iAPX 88/86 resident macroassembler and utilities, a ROM resident software applications debugger for iAPX 88/86 user programs, and CREDIT (CRT-based text editor).	17,900.00
DS-286 FD Kit	Includes Model 286 Microcomputer development System plus Model 720 Dual Double Density floppy subsystem.	22,900.00
DS-286 HD Kit	Includes Model 286 Microcomputer Development System plus Model 740 Hard Disk subsystem.	29,900.00
DS-290 Kit	NDS-1 Network Manager. Includes an Intellec Network console with hard disk subsystem, interconnect board, internal cable, and Network Manager software.	25,105.00
DEVELOPMENT SYSTEMS FOR ETHERNET		
DS-675 A Kit	Includes Model 286 Microcomputer Development System, Model 677 Ethernet Development package, and Model 201 Expansion Chassis.	$24,125.00
DS-675 AFD Kit	Includes Model 286 Microcomputer Development System, Model 720 Dual Double Density floppy disk subsystem, Model 677 Ethernet Upgrade package, and Model 201 Expansion Chassis.	25,125.00
DS-675 AHD Kit	Includes Model 286 Microcomputer Development System, Model 740 Hard Disk subsystem, Model 677 Ethernet Upgrade package, and Model 201 Expansion Chassis.	36,125.00

Intel Number	Description	Net Each
HARD DISC SUBSYSTEMS		
MDS-740	Hard Disk Add-On Subsystem for Development System Models 225, 235, 286, and 800. Will not upgrade Models 220 or 230. Provides 7.3M bytes of storage.	$13,990.00
DS-7401	Hard Disk Add-On Subsystem with 8085 central processor board for Models 220 and 230. Provides 7.3M bytes of storage.	16,990.00
MDS-743	Second hard disk drive for NDS-1 Network Manager or for any MDS-245 system. Provides 7.3M bytes of storage.	12,925.00
MDS-746	Five blank cartridges for Model MDS-240 system.	655.00
NETWORK UPGRADES		
MDS-590	NDS-1 Network Manager Upgrade Package. Converts Model 245 into a NDS-1 Network Manager. Will not upgrade Model MDS-240. Includes interconnect board, internal cable, and software.	$2180.00
DS-5901	NDS-1 Network Manager Upgrade Package with 8085 Processor Board. Converts any MDS-240 into an NDS-1 Network Manager wih IPC-85 processor board. Includes interconnect board, internal cable, software, and the 8085A-2 processor board with 64K RAM and 4K ROM.	4990.00
MDS-595	NDS-1 Workstation Interconnect Package. Converts any Model 800, Series II/80, Series II/85, or Series III (not including hard disk) into a workstation on NDS-1. Includes interconnect board and workstation hardware.	1700.00
MDS-506	Hard Disk Cable Kit for NDS-1 Add-On Disk. For the customer who has two hard disk systems and wants to put both disks on the network manager of the NDS-1. Consists of the internal hard disk cable and the I/O cable.	649.00
MDS-596	10-ft. interconnect cable. Connects one workstation to the NDS-1 network.	150.00
MDS-597	20-ft. interconnect cable. Connects one workstation to the NDS-1 network.	225.00
MDS-598	40-ft. interconnect cable. Connects one workstation to the NDS-1 network.	450.00
FLEXIBLE DISK SUBSYSTEMS		
MDS-503	Upgrade Kit. Converts integral single density disk drive in Model 220 or 240 to double density. Includes two-board controller, cables, and software.	$1766.00
MDS-720	Double Density Diskette Subsystem. Includes two double density diskette drive units (total 1,000,000 bytes), cabinet, power supplies, controller, and cable assemblies.	6995.00
MDS-730	Double Density Diskette Add-On Drives. Includes two double density diskette drive units (total 1,000,000 bytes), cabinet, cable assemblies, and power supply.	5995.00
MDS-BLD	Package of 10 blank diskettes for double density usage on Model 720 and Development Systems or single density usage on Model MDS-710	165.00

*Prices available on request.

Intel Number	Description	Net Each
	8080/8085 SUPPORT SOFTWARE	
MDS-PLM	High Level Language Compiler Resident on Intellec System. Translates a source program written in PL/M-80 into 8080/8085 machine code. Requires disk based Intellec System and 64K bytes of RAM.	$2600.00
MDS-302	8080/8085 Macroassembler. Runs under ISIS-II on MDS-120 or any Intellec Microcomputer System. Requires 32K bytes of RAM.	1500.00
MDS-301	8080/8085 ANS 1977 FORTRAN Compiler Requires disk based Intellec System with 64K bytes of RAM memory. Includes both single and double density diskette.	2600.00
MDS-318	8080/8085 Fundamental Support Package. A collection of mathematical and technical applications libraries that complement and extend the capability of the 8080/8085 family of microprocessors. Includes both single and double density diskettes.	2000.00
MDS-360	CREDIT CRT-based Text Editor. Resident on Intellec System. Requires disk based Intellec system with 64K bytes of memory. Includes both single and double density diskettes.	475.00
MDS-320	8080/8085 BASIC Interpreter. Resident on Intellec System. Requires disk based Intellec System with 48K bytes of memory. Includes both single and double density diskettes.	975.00
MDS-381	PASCAL-80 Software Package. Provides PASCAL program generation and execution on an Intellec Development System. It compiles a PASCAL source program into intermediate code (P-code) which is executed by the Run Time System in an interpretive mode. Requires disk based Intellec System with a minimum of 48K bytes of RAM memory a minimum of 1 disk drive.	1450.00
MDS-380	iCIS Cobol Software Package. Provides program generation and execution on Intellec Model 800 Series II Development Systems. Includes an interactive debugger and form utility. Requires disk based Intellec System with a minimum of 48K bytes of RAM memory and a minimum of 1 disk drive.	1300.00
MDS-309	Series II Software Development Package for the iAPX 88 and 86 microprocessors. Contains PL/M 86/88 High-Level Language Compiler, Linkage Utilities, and 8087 Floating-Point Library. Requires Intellec Series II or Model 800 with 64K of RAM memory.	2750.00
MDS-308	Series II Software Development Package for the iAPX 86 and 88 microprocessors. Contains 86/88 macroassembler, 86-to-88 source code converter, and Linkage Utilities. Requires Intellec Series II or Model 800 with 64K of RAM memory	1750.00

Intel Number	Description	Net Each
	iAPX 86, 88 SUPPORT SOFTWARE	
MDS-311	8086/8088 Software Development Package. Includes PL/M high level programming language compiler, ASM86 macroassembler for 8086 assembly language, CONV86 converter for conversion of 8080/8085 assembly language source code to 8086 language source code. LINK86 and LOC86 link and relocation utilities, OHN86 object to hexadecimal converter, and LIB86 library manager. Requires disk-based Intellec System with MDS-710 or 720 and 64K bytes of RAM memory. Includes both single and double density diskettes.	$3750.00
MDS-312	8089 I/O Processor Software Support Package. Includes ASM89 Assembler for 8089 assembly language, LINK86 and LOC86 relocation and linkage utilities, OH86 object to hexadecimal converter, and UPM PROM programming support for 8089 applications. Requires disk based Intellec System with 64K bytes of RAM memory and minimum of 1 disk drive.	1950.00
MDS-387	8087 Software Support Package. Contains 8086/8087/8088 macroassembler for assembling numerics applications, and full 8087 Emulator for executing 8087 floating-point operations in software. Requires disk based Intellec System with 64K bytes of RAM, plus 8086/8088 Software Development Package.	1250.00
MDS-313	iAPX 86/88 Resident, PL/M 86/88 Compiler. Translates PL/M source files into relocatable object modules for the iAPX 86/88 microprocessors. Includes 8087 Floating-Point Library, and intermodule cross-reference program. Requires Series III Development System.	3250.00
MDS-389	A software package that aids in testing and troubleshooting systems designed around a combination of 8086 and 8089 microprocessors. Requires ICE-867 and MDS-800, or Series II Development System with 64K bytes of RAM. Includes both single and double density diskettes.	1000.00
MDS-314	iAPX 86/88 Resident, PASCAL 86/88 Compiler. Translates PASCAL source files into relocatable object modules for the iAPX 86/88 microprocessors. Includes Run-Time Support Libraries. Requires Series III Development System.	3900.00
MDS-315	Fortran 86/88, Series III Model 286 resident Fortran Compiler. Translates Fortran source programs into relocatable object modules for iAPX 86/88 microprocessors. Includes run-time libraries for iAPX 86/88 based designs.	4300.00
	SOFTWARE WARRANTY EXTENSION SERVICE	
MDS-395	ISIS-II Software Update Service. Extends service of ISIS-II for a one-year period.	$350.00
MDS-396	8086/8088 Software Development Package Update Service Program. Extends service of 8086/8088 Software Development Package for one year.	495.00
MDS-397	Extends service of Fortran-80 for one-year period.	295.00
MDS-398	MDS-D48 Software Update Service Program. Extends service of MDS-D48 for a one-year period.	250.00

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IN-CIRCUIT EMULATORS

Intel Number	Description	Net Each
MCI-22-ICE	In-circuit emulator for development of 8022-based systems. Requires Intellec Microcomputer Development Service with minimum of 32K RAM and floppy disk drive. Includes two MDS-resident emulator control and trace boards, ICE-22 buffer box with 2K user-program RAM, user-system interface cable with bond-out 8022 emulator processor and crystal power accessory for stand-alone operation.	$5950.00
MDS-41A-ICE	UPI-41A In-Circuit Emulator for 8041, 8041A, 8741, 8741A. Includes cable assemblies and interactive software. Requires 32K disk-based system.	4500.00
MDS-498	Upgrade kit to allow ICE-48 users to emulate 8049 single-chip microcomputers.	1495.00
MDS-49-ICE	In-Circuit Emulator for 8049, 8748, 8048, 8035, 8039, 8021 single-chip microcomputers. Includes cable assembly and interactive software. Requires 32K disk-based system.	4500.00
MCI-49-HSE	Single-board, high-speed emulation tool for limited real-time emulation to 11 MHz of user system 8035, 8039, 8048, or 8748 microcontrollers.	1950.00
MCI-51-ICE	In-Circuit Emulator for development of 8051 based applications. Includes two Intellec-resident boards, buffer box, user-system interface plug, and ICE-51 software. Requires Model 800 or Series II with 64K bytes of RAM and at least one disk drive.	4950.00
MDS-80-ICE	8080 CPU In-Circuit Emulator. Cable assembly and interactive software included.	4500.00
MDS-85B-ICE	MCS-85 CPU In-Circuit Emulator. Includes two Intellec-resident P.C. boards, buffer box, cable assembly, 18-channel external trace module, and interactive multiple ICE software. Requires 64K disk-based system.	5000.00
MDS-85U-ICE	ICE-85U, an upgrading package allows the upgrading of existing ICE 85 and 85A units to ICE-85B functionality. Includes buffer box hardware, and multiple ICE firmware and software.	500.00
MDS-86A-ICE	iAPX 86 Microsystem In-Circuit Emulator. Includes three Intellec resident P.C. boards, buffer box and cable assembly, and interactive software. Requires 64K disk-based system.	6500.00
MDS-86U-ICE	Upgrade package to convert ICE-86 emulator to ICE-86A emulator capabilities. Includes ICE-86A buffer box and cable assembly, software, and firmware.	1800.00
MDS-86-ICE	8086 CPU In-Circuit Emulator. Includes three Intellec resident P.C. boards, buffer box and cable assembly, and interactive software. Requires 64K disk-based system.	5500.00
MDS-88-ICE	MCS-88 CPU In-Circuit Emulator. Includes three Intellec resident P.C. Boards, buffer box and cable assembly, and interactive software. Requires 64K disk-based system.	5500.00
SP-88 Kit	SP-88 Support Package. Development support for the 8088 microprocessor using a Series II or Model 800 Microcomputer Development System. Includes in-circuit emulator and interactive software plus 8088 Software Development Package including ASM88 assembler for 8088 assembly language; CONV88 converter for conversion of 8080/8085 assembly language source code to 8088 assembly language source code; LINK88, LOC88, and OH88 object to hexadecimal converter; and LIB88 library manager.	5800.00

Intel Number	Description	Net Each
DESIGN AIDS		
PSDK-85	System Development Kit. Includes 5-digit LED display, keyboard, 2K bytes of monitor ROM in easy-to-assemble kit form.	$315.00
PSDK-86	8086-based Single Board Computer System. For system evaluation and program module execution. Easy-to-assemble kit form.	780.00
SDK-C86	Cable and software for downloading program modules from Model 800 and Series II to the SDK-86	300.00
PMCI-51-SDK	MCS-51 System Design Kit. Single-board microcomputer in easily assembled kit form.	950.00
PMCI-20-SDK	2920 System Design Kit. Single-board microcomputer system in kit form	950.00
EMULATOR BOARDS		
MCI-51-EM	EM-51, 8081 Emulation Board. Prototyping equivalent of an 8051/8751/8031 microcomputer. Includes 2732A EPROM device to substitute for 8051 on-chip program memory. Board is 2.8" × 5.28".	$950.00
MDS-EM1	8021 Emulation Board. Contains an 8748 to store and execute the 8021 user program. Extra circuitry simulates Port O and zero cross detection. Board is 4" × 7".	380.00
MDS-EM2	8022 Emulator Board. An exact electrical and logical equivalent of the 8022 which can be programmed repeatedly via an 8755A EPROM for program development and prototyping.	510.00
PROMPT™ DESIGN AIDS		
PROMPT-48	MCS-48 Microcomputer Design Aid. Includes two MCS-48 processors (8748 and 8035), EPROM programmer, integral keyboard, displays, and system monitor in ROM.	$1980.00
PROMPT-48 Kit	MCS-48 Design Kit. Includes PROMPT-48 design aid plus five additional 8748-6 microcontrollers and a free MCS-48 System Workshop Class.	1980.00
PROMPT-475	Programming socket adapter allows PROMPT 48 to program 8755A EPROM's.	200.00
PROMPT-476	Programming socket adapter allows PROMPT 48 to program 2716 EPROM's.	200.00
PROMPT-SER	Serial cable connects PROMPT-80 or PROMPT-48 to teletype or CRT terminal.	225.00
PROMPT-SPP	Specialized PROM Programmer Kit. Allows PROMPT-80 or PROMPT-48 to be connected to MDS-800 only as a Peripheral PROM Programmer.	275.00
PROM PROGRAMMERS		
UPP-103	Universal PROM Programmer. Includes cabinet, software, power supplies, cable, and one 24/24 pin socket pair.	$1750.00
UPP-816	2716 Personality Card.	655.00
UPP-820	2920 Personality Card.	655.00
UPP-833	2732 and 2732A Personality Card.	655.00
UPP-848	8748/8741 Personality Card.	655.00
UPP-865	Personality Card for 3621, 3602, 3622, 3602A, 3622A, 3604, 3624, 3604A, 3605, 3625, 3605A, 3608, 3628, 3604AL-6, 3604AL.	655.00
UPP-872	8704A/1702A Personality Card.	655.00
UPP-878	8708/8704/2708/2704 Personality Card	655.00
UPP-955	8755A Personality Card	655.00

Intel Number	Description	Net Each
	DEVELOPMENT SYSTEMS UPGRADES	
MDS-505	Integrated processor board for Series II Microcomputer Development Systems with high-performance 8085 CPU. Upgrades all Series II systems to 8085A-2 performance. Single electronic board with CPU, 64K bytes RAM, and 4K bytes ROM.	$4750.00
MDS-510	IOC Firmware Enhancement Kit. Consists of four 16K PROM's to replace the existing firmware on the IOC board.	275.00
MDS-556	Performance package for Series II/85 and Model 800 Microcomputer Development Systems. Consists of two P.C. boards: an iAPX 86-based CPU board and a 64K memory board. Includes dual-processor ISIS-II disk operating system software, CREDIT (CRT-based text editor), MDS-510 (IOC firmware enhancement kit), iAPX 86, 88 resident macroassembler and utilities, and a ROM resident software applications debugger for iAPX 86, 88 user programs.	7500.00
PDS5561 Kit	Performance package for Series II/80 Microcomputer Development Systems. Consists of three P.C. boards: an 8085-based CPU board, an iAPX-based CPU board, and a 64K memory board. Includes dual-processor ISIS-II disk operating system software, CREDIT (CRT-based text editor), MDS-510 (IOC Firmware Enhancement Kit), iAPX 86, 88 resident macroassembler and utilities, and a ROM resident software applications debugger for iAPX 86, 88 user programs.	10,990.00
DS-677 Kit	Ethernet Development Upgrade Kit. Includes the Ethernet Communications Controller board set (2), top assembly hardware, interconnect cable, data link interface library, diagnostic test programs, manuals, and documentation.	4000.00
	SINGLE CHIP MICROCONTROLLER SOFTWARE	
MCI-20-SPS	2920 Software Support Package. Includes a 2920 Signal Processor Application Compiler and 2920 assembler/simulator software. Requires 64K RAM.	$4200.00
MCI-20-SPAS	2920 Signal Processor Application Compiler. Requires 64K RAM.	1300.00
MDS-D48	MCS-48 Disk Based Assembler. Macroassembler for the MCS-48 family of microprocessors. Requires disk based Intellec System of 32K bytes of RAM memory for non-macro use or 48K bytes of RAM for use of the macro facility.	1500.00
MCI-51-ASM	Software Development Package. Contains a Macroassembler and an Assembly Language Source Code Converter to support the 8051 single chip microcomputer. Translates 8048 Assembly Language instructions to 8051 instructions. Requires a Model 800 or Series II Development System with 64K bytes of RAM and at least one disk drive.	1950.00
	RACK MOUNTING KIT	
MDS-630	Rack Mounting Kit. For Universal PROM Programmer. Includes drawer slides and mounting ears for standard 19" EIA spacing.	$125.00
MDS-610	Board Extender. For extension of boards outside Intellec chassis.	150.00
MDS-620	Rack Mounting Kit for Model MDS-800	*
MDS-640	Rack Mounting Kit for Diskette Operating System.	*

Intel Number	Description	Net Each
	GENERAL PURPOSE SUPPORT SOFTWARE	
MDS-363	ISIS-II Software Toolbox. Contains over 30 utilities to improve programmer productivity. Runs on Model 800 Series II or Series III Development System. Most tools will run on NDS-1 network.	$850.00
MDS-384 Kit	Mainframe Link for Distributed Development. Runs under ISIS-II on any Series II Microcomputer Development System. Can be used to transmit ISIS-II files to a remote system, or receive files from a remote system using standard IBM BISYNC 2780/3780 protocol.	220.00
MDS-311 VX	Software Development Package. VAX-11-780 Cross Software for iAPX 86, 88 Development. User can develop, edit, compile, link, and locate PLM86 or ASM86 on a VAX-11/780 that have source-level and object-level compatibility with programs developed on an Intellec Development System.	18,500.00
	PROM PROGRAMMING SOCKETS	
UPP-501	16/24 pin PROM Programming Socket Pair.	$225.00
UPP-502	24/24 pin PROM Programming Socket pair.	225.00
UPP-549	Adapter Socket. Used to program the 8749 microcomputer and 8742 universal peripheral interface with UPP-848 Personality Card.	225.00
UPP-551	Adapter Socket. Used to program the 8751 microcomputer with UPP-848 Personality Card.	225.00
UPP-555	Multiple PROM Adapter Socket. Used to program 3604-L, 3604L, 3608, 3628, and 3636 PROM's with UPP-865 Personality Card.	350.00
UPP-562	Adapter Socket. Used to program 3602, 3621, 3622, 3602A, and 3622A PROM's with UPP-865 Personality Card.	225.00
UPP-564	Adapter Socket. Used to program 2764 EPROM with UPP-833 Personality Card.	225.00
UPP-556	Adapter Socket. Used to program 3605A, 3625A, and 3625 PROM's with UPP-865 Personality Card.	225.00

TELECOMMUNICATION AND AUTOMOTIVE COMPONENTS

Intel Number	Description	Net Ea, Lots of 1-24	Net Ea, Lots of 25-49
D2910A D2910A-4	uLaw Codec, microcomputer or direct operation	$ 24.90 22.40	$ 21.20 19.05
D2911A-1 D2911A-2	A Law Codec, microcomputer or direct operation	24.90 22.40	21.20 19.05
D2912 D2912-3	PCM line filter	21.40 21.60	18.35 18.35
D2913 D2914	uLaw and A Law combined Codec and filter, direct mode only	82.50 82.50	70.10 70.10
D2920-16 D2920-18	Analog processor	182.70 146.15	155.30 124.25

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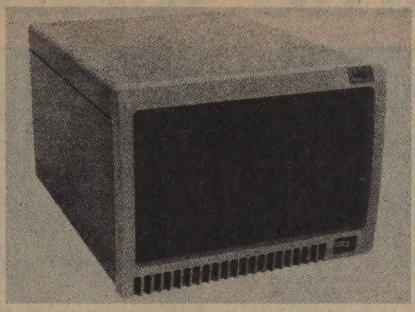
SYSTEM 86/330 MICROCOMPUTER SYSTEM



- **Compact desk-top or rack-mount integrated microsystem**
- **High performance 16-bit iAPX 86/20 processor set (iSBC™ 86/12A + iSBC™ 337 boards)**
- **Full function iRMX™ 86 real-time, multitasking operating system**
- **Intel® resident languages include PL/M-86 and ASSEMBLER-86. Intel® PASCAL-86, FORTRAN-86, plus independent software vendor languages (BASIC, COBOL, C), also available**
- **MULTIBUS® system bus (IEEE-796) multiprocessor architecture**
- **35MB Winchester and 1MB DD/DS 8″ floppy for program, data storage and back-up**
- **320KB of high speed RAM memory to execute multiple jobs and tasks**
- **Extensive self-test routines for reliable operation and simple fault isolation**
- **Modular, standard products allow flexible decomposition of the system to board level products for custom configurations**

Extensive System Documentation

The SYSTEM 86/330 is shipped with six documentation binders containing over 28 in-depth manuals on all aspects of hardware and software operation. A system installation and maintenance manual, in addition to a system overview manual, are also included.

SPECIFICATIONS

Word Size

Instruction — 8, 16, or 32 bits

Data — 8/16 bits

Instruction Cycle Time

400 nanoseconds for fastest executable instructions (assuming instruction is in the queue).

1.0 microseconds for fastest executable instructions (assuming instruction is not in the queue).

Memory Capacity

RAM — 320K bytes supplied with the base system. Memory may be expanded to 1 megabyte.

Interface

EIA Standard RS232C signals provided and supported.

Serial — Configurable from 110 to 19.2K baud (asynchronous)

Parallel — A parallel I/O port configured to interface with an industry standard Centronics interface printer

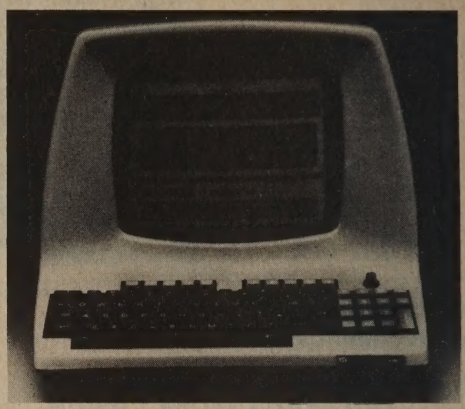
ORDERING INFORMATION

Part Number	Description
SYS 86/330 PKG	Desk-top, 120V 60 Hz
SYS 86/330E PKG	Desk-top, 220V 50 Hz
SYS 86/331 PKG	Rack-mount, 120V 60 Hz
SYS 86/331E PKG	Rack-mount, 220V 50 Hz
SYS 86/330 DOC	Complete hardware and software documentation set (included with system; use this order code for additional sets)

LEAR SIEGLER, INC.

Dumb Terminals

ADM 3A



ADM 5

ADM 3A

The legendary ADM 3A Dumb Terminal® video display combines simplicity with high performance and exceptional reliability. It's a low-cost, teletype compatible, data entry display terminal designed for asynchronous applications. The Dumb Terminal, with its video display, features a 12-inch (30.5cm) diagonal, 24-line by 80-row screen which displays 1,920 easy-to-read characters. The terminal has 59 data entry keys with 64 ASCII characters displayed in upper case, plus punctuation and control as standard.

In addition to the 59 keys on the keyboard, the ADM 3A offers an optional auxiliary keypad with 0-9 numerals, punctuation, decimal point, comma, minus sign and entry key for rapid, one-handed entry of tabular data.

To interface the terminal with your system, choose either EIA RS-232C or 20mA current loop, full or half duplex operating mode, and the word format that's most suitable to your particular system-standard: 9, 10, or 11 bit words, odd, even or no parity, and one or two stop bits.

The ADM 3A offers 11 switch selectable baud rates from 75 to 19,200. Optionally available are lower case, answerback memory, split baud rate, extension port current loop, and green phosphor screen.

ADM 5

The ADM 5 Dumb Terminal® video display incorporates the same electronic system found in the ADM 3A. This enhanced version of the original ADM 3A is equipped with the same basic features, plus a built-in numeric keypad and visual attributes such as reverse video, reduced intensity, and combined reverse video/reduced intensity. You get limited editing capabilities, like erase to end of line and erase to end of page. Separate cursor control keys for single stroke up, down, left, right and home cursor movement, and caps-lock mode with indicator. Upper/lower case character display with full two-dot descenders is standard on the ADM 5. The 5 X 9 dot matrix character is sharp and easy to read.

The ADM 5 also gives you an unshifted RUB key, a tab key to generate horizontal tab codes and typamatic keyboard.

A single key stroke puts the terminal into program mode permitting the programmer to store and display all control codes.

Evolving from the proven design of the ADM 3A, the ADM 5 is built around the same 12-inch (30.5cm) diagonal display screen and teletype keyboard. The display formats 1,920 characters in an 80 character per line by 24 line format.

The terminal operates asynchronously in half or full duplex modes at any of 10 data rates from 75 to 19,200 bits per second, and offers switch selectable RS-232C and 20mA current loop interfaces.

Available options include answerback memory, extension port current loop, and green phosphor screen.

LEAR SIEGLER, INC.

Smart Terminals

ADM 31

Lear Siegler's ADM 31 Intermediate Terminal™(IT™) video display is a low-cost, high performance terminal with full editing capabilities, visual attributes, formatting, and protected fields. IT gives you two full 1,920 character pages of memory. Use them both and get up to 3,840 characters of display. Or use the second page of memory as a print buffer and transmit data from page two while entering new data on page one.

The microprocessor-based ADM 31 features a high resolution, 12-inch (30.5cm) diagonal screen, which displays 24 lines of 80 characters per line. IT generates 128 ASCII characters displayed as a 7 X 11 dot matrix.

It also features an integral numeric keypad, individual cursor control and editing keys, and a function key which lets you transmit a special function sequence to the host.

Computer or keyboard selectable behavior modification (personality) allows the user or host to customize defined parameters such as ESCape lead-in characters and end block characters for compatibility with a variety of computer systems. Standard visual attributes include reverse video, reduced intensity, blinking, blanking, or underlining.

The full editing capabilities of the ADM 31 let you clear the screen, or use the cursor for character changes. Editing functions include character insert/delete, line insert/delete, erase to end of line/field/page, tab and back tab.

Individual cursor control keys also let you backspace, forespace, move up, down, return, home and to new line.

Options include a serial printer port, direct connect interface, polling and addressing, answerback memory, United Kingdom character generator, limited graphics and green phosphor screen. The micro-program source code listing is available for those who wish to custom program the terminal.

LEAR SIEGLER, INC.

Smart Terminals

ADM 31

ADM 32

ADM 32

The ADM 32 Intermediate Terminal™ video display is Lear Siegler's ergonomically designed data terminal. It provides increased operator comfort to improve productivity by eliminating fatigue. Its detachable keyboard allows independent positioning of the keyboard and display. And the keyboard's front edge extends forward to provide a handrest.

To eliminate eyestrain, the 32 is available with a large easy-to-read 15-inch (38.1cm) screen, as well as the standard 12-inch (30.5cm) screen. The anti-reflective screen and 10° screen angle reduce glare from lights and windows. There's even an optional display tilt mechanism, so you can place the screen in the most comfortable position.

The microprocessor-based ADM 32 maintains all the proven features of IT™, the ADM 31 Intermediate Terminal. Protected fields and full editing capabilities like character insert/delete, line insert/delete, erase to end of line/field/screen, tab and back tab increase operator convenience.

Plus, you get visual attributes, such as reverse video, reduced intensity, blinking, blanking, and underlining to highlight important areas of the display. The 32's individual cursor control keys allow rapid cursor positioning. The 90-key keyboard is capable of generating all 128 ASCII characters.

Like the 31, the 32's options include limited graphics, green phosphor screen, polling and addressing, answerback memory, and a serial printer port.

ADM 42

The ADM 42, Lear Siegler's most powerful smart terminal, has been ergonomically designed for total, effortless use in data entry applications. Its tiltable 15-inch (38.1cm) screen and detachable keyboard help make the working environment both comfortable and convenient.

The 42 features a standard full four-page display that's optionally expandable to eight full pages, with 1,920 characters in 24 lines of 80 characters per line in a 7 X 11 dot matrix. Plus, a 25th line is provided exclusively for terminal status indicators and messages from the host of up to 79 characters.

Standard editing capabilities include: clear to spaces, clear to protected spaces, clear to nulls, character/line insert, character/line delete, line erase, page erase, and tab/back tab.

In addition to complete cursor positioning from the keyboard or host computer, the operator may designate fields in specified combinations of blanking, underlining, blinking or reverse video modes to highlight key data. A field protection mode also protects specific areas on the screen.

The 42 also features 16 function keys, shiftable to 32 functions. Full or half duplex conversation modes are also switch, keyboard, or host selectable. Standard block transmission modes are: send line unprotected, send line all, send page unprotected, send page all, send message unprotected, send message all, send cursor coordinate and send function sequence. A special United Kingdom character generator, direct connect interface, programmable function keys, limited graphics, serial printer interface, up to eight full pages of display memory, answerback memory, monitor stand, and green phosphor screen are also available with the 42.

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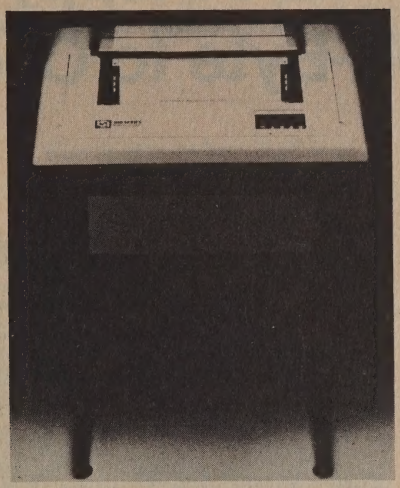
Printers

Lear Siegler, Inc.



310 Printer

Lear Siegler's 310 Printer is a 180 cps, serial dot matrix printer with a built-in microprocessor. For maximum throughput, it prints bi-directionally, and slews over spaces and blank character strings at speeds of 50 inches (127cm) per second. It gives you 14 switch-selectable form lengths, 14 perforation skip over formats, and full horizontal and vertical tabulation control. Space and blank character compression. Interface control for serial or parallel interfacing. X-ON, X-OFF capability. An optional paper tear bar. Plus a non-volatile forms retention system that holds these programmable settings when power to the printer is turned off.

The 310 is available with factory-installed acoustic insulation throughout the enclosure, with a noise cancelling acoustic cover. It operates at a quiet 56 dBA, quieter than many typewriters, which helps maintain a comfortable office environment.

The 310's character buffer is optionally expandable to 2,048 characters. So the printer can fully buffer a 1,920 character CRT screen of data without waiting for the screen to transfer to the printer on a line-by-line basis.

The 310's dependability originates with its ingeniously simple, patented print head. Instead of moving cores attached to the wires, it uses small armatures that propel its matrix wires in free flight to the platen. This greatly reduces drag, and increases the life of the print head.

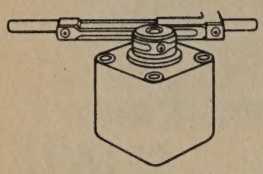
The printer has a full 128 ASCII character set, with up to 96 printables, optionally expandable to two sets of 128 for bilingual applications. Alternate character sets include United Kingdom, France, Germany, Norway/Denmark, Sweden/Finland, and the newspaper wire service font, ANPA. It's even got an elongated character capability, and 10 or 12 pitch standard, with a 10/16.5 dual pitch option.

Because the print head provides a 7 wide X 9 high dot matrix, you also get true underlining and lower case descenders. You also get crisp, clean printing on forms up to .08 inch (0.5mm) thick and 16 inches (40.6cm) wide.

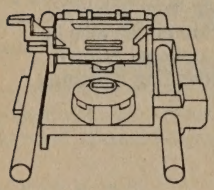
Designed as a tabletop printer with paper feeding from below or behind, the 310 Printer can also be supplied with an optional printer pedestal for freestanding operation.

MICRO PERIPHERALS INC.

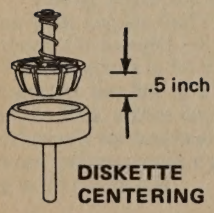
MPI Floppy Disk Drives
250K-Byte to One Megabyte



BAND POSITIONER
Virtually frictionless. Provides 5ms. access time. Extremely accurate and reliable positioning.

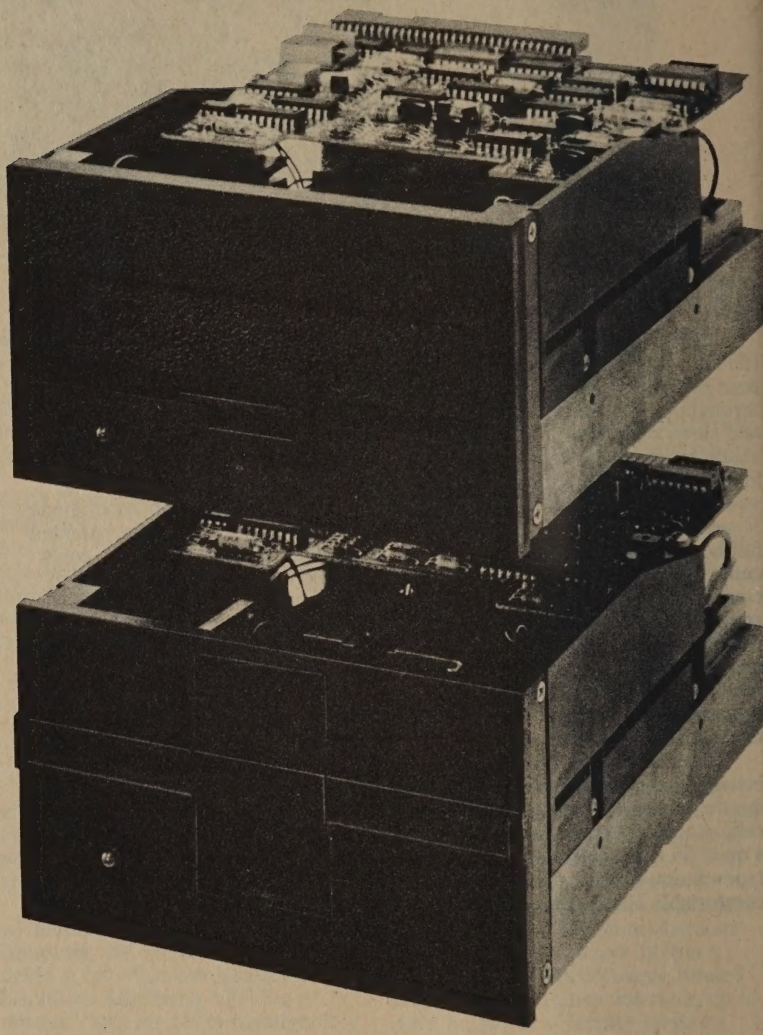


HEAD AND CARRIAGE
Head centered between two parallel rods to eliminate radial positioning errors. Bottom head fixed; top head loads.



DISKETTE CENTERING

Clutch mechanism provides most accurate diskette positioning (within .0008) and longest diskette life.



MPI's high performance mini floppy disk drive family includes single-sided double-density, and double-sided double density drives in both 48 and 96 TPI configurations. Unique features of the MPI drives are: • a patented stepper-band positioner • the industry's longest carriage • proprietary clutch and diskette ejector mechanisms • electronics packaged on a single PCB • low power consumption. Key options include a Shugart front door.

PRICES LISTED ARE FOR GUIDANCE ONLY

MICRO PERIPHERALS INC.

High-Performance Mini Floppy Disk Drives

MODEL 51

250K-Byte Capacity
Single Sided
Double Density
48 TPI

MODEL 52

500K-Byte Capacity
Double Sided
Double Density
48 TPI

MODEL 91

500K-Byte Capacity
Single Sided
Double Density
96 TPI

MODEL 92

1 Megabyte Capacity
Double Sided
Double Density
96 TPI

	51	52	91	92
Capacity Specifications (In 10^3 bytes)				
Single Density (unformatted)				
Per Disk	125	250	250	500
Per Track	3.13	3.13	3.13	3.13
Double Density (unformatted)				
Per Disk	250	500	500	1000
Per Track	6.25	6.25	6.25	6.25
Functional Specifications				
Tracks	40	80	80	160
Track Density (TPI)	48	48	96	96
Recording Density (max. BPI)				
Single Density	2768	2938	2788	2961
Double Density	5536	5876	5576	5922
Rotational Speed (RPM)	300 ±1½%			
Average Latency	100ms			
Transfer Rate				
Single Density	125K bits/sec			
Double Density	250K bits/sec			
Encoding Method	FM, MFM, M^2FM			
Access Time				
Track to Track	5ms			
Average	84ms (51/52)		150ms (91/92)	
Head Settling Time	15ms			
Head Load Time	35ms			
Power-Up Delay	0.5sec			
Interfacing	Industry/ANSI compatible			
Physical Specifications				
Environmental				
Operating Temperature	40°F to 115°F (4.4°C to 46.1°C)			
Non-Operating Temperature	-40°F to 160°F (-40°C to 71°C)			
Operating Humidity	20% to 80% (non-condensing)			
Non-Operating Humidity	5% to 95% (non-condensing)			
Electrical				
DC Power	+12V±5%, 0.8 Amp (1.5 Amp surge) +5V±5%, 0.4 Amp			
Power Dissipation	12W operation; 6W standby			
Mechanical				
Height	3.25 in. (82.6 mm)			
Width	5.75 in. (146.1 mm)			
Length	7.75 in. (196.9 mm)			
Weight	3.0 lbs. (1.36kg) for 51/52 3.1 lbs. (1.41kg) for 91/92			
Media Requirements				
Diskette	Industry Compatible, 5¼ in.			
Sectoring	Soft; 10, 16			
Type	Single or Double Sided Single or Double Density			
Reliability Specifications				
MTBF	9,200 hours			
MTTR	0.5 hours			
Design Life	5 years			
Media Life	$3x10^6$ passes/track			
Data Integrity				
Soft Errors	1 per 10^9 bits read			
Hard Errors	1 per 10^{12} bits read			
Seek Errors	1 per 10^6 seeks			

UL And CSA Approved

Options

Door Lock
Shugart Front Door (Add –S)
Detailed design data available on request.

MOSTEK

Micro Systems Hardware and Software

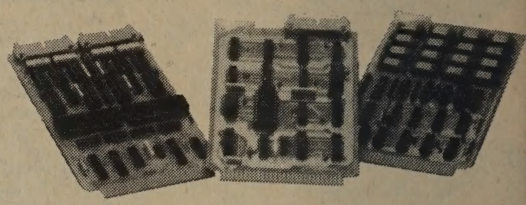
Z80 AND 3870 DEVELOPMENT AIDS

Model No.	Features
Matrix (MK78125)	Complete hardware and software development system with optional in-circuit emulation for Z80 provided by AIM-80AE
SDB-80E (MK78103/ MK78104)	A stand-alone software development board microcomputer with on-board firmware (DDT-80 and ASMB 80) for Z80 editing and assembly, respectively
DDT-80 (MK78118)	Software operating system for SDB-80E with program debug capability
ASMB-80 (MK78119)	Assembler/Editor/Loader software package supplied in ROM for SDB-80E
XFOR-180 (MK78117)	Fortran IV cross assembler
MACRO-80 (MK78165)	Z80 MACRO assembler
AIM-Z80AE (MK78181)	Z80 in-circuit emulation module
Matrix (MK78125)	Complete hardware and software development system with optional in-circuit emulation for 3870 provided by AIM-7XE
EVAL-70 (MK79086)	Economical 3870 single-board evaluation/ development station
AIM-7XE	In-circuit emulation for MK3870 and 3873
APM-70	Application personality module—MK3870
APM-73	Application personality module—MK3873
FZCASM (MK79079)	Matrix floppy-disk system cross-assembler for F8 and 3870 devices
Macro-70 (MK79085)	3870/F8 MACRO cross-assembler
XFOR-50/70 (MK79012)	Fortran IV cross-assembler

SOFTWARE*

Model No.	Designator	Description
MK78142	FLP80DOS (SDPROMS)	Floppy-disk operating system for SDE series
MK77962	FLP-80DOS (MDPROMS)	Floppy-disk operating system for MD series
MK77968	MEDEX-80	Diagnostic software (requires FLP-80DOS and MDX-SC/D)
MK77972	MITE-80/BIOS	Multiple independent task Executive W/Basic I/O service
MK78157	ANSIBASIC	ANSIBASIC (requires FLP-80DOS)
MK78158	FORTRAN IV	FORTRAN (requires FLP-80DOS)
MK78164	Library	Vol. 1, 26 programs (requires FLP-80DOS)

*All software requires signed Software license agreement.



MICRO SYSTEMS

MOSTEK MD™ SERIES

The MD series OEM microcomputer boards are based on the STD-Z80 BUS. The compact (4.5" × 6.5") MDX modules have a single function per board. This allows exact function selection according to system needs. And because they're STD-Z80 Bus compatible, any combination of MDX boards may be used to configure the final system.

2.5 MHz Model No.	Designator	Description	Net Each, Lots of	4.0 MHz Model No.	Designator	Net Each, Lots of
MD SERIES DATA PROCESSING						
MK77850-0	MDX-CPU1	Z80 CPU board	Prices On Request	MK77850-4	MDX-CPU1-4	Prices On Request
MK77853-0	MDC-CPU2	Z80 CPU board with additional memory		MK77853-4	MDX-CPU2-4	
MK77851-0	MD-SBC1	Stand-alone Z80 single board computer		.....	.....	
MK77852-0	MDX-MATH	High-speed floating point math		.....	.....	
MD SERIES MEMORY						
MK77750-0	MDX-DRAM8	8K dynamic RAM	Prices On Request	.....	.....	Prices On Request
MK77754-0	MDX-DRAM16	16K dynamic RAM		MK77754-4	MDX-DRAM16-4	
MK77752-0	MDX-DRAM32	32K dynamic RAM		MK77752-4	MDX-DRAM32-4	
MK77755	MDX-SRAM4	4K static RAM		MD77755	MDX-SRAM4	
MK77756	MDX-SRAM8	8K static RAM		MK77756	MDX-SRAM8	
MK77758	MDX-EPROM16	16K EPROM		MK77758	MDX-EPROM16	
MK77759	MDX-UMC	Universal memory card		MK77759	MDX-UMC	
MK77753-0	MDX-EPROM/UART	EPROM and UART		MK77753-4	MDX-EPROM/ UART-4	
MD SERIES INPUT/OUTPUT						
MK77650-0	MDX-PIO	32-bit programmable parallel I/O	Prices On Request	MK77650-4	MDX-PIO-4	Prices On Request
MK77651-0	MDX-SIO	2 channel programmable serial I/O		MK77651-4	MDX-SIO-4	
MK77652-0	MDX-FLP	Floppy-disk controller		.....	.....	
MK77654	MDX-AIO	Analog I/O board		MK77654	MDX-AIO	
MK77669-0	MDX-A/D8	16 channel 8-bit A/D		MK77669-4	MDX-A/D8-4	
MK77666-0	MDX-D/A8	4 channel 8-bit D/A		.....	.....	
MK77655-0	MDX-A/D12	16 channel hi-level 12-bit A/D		.....	.....	
MK77665-0	MDX-D/A12	4 channel 12-bit D/A		.....	.....	
MD SERIES ACCESSORIES						
MK77950-0	MDX-DEBUG	EPROM/UART with 10K ROM based firmware	Prices On Request	MK77950-4	MDX-DEBUG	Prices On Request
MK77958	MDX-SST	Software single step		MK77958	MDX-SST	
MK77963-0	MDX-SC/D	System controller/ diagnostic card		MK77963-4	MDX-SC/D-4	
MK77967	MDX-INT	Interrupt expander		MK77967	MDX-INT	
MK77951-0	MD-PROTO	MD series Prototype Kit		MK77951-4	MD-PROTO-4	
MK77973	MD-CC6	6 Slot card cage		MK77973	MD-CC6	
MK77969	MD-CC12	12 Slot card cage		MK77969	MD-CC12	
MK77966	MD-RMC12	12 Slot rack mount Chassis		MK77966	MD-RMC12	

™MD and SDE series are trademarks of MOSTEK, Inc.

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Motorola No.	Description	Net Each, Lots of 1-5
EXORmacs DEVELOPMENT SYSTEM (M68000)		
M68KMACSS1	68000 EXORmacs development system with 1 megabyte floppy disk	$30995.00
M68KMAXSF1	68000 EXORmacs floppy disk development system without printer	28295.00
XM68KINSTL10	Installation of EXORmacs floppy disk system	715.00
M68KMACSH1	68000 EXORmacs development system with 32 megabyte hard disk	39500.00
M68KMACSH1A	Same as above, except with 96 megabyte hard disk	45500.00
M68KRDS1	EXORmacs remote development system with USE	5950.00
M68KRDS2	Same, except without USE	4500.00
M68KMACSRK	EXORmacs rack mount kit	150.00
M68KMCCM	Multichannel communications module	2050.00
M68K32DP	32K byte VERSAbus RAM module	1400.00
M68K64DP	64K byte RAM module	1800.00
M68K128DP	128K byte RAM module	2500.00
M68KUSE	68000 single user USE	1500.00
M68KVAM	VERSAbus adapter module	295.00
M68KEXTM	VERSAbus extender module	465.00
M68BSAC	Real time bus state analyzer control module	3200.00
M68BSA1	Real time 68000 bus state analyzer personality module	1500.00
M68BSA5	Real time VERSAbus state analyzer personality module	1500.00
M68KOFORTRN	68000 FORTRAN compiler on VERSAdos diskette	3000.00
M68KOFORTRNH	68000 FORTRAN compiler on VERSAdos cartridge	3150.00
M6800XASM	6800 macroassembler on VERSAdos diskette	250.00
M6800XASMH	6800 cross macroassembler on VERSAdos cartridge	525.00
M6805XASM	6805 cross macroassembler on VERSAdos diskette	250.00
M6805XASMH	6805 Cross macroassembler on VERSAdos cartridge	525.00
M6809XASM	6809 cross macroassembler on VERSAdos diskette	250.00
M6809XASMH	6809 cross macroassembler on VERSAdos cartridge	525.00
M68KDIOPP	EXORmacs software interface on VERSAdos diskette	320.00
M68KDIOPPH	EXORmacs software interface on VERSAdos cartridge	595.00
EXORciser DEVELOPMENT SYSTEMS (M6800 AND M6809)		
M6800EXOR	6800 EXORciser II development system for 110 VAC, including chassis, 6800 MPU II, and DEbug II modules	$ 5315.00
M6800EXORU	6800 EXORciser development system for 110 VAC, including chassis, 6800 USEC, and DEbug II modules	5880.00
M6809EXOR	6809 EXORciser development system for 110 VAC, including chassis, 6809 MPU II, and DEbug modules	5775.00
MEX6809KT	6809 upgrade for EXORciser or EXORterm	3560.00
M68PANEL220	Front panel for conversion of EXORterm 200 to 6809	150.00
MEX68RK2	Rack mount kit for EXORciser I or II	165.00
M6800TERM	6800 EXORterm 220 development system for 110 VAC, including chassis, 6800 MPU II, and DEbug modules	6235.00
M6809TERM	6809 EXORterm development system for 110 VAC, including chassis, 6809 MPU II, and DEbug II modules	6695.00

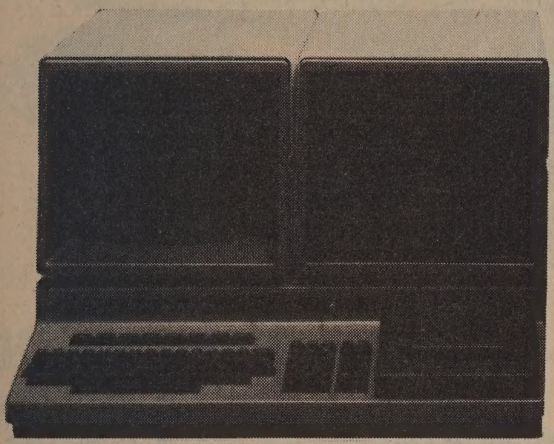
Motorola No.	Description	Net Each, Lots of 1-5
EXORset 30A DEVELOPMENT SYSTEM		
M6809SET301A	EXORset 30A development system	$ 6295.00
M68SETRAMEX	EXORset 30A RAM expander kit	595.00
M6835	Package of ten mini-diskettes	120.00
M6809SXDOS	EXORset 30A software upgrade	350.00
M6809SETPAS	6809 resident PASCAL compiler on XDOS diskette	950.00
M6809SETD3F	EXORdisk III firmware for EXORset 30A	50.00
M68SETCOM	EXORset/EXORciser communications package on MDOS and XDOS diskettes	150.00
PERIPHERALS		
M68SXD10155	EXORterm 155 display terminal	$ 2590.00
M68SVS20155	EXORterm 150 to 155 conversion kit	100.00
M68RS232-10	RS232C 10-foot cable	45.00
M68RS232-25	RS232C 25-foot cable	60.00
M68RS232-50	RS232C 50-foot cable	90.00
M68DSK2	EXORdisk II for 110 VAC	4495.00
M68FSDRK3	Rack mount kit for EXORdisk II and III	135.00
M6833	Blank diskettes (SS/SD)	10.00
M68DSK3	EXORdisk III for 110 VAC	5195.00
M68FSDU1102E	EXORdisk IIIE expansion unit for 110 VAC	4195.00
M6834	Blank diskettes (DS/SD)	17.50
M68KHDS32-1	EXORmacs 32 megabyte hard disk drive upgrade	16720.00
M68KHDS96-1	EXORmacs 96 megabyte hard disk drive upgrade	22720.00
M68KHDE32-1	EXORmacs 32 megabyte hard disk expansion drive	12920.00
M68KHDE96-1	EXORmacs 96 megabyte hard disk expansion drive	18920.00
M68CART	Cartridge for hard disk drive	345.00
M68KFD1102	EXORdisk III for EXORmacs	4195.00
M68FSDU1102E	EXORdisk III expansion unit for 110 VAC	4195.00
M68FSDRK3	Rack mount kit for EXORdisk II and III	100.00
M68SP702C10	Microsystems 702 printer for 110 VAC	2500.00
MPRINT703	Microsystems 703 printer plus 96 ASCII character set	3125.00
MEX68PI2	EXORbus printer interface module	400.00
MEX68PIC	Printer interconnect cable	135.00
M68K703P1	EXORmacs printer 703 for 110 VAC	2950.00
MEMORIES		
MEX6812-1	2K static RAM module	$ 275.00
MEX6816-1HR	16K dynamic RAM module with hidden refresh	525.00
MEX6832-1HR	32K dynamic RAM module with hidden refresh	650.00
MEX6848-1HR	48K dynamic RAM module with hidden refresh	775.00
MEX6848-1HR	64K dynamic RAM module with hidden refresh	895.00
MEX68RR	EROM/RAM module	415.00
MEX6816-22D	16K dynamic RAM module with parity	650.00
MEX6832-22	32K dynamic RAM module with parity	775.00
MEX6848-22	48K dynamic RAM module with parity	895.00
MEX6864-22	64K dynamic RAM module with parity	1015.00
MEX6808-22	8K static RAM module with parity	795.00
MEX6816-22S	16K static RAM module with parity	1245.00
USE SYSTEMS AND MODULES		
M6809USE	MC6809 or MC6809E user system evaluator	$ 1080.00
MEX68USEC	6800 user system evaluator	1400.00
MEX6801	6801 development system	3000.00
MEX6805	MC6805P2 development system	2160.00
MEX6805R2	Adapter for MC6805R2/Ur	350.00
MEX146805	MC146805P2 development system	3000.00

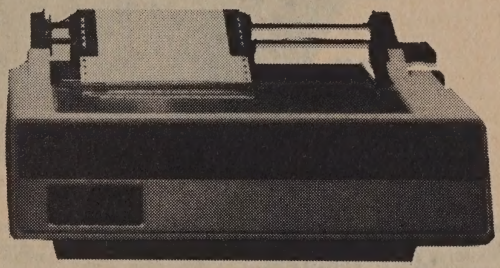
CONTINUED ON FOLLOWING PAGE

Motorola No.	Description	Net Each, Lots of 1-5
RESIDENT SOFTWARE (6800/6809)		
M6809PASCLI	6809 resident PASCAL interpreter on MDOS diskette	$ 1300.00
M6809PASCLC	6809 resident PASCAL compiler on MDOS diskette	1500.00
M68FTNR012M	Resident FORTRAN compiler and linking loader on MDOS diskette for 6800 systems	550.00
M6809FORTRN	Resident FORTRAN compiler and linking loader on MDOS diskette for 6809 systems	750.00
M68MPLR020M	Resident MPL compiler on MDOS diskette	1100.00
M6809MPL	6809 resident MPL compiler on MDOS diskette	1275.00
M68BASR010M	Resident BASIC interpreter on MDOS diskette	275.00
M68COBOL010M	Resident ANS COBOL compiler on MDOS diskette	1195.00
M68KOFORTRN	MC68000 FORTRAN compiler on VERSAdos diskette	3000.00
M68KOFORTRNH	MC68000 FORTRAN compiler on VERSAdos cartridge	3150.00
M68KFFP	68343 FFP source/object for MC68000 on VERSAdos diskette	495.00
M68KOXASMBL0	68000 cross macroassembler on 6800 MDOS diskette	990.00
M68KOXASMBL1	68000 cross macroassembler on 6809 MDOS diskette	990.00
M68KOXPASCL1	68000 cross PASCAL compiler on 6809 MDOS diskette	1500.00
M68RTFR02M	Resident real time FORTRAN compiler on 6800 MDOS diskette	800.00
M6809MASC01M	6809 cross macroassembler and linking loader on 6800 MDOS diskette	750.00
M6800XASM	M6800 cross macroassembler on VERSAdos diskette	250.00
M6800XASMH	M6800 cross macroassembler on VERSAdos cartridge	525.00
M6805XASM	M6800 cross macroassembler on VERSAdos diskette	250.00
M6805XASMH	M6800 cross macroassembler on VERSAdos cartridge	525.00
M6809XASM	M6800 cross macroassembler on VERSAdos diskette	250.00
M6809XASMH	M6800 cross macroassembler on VERSAdos cartridge	525.00
M6805MASC01M	6805 cross macroassembler and linking loader on MDOS diskette	550.00
M6800XASMBL1	6800/6801 cross macroassembler and linking loader on 6809 MDOS diskette	550.00
M6809BASICM	Resident BASIC-M interactive compiler on 6809 MDOS diskette	1500.00
M6800SMDOS	6800 based CRT editor, 6800/6801 macroassembler and linking loader with MDOS operating system	150.00
M6809SMDOS	6809 based CRT editor macroassembler and linking loader with MDOS operating system	150.00
M6809SETPAS	6809 resident PASCAL compiler on XDOS diskette	950.00
M6809SYMBUG	6809 symbolic debugger on MDOS diskette	750.00

Motorola No.	Description	Net Each, Lots of 1-5
MISCELLANEOUS RESIDENT FIRMWARE		
M6800DOWNLD	6800/6801 down-line-load ROM	$ 250.00
M6809DOWNLD	6809 down-line-load ROM	250.00
MEC68MIN2	MINIBUG II ROM	50.00
MEC68MIN3	MINIBUG III ROM	75.00
M68XEARC1	Editor/assembler ROM set	376.00
M68BASRC1	BASIC interpreter ROM set	376.00
M68BASRC2	BASIC interpreter ROM set	376.00
M68EAB1	Resident editor/assembler and BASIC interpreter module	895.00
M68KVBUG	VERSAbug debugging package for use with M68KVM01	500.00

Motorola No.	Description	Net Each, Lots of 1-5
M68000 REAL TIME MULTITASKING SOFTWARE		
M68KORMS68K	M68000 real time multitasking software object on VERSAdos diskette	$ 7000.00
M68KORMS68KH	M68000 real time multitasking software object code on VERSAdos cartridge	5275.00
M68KOVDOS	M68000 VERSAdos real time multitasking operating system object code on VERSAdos diskette	7000.00
M68KOVDOSH	M68000 real time multitasking operating system object code on VERSAdos cartridge	7250.00
DEDICATED DEVELOPMENT SYSTEMS		
MEX68KDM	MC68000 design board	$ 1795.00
MEX68KADP	6800 bus adapter board	100.00
MEX68KECB	MC68000 educational computer board	495.00
M68RS232F	RS232C cable with female edge connector	30.00
M68RS232M	RS232C cable with male edge connector	30.00
M6812EVM	MC68120/MC68122 evaluation module	495.00
MEX6801EVM	MC6801 evaluation module	250.00
MEX6801EVM1	68701 evaluation module	495.00
M68PROBUG	PROBUG PROM firmware kit	25.00
M68SAC1	Stand alone computer module	524.00
M68DIM2A	Display interface module	368.00
M68MDM1	5" display monitor	310.00
M68KBD1	ASCII keyboard	220.00
M68EAM1	Resident editor/assembler module	578.00
M68BASRM1	Resident BASIC interpreter module	578.00
MEX141000M	MC141000/1200 development system	1895.00
M68UCANA1	Microcomputer analyzer for 110 VAC	3750.00
I/O AND SUPPORT MODULES		
MEX6820	Input/Output module, up to 1 MHz	$ 395.00
MEX6821-2	Input/Output module, up to 2 MHz	450.00
MEX681C	Input/Output interconnect cable for MEX6820	35.00
MEX681C2	Input/Output interconnect cable for MEX6821-2	35.00
MEX6850	ACIA module, up to 1 MHz	395.00
MEX6850-2	ACIA module, up to 2 MHz	335.00
M68PP3	PROM programmer II with software on MDOS diskettes for 6800 and 6809 based development systems	950.00
M68705PP	MC68705 EPROM programmer board	290.00
M68KDIOPP	EXORmacs software interface on VERSAdos diskette	320.00
M68KDIOPPH	EXORmacs software interface on VERSAdos cartridge	595.00
MEX68SA	6800 systems analyzer, up to 1 MHz	795.00
MEX68SA2	6800 systems analyzer, up to 2 MHz	1400.00
M6809SA	6809 systems analyzer II	1400.00
MEX68XT	Extender module	110.00
MEX68WW	Wire wrap module	62.00
MEX68USM	Universal support module	245.00
MEX6845	MC6845 CRT controller module	250.00
MEX68488	MC68488 GPIA support module	250.00
MEX6854	MC6854 ADLC support module	250.00
MEX6802-46	MC6802/46 support module	575.00
NON-RESIDENT SOFTWARE		
M68KXPASC2	Cross PASCAL/IBM370/magnetic tape	$ 8000.00
M68KOXASMBL3	Cross assembler/PDP11/magnetic tape	1500.00
M68KXASM2	Cross assembler/IBM370/magnetic tape	4000.00
M68KXLNKR2	Cross linker/IBM370/magnetic tape	4000.00
M68KOSIMLTR2	Simulator/IBM370/magnetic tape	1500.00
M6809XASMBL2	Cross assembler/IBM370/magnetic tape	1500.00
M6809XASMBL3	Cross assembler/PDP11/magnetic tape	1500.00



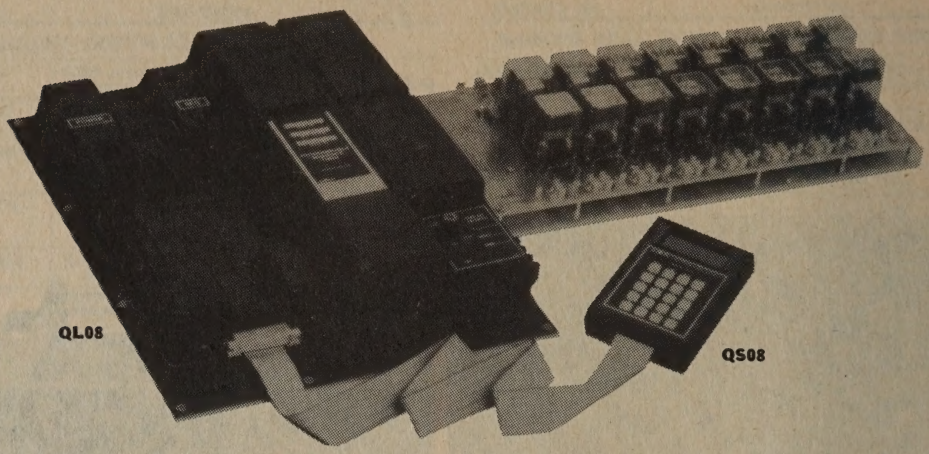


MICROCOMPUTER DEVELOPMENT SYSTEMS

NSC Number	Description
PX-80/40	Starplex™ development system with keyboard, monitor, dual floppy disk system, 80-column printer, and complete operating system software, editor, debugger, FORTRAN and BASIC
PX-80/41	Starplex development system without printer
PX-80/42	Starplex development system with impact printer
PX-80/51	Starplex development system with double-density drives
PX-80/61	Starplex development system with double-sided, double-density drives
EE-A001	Starlink™—SPX/MDS link
EE-A002	Starlink—SPX/MDS 800/880 link, BLC-517 board
EE-A040	Upgrade kit, 8048 to 8049 ISE
EE-A050	Upgrade kit, 8050 ISE
EE-A100	Starplex double density upgrade kit
FW-A001-1C	8048 cross assembler
FW-A002-1C	8070 cross assembler
FW-A003-1C	NSC cross assembler
FW-A006-1C	COPS cross assembler
FW-A100	Universal PROM programmer software
FW-A200	CP/M operating software
PM-A02	PROM programmer interface
PM-A02-1	Starplex PROM programmer for 2708
PM-A02-2	Starplex PROM programmer for 2716
PM-A06-1	Starplex .5/1 MB dual disk expansion
PM-A06-2	Starplex double side, double density disk expansion
PM-A08	In-system emulator
PM-A09-1	8080 emulator package
PM-A09-2	8048 emulator package
PM-A09-3	8070 emulator package
PM-A10	Zstar Z80 development package, includes XASM/ISE card
PM-A13	Integral ISE module
PM-A13-3	8085 emulator package
PM-A13-4	NSC800 emulator package
PM-A15	COPS emulator
PM-A50	Thermal printer, 80-columns, 50 cps
PM-A55	Impact printer, 132-columns, 120 cps
OP400-PDS	Product development system
OP400-E02	Emulator board
OP400-E04L	Emulator board
OP400T01	Quiklook™ tester
MSC-6602	4-slot rack mount computer
MSC-6606	8-slot rack mount computer
MSC-3002	Rack mount expansion disk

NSC Number	Description
	SYSTEMS
BLC-80P	Prototyping package with BLC-80/10 CPU
BLC-80P14	Prototyping package with BLC-80/14 CPU
BLC-80P204	Prototyping package with BLC-80/204 CPU
RMC-80/10	Rack mount computer system with BLC-80/10 CPU
RMC-80/14	Rack mount computer system with BLC-80/14 CPU
RMC-80/204	Rack mount computer system with BLC-80/204 CPU
RMC-660	Rack mount computer system with heavy duty power supply (8 slots)
	CAGES AND POWER SUPPLIES
BLC-604	Card cage with backplane (4 slots)
BLC-614	Expansion card cage with backplane (4 slots)
BLC-635	System power supply (14 A)
BLC-665	Heavy duty power supply (30 A)
	ACCESSORIES
BLC-610	Extender board
BLC-8610	Extender board with power switching
BLC-901	220 ohm/330 ohm terminator
BLC-902	1K ohm terminator
BLC-903	Option jumper kit
BLC-905	Universal prototyping card
BLC-8905	Universal prototyping card
BLC-955	Serial I/O cable set
BLC-956	Parallel I/O cable set
BLC-957	Power supply cable set
	FIRMWARE
BLC-910	Prototyping system monitor—BLC-80P and BLC-80P14
BLC-920	Prototyping system monitor—BLC-80P204

VERSATILE MICROPROCESSOR BASED PROGRAMMABLE SEQUENCE TIMER



Programmable Sequence Timer reliably controls a wide variety of operations, such as batching, automatic welding, plastic and rubber molding and curing, electrical load management, and many other multiple event operations. The system accurately controls the sequence and duration of events in an operation. Independently programmed outputs permit overlapping of events. Programming is quick and simple; changes can be made in seconds, using the program module. Little training is required and no special computer language is used. The basic system includes a logic module, a program module, an output module and an interconnecting cable. Two series of logic modules provide two different program timing ranges; 99 hrs. max. or 99.9 min. max. Each series of logic module requires a program module of the same series. After programming is complete and the system is sequencing, the program module can be removed for use with another programmable sequence timer of the same series. An interface module (two available) provides basic control of an operation after the program module has been removed. Seven different electromechanical output modules, plus two solid state and one hybrid are available for a variety of applications. Six interconnecting cables in lengths of 3 in. to 5 ft. available for connecting the logic module to the output module.

QL08 LOGIC MODULES

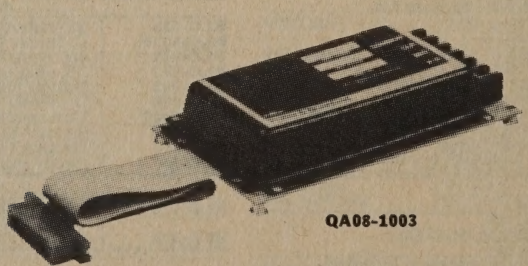
The logic module contains electrically alterable, read-only memory, which runs programs in minutes or seconds to control up to 16 outputs. Each channel of memory has a start time, stop time, and two waits. Waits can be placed before any start or stop time. A 96–132 VAC, 60 Hz signal is required to restart sequencing. Two series of modules (two modules per series) are available. The 1200 series modules have maximum cycle duration of 99 hrs. and 59.9 min. or 99 min. and 59.9 sec. Contains 27 channels of accessable memory. Output K1 has 8 channels, output K2 has 4, output K3 has 2, and outputs K4 through K16 have one each. The entire program, or selected portions, can be erased as units rather than erasing each value individually. "Initiate" feature permits user to begin sequencing at any point during first operating cycle. **Model QL08-1200:** Remembers its location in the sequence if power fails. Sequencing can be resumed at that poin or reset, when power is restored. **Model QL08-1201:** Also re members its location in the sequence if power fails and automat cally restarts at that point when power is restored. The 100 series modules have shorter timing ranges than the 1200 serie but retains all the basic functions. Maximum cycle duration 99.9 min. or 99.9 sec. Contains 29 channels of accessable memor Output K1 has 8 channels, outputs K2 and K3 have 4 each, an outputs K4 through K16 have one each. Memory values mu be erased individually and cycle duration must be set manuall The 1000 series modules contain no "Initiate" feature. **Mod QL08-1000:** Remembers its location in the sequence if powe fails. Sequencing can be resumed at that point, or reset, whe power is restored. **Model QL08-1001:** Also remembers its locatio in the sequence if power fails and automatically restarts at tha point when power is restored. **Resolution:** 0.1 min. (in minut mode) or 0.1 sec. (in seconds mode). **Power Required:** 96–13 VAC, 60 Hz. **Operating Temperature:** 0° to 55° C. **Size:** 15.75″ 12.65″ x 3.5″.

P & B No. QL08-1200 Logic Module—Net Each..... **$644.5**
P & B No. QL08-1201 Logic Module—Net Each..... **644.5**
P & B No. QL08-1000 Logic Module—Net Each..... **594.4**
P & B No. QL08-1001 Logic Module—Net Each..... **594.4**

QS08 PROGRAM MODULES

Designed for programming the QL08 logic modules. Program can be entered or changed quickly and easily. When programmin is complete and the system is sequencing, the QS08 prograr module can be removed to prevent program tampering and t allow one program module to be used with several logic module of the same series. When program module is removed an inter face module can be inserted to allow basic control of an operatior Two program modules available. **QS08-1200:** For use with 120 series logic modules. **QS08-1000:** For use with 1000 series logi modules. **Size:** Approx. 5.75″ x 3.6″ x 1.12″, with 5 ft. ribbon cabl

P & B No. QS08-1200 Program Module—Net Each.... **$81.0**
P & B No. QS08-1000 Program Modiue—Net Each.... **81.0**



QA08 INTERFACE MODULES

Designed to allow basic control of an operation when the program module is removed. An external 120 VAC, 60 Hz source, from push-button switches or other contacts, controls "pause/resume," "sequence" and "clear" functions of the Programmable Sequence Timer. An attached 12″ ribbon cable connects the QA08 interface module to any QL08 logic module. **QA08-1001:** Has card edge connector to which the QS08 program module can be connected. **Size:** Approx. 6″ x 6.9″ x 1.6″, with 12″ ribbon cable. **QA08-1003:** Has no card edge connector for QS08 program module. **Size:** Approx. 4″ x 7.5″ x 1.5″.

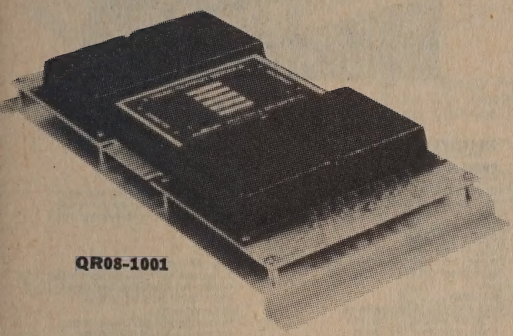
P & B No. QA08-1001 Interface Module—Net Ea.... **$107.85**
P & B No. QA08-1003 Interface Module—Net Ea.... **81.95**

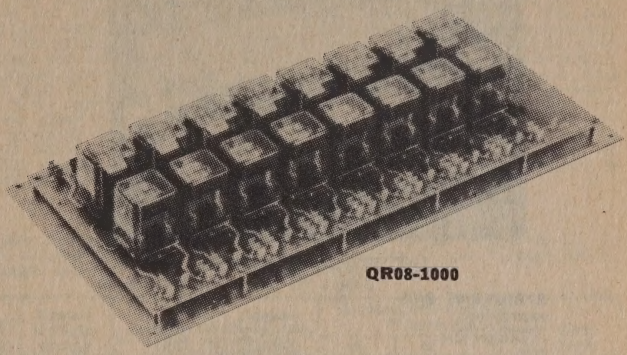
QC08 INTERCONNECTION CABLES

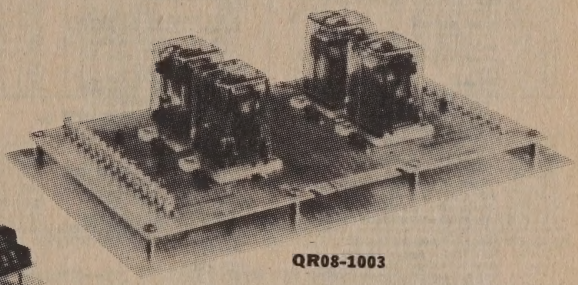
Interconnection cables required for connecting the QL08 logi module to the QR08 output module, or to connect two or mor QR08 four-output modules. Has card edge connectors. Six cable available in lengths from 3 in. to 5 ft.

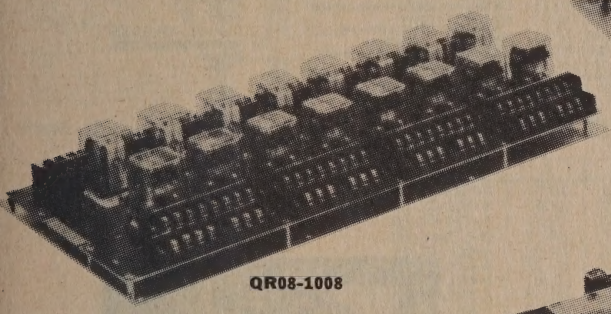
P & B No.	Cable Length	Net Each
QC08-1000	5 ft.	$33.45
QC08-1004	4 ft.	32.00
QC08-1003	3 ft.	30.60
QC08-1002	2 ft.	29.15
QC08-1001	1 ft.	27.70
QC08-1005	3 in.	26.60

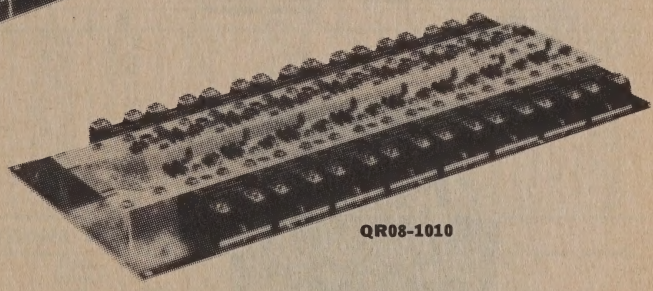
QR08 OUTPUT MODULES


QR08-1001


QR08-1000


QR08-1003


QR08-1008


QR08-1010

QR08 output modules are compatible with any QL08 logic module. A choice of ten different output modules, including electromechanical, solid state and hybrid solid state, provides a variety of switching options. Electromechanical output modules available with either PC board mounted or socket mounted KUP relays, and a choice of 4 or 16 outputs. Any number of four-output modules can be combined for a total of 8, 12 or 16 outputs. An LED wired in parallel with each output (on all modules) indicates operation of any particular output. A QC08 interconnection cable is required to connect any output module to the QL08 logic module, or to connect two or more four-output modules.

ELECTROMECHANICAL OUTPUT MODULES

QR08-1000: Contains 16 electromechanical outputs. **Output Type:** PC board mounted KUP relays. **Form:** DPDT. **Rating:** 10 A at 240 VAC per pole. **Termination:** .250″ quick connect terminals. **Size:** Approx. 18″ x 8.375″ x 2.75″.
P & B No. QR08-1000—Net Each.....**$337.80**

QR08-1002: Similar to QR08-1003. Contains 4 electromechanical outputs. **Output Type:** PC board mounted KUP relays. **Form:** DPDT. **Rating:** 10 A at 240 VAC pole. **Termination:** .250″ quick connect terminals. **Size:** Approx. 11.625″ x 7.5″ x 3″.
P & B No. QR08-1002—Net Each.....**$127.50**

QR08-1003: Contains 4 electromechanical outputs. **Output Type:** Socket mounted KUP relays. **Form:** DPDT. **Rating:** 10 A at 240 VAC per pole. **Termination:** .250″ quick connect terminals. **Size:** Approx. 11.625″ x 7.5″ x 3″.
P & B No. QR08-1003—Net Each.....**$134.50**

QR08-1005: Similar to QR08-1003. Contains 4 electromechanical outputs. **Output Type:** PC board mounted KUP relays. **Form:** DPDT. **Rating:** 10 A at 240 VAC per pole. **Termination:** Screw terminals on barrier strip. **Size:** Approx. 11.625″ x 7.5″ x 3″.
P & B No. QR08-1005—Net Each.....**$136.50**

QR08-1006: Similar to QR08-1003. Contains 4 electromechanical outputs. **Output Type:** PC board mounted KUP relays. **Form:** DPDT. **Rating:** 10 A at 240 VAC per pole. **Termination:** Screw terminals on barrier strip. **Size:** Approx. 11.625″ x 7.5″ x 3″.
P & B No. QR08-1006—Net Each.....**$146.05**

QR08-1008: Contains 16 electromechanical outputs. **Output Type:** Socket mounted KUP relays. **Form:** DPDT. **Rating:** 10 A at 240 VAC per pole. **Termination:** Screw terminals on barrier strip. **Size:** Approx. 19.375″ x 10″ x 3″.
P & B No. QR08-1008—Net Each.....**$482.30**

QR08-1009: Similar to QR08-1008. Contains 16 electromechanical outputs. **Output Type:** Socket mounted KUP relays. **Form:** DPDT. **Rating:** 10 A at 240 VAC per pole. **Termination:** .250″ quick connect terminals. **Size:** Approx. 19.375″ x 10″ x 3″.
P & B No. QR08-1009—Net Each.....**$383.00**

SOLID STATE OUTPUT MODULES

QR08-1001: Contains 4 solid state outputs. **Output Type:** Heatsink mounted triacs. **Form:** SPST-NO. **Rating (at 25° C):** 5 A at 240 VAC. **Termination:** .250″ quick connect terminals. **Size:** Approx. 14.375″ x 6.375″ x 2″.
P & B No. QR08-1001—Net Each.....**$187.00**

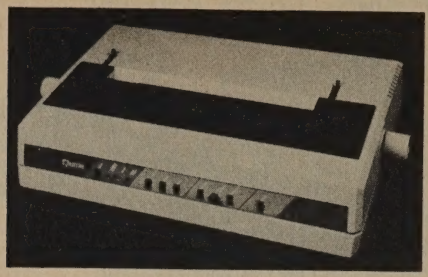
QR08-1004: Similar to QR08-1001. Contains 4 solid state outputs. **Output Type:** Heatsink mounted triacs. **Form:** SPST-NO. **Rating (at 25° C):** 5 A at 240 VAC. **Termination:** Screw terminals on barrier strip. **Size:** Approx. 14.375″ x 6.375″ x 2″.
P & B No. QR08-1004—Net Each.....**$191.00**

HYBRID SOLID STATE OUTPUT MODULE

QR08-1010: Contains 16 hybrid solid state outputs. **Output Type:** Heatsink mounted ECM relays. **Form:** SPST-NO. **Rating (at 25° C):** 1 A at 240 VAC. **Termination:** Screw terminals. **Size:** Approx. 18″ x 8.75″ x 1.75″.
P & B No. QR08-1010—Net Each.....**$331.00**

Qume® A Subsidiary of ITT

Daisywheel Printing Terminals and Floppy Disks



LETTER QUALITY PRINTER

SPRINT 9/45 9/55

PRINT SPEED
- Sprint 9/45 45 CPS
- Sprint 9/55 55 CPS

FONT
125 printwheels in more than 30 type styles. 10, 12 and 15 pitch plus proportional spacing.

PRINT METHOD
Fully formed characters are printed serially with automatic print energy adjustment for different character sizes.

FORMAT
HORIZONTAL – Bi-directional:
- 132 columns at 10 char/in.
- 158 columns at 12 char/in.
- 198 columns at 15 char/in.
- Proportional spacing with 1/120 inch increments.
- Maximum programmable carriage motion 13.1 inches.
- Maximum slew rate 30 in/sec.

VERTICAL – Bi-directional:
- Motion in increments of 1/48 inch.
- Maximum programmable motion is 21 inches.
- Maximum slew rate 5 in/sec.

PLOTTING – basic incremental motions 1/120 inch horizontally and 1/48 inch vertically. Using the "W Plot" and the #82198 printwheel, vertical resolution can be extended to 1/144 inch.

PAPER FEED
- Friction platen standard.
- Bi-Directional Forms Tractor (optional).

FORMS
Single sheet or continuous forms (with forms tractor). Maximum width is 15 inches (38.1 cm).

COMMAND SET
ASCII
Space, backspace, carriage return, line feed, horizontal tab, form feed, bell, end-of text, acknowledge, X-on, X-off.

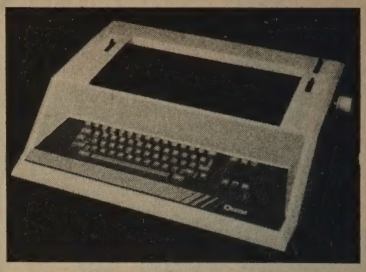
Motion
Define vertical space, define horizontal space, Neg 1/2 line feed, 1/2 line feed, no escapement, absolute movement to line number, relative horizontal movement, relative vertical movement, backspace 1/120 inch.

Tab Commands
Horizontal tab stop, tab set list, tab clear list, clear all horizontal tabs, set left margin, set right margin.

Word Processing Commands
Underscore, bold print, shadow print, proportional spacing. Set top and bottom margin. Special Right Margin Control.

INTERFACE
EIA RS-232C.
CCITT-V.24.
Connector – DB-25P type.

MODEM CAPABILITY
Bell type:
130A
113A
202A
202S
212
or equivalent.



LETTER QUALITY PRINTER

SPRINT 9/35

PRINT SPEED
- Sprint 9/35 35 CPS

FONT
125 printwheels in more than 30 type styles. 10, 12 and 15 pitch plus proportional spacing.

PRINT METHOD
Fully formed characters are printed serially with automatic print energy adjustment for different character sizes.

FORMAT
HORIZONTAL – Bi-directional:
- 132 columns at 10 char/in.
- 158 columns at 12 char/in.
- 198 columns at 15 char/in.
- Proportional spacing with 1/120 inch increments.
- Maximum programmable carriage motion 13.1 inches.
- Maximum slew rate 25 in/sec.

VERTICAL – Bi-directional:
- Motion in increments of 1/48 inch.
- Slew rate 5 in/sec.

PAPER FEED
- Friction platen standard.
- Bi-Directional Forms Tractor (optional).

FORMS
Single sheets or continuous forms (with forms tractor). Maximum width is 15 inches (38.1 cm).

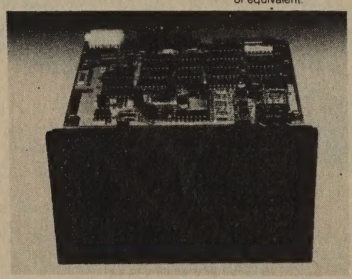
COMMAND SET
ASCII
Space, backspace, carriage return, line feed, horizontal tab, form feed, bell, end-of text, acknowledge, X-on, X-off.

Motion
Neg 1/2 line feed, 1/2 line feed, no escapement, relative horizontal movement, relative vertical movement, backspace 1/120 inch.

Tab Commands
Horizontal tab stop, clear all horizontal tabs, set left margin, set right margin.

INTERFACE
EIA RS-232C.
CCITT-V.24.
Connector – DB-25P type.

MODEM CAPABILITIES
Bell type:
130A
113A
202C
202S
212
or equivalent.



5¼" FLOPPY
QumeTrak 542

Design Features

Expanded storage capacity
- Two-sided, double-density

Proven head carriage assembly
- Ceramic head with tunnel erase
- Dual-head flex mounting arrangement
- Superior head load dynamics

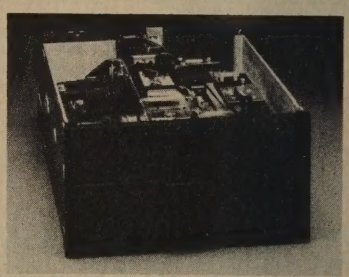
Precise lead screw actuator
- Fast access time — 12 ms track-to-track
- Low friction and minimum wear
- Low power dissipation

Additional features
- Industry standard 5-1/4" media format
- ISO standard write protect
- Door lock out for media protection
- Requires DC voltage only
- Daisy chain up to 4 drives
- Heads load on command independent of loading media

Product Specifications

Performance Specifications

Capacity	
Unformatted	437.5K bytes or 500K bytes
Qume formatted	286.7K bytes or 327.7K bytes
Recording density	5456 BPI
Track density	48 TPI
Cylinders	35 or 40
Tracks	70 or 80
Recording method	FM or MFM
Rotational speed	300 RPM
Transfer rate	250K bits/sec
Latency (avg.)	100 ms
Access Time	
Track-to-track	12 ms
Settling	15 ms
Head Load Time	50 ms



8" FLOPPY
QumeTrak 842

Design Features

Expanded storage capacity
- Two-sided, double density

Fully IBM compatible
- IBM 3740 and System 32 drives
- IBM 3600 and 4964 drives
- IBM System 34 drives

Proven head carriage assembly
- Ceramic head with tunnel erase
- Dual-head flex mounting arrangement
- Superior head load dynamics

Fast, precise steel belt drive
- Fast access time – 3 ms track-to-track
- Low friction and minimum wear
- Low power dissipation

Additional features
- ISO standard write protect
- Programmable door lock
- Negative DC voltage not required
- Daisy chain up to 4 drives
- Side-by-side mounting in standard 19" RETMA rack

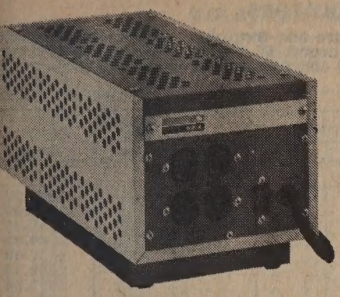
Product Specifications

Performance Specifications

Capacity	
Unformatted	1.6 Mbytes/disk
IBM format	1.2 Mbytes/disk
Recording density	6816 BPI
Track density	48 TPI
Cylinders	77
Tracks	154
Recording method	MFM
Rotational speed	360 RPM
Transfer rate	500K bits/sec
Latency (avg.)	83 ms
Access time	
Track-to-track	3 ms
Settling	15 ms
Average	91 ms
Head Load Time	35 ms
Disk	Diskette 2D or equivalent

PRICES LISTED ARE FOR GUIDANCE ONLY

SOLA ELECTRIC MINI-COMPUTER REGULATORS UL LISTED



The Sola Micro/Mini Computer Ultra Isolated Regulator provides instantaneous voltage regulation, and ultra isolation from both transverse and common mode noise for any type of load. It also suppresses transients, protects against overloads and serves as a portable dedicated line. It is the ultimate in AC line conditioning equipment. The Sola "Micro/Mini" is particularly applicable in systems involving mini or micro computers, POS equipment, microprocessors, or data terminals, where noise and transients cause errors, or low voltage and short term disruptions can result in loss of memory. The output waveshape is sinusoidal and contains less than 3% harmonic distortion, making it ideal for any electronic load. Common mode noise rejection exceeds 120 dB for the regulator, while transverse noise rejection is better than 60 dB; true ultra isolation. Brownout protection is a real bonus feature. Input line voltage variations as great as ±15% are instantaneously regulated to a maximum output deviation of ±3%. And, the output will remain within NEMA voltage specifications for input voltages as low as 65% of nominal. Especially designed for office type environments, the Sola "Micro/Mini" is truely portable and has a low sound level of 43 dB.

PORTABLE

60 Hz Single Phase: Nominal Output Voltage, 120 V. Input Voltage Range, 95–130 V. Units will operate at lower voltage. **50 Hz Single Phase:** Nominal Output Voltage, 220 V. Input Voltage Range, 180–260 V. Units will operate at lower voltage.

60 Hz Single Phase—UL Listed

Output Max. VA Rating	Output Nom. Volts	Input† Voltage Range	Sola No.	Approx. Ship. Wt. (Lbs.)	Dimensions (Inches) Figure #1 A	B	C	Net Each
70	120	95–130	63-13-070	10	11.65	5.58	5.80	$159.00
140	120	95–130	63-13-114	18	11.65	5.58	5.80	208.40
250	120	95–130	63-13-125	31	13.25	7.70	7.05	248.05
500	120	95–130	63-13-150	47	16.24	8.50	8.22	344.00
750	120	95–130	63-13-175	60	16.24	8.50	8.22	438.80
1000	120	95–130	63-13-210	75	16.24	8.50	8.22	508.25
2000*	120	95–130	63-13-220	108	16.50	10.96	10.34	864.35

50 Hz Single Phase—Not UL Listed

70	220	180–260	63-13-570	10	11.65	5.58	5.80	$183.00
140	220	180–260	63-13-614	21	13.25	7.70	7.05	238.50
250	220	180–260	63-13-625	33	13.25	7.70	7.05	286.20
500	220	180–260	63-13-650	45	16.24	8.50	8.22	406.00
1000	220	180–260	63-13-710	72	16.24	8.50	8.22	588.30
2000*	220	180–260	63-13-720	113	16.50	10.96	10.34	1003.85

*30 Amp twist receptacle. †For ±3% output regulation. Unit will operate at lower voltage

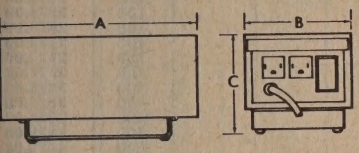


Figure #1

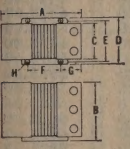


Figure #2

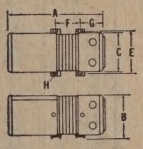


Figure #3

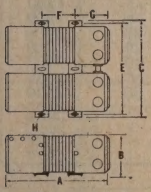


Figure #4

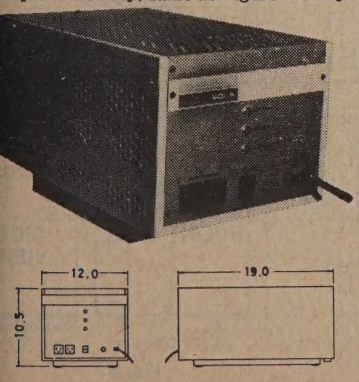
HARD WIRED—UL LISTED 60 Hz SINGLE PHASE

Sola No.	Dimensions, Inches A	B	C	D	E	F	G	H
63-23-112-4	8.62	5.19	3.13	4.00	3.50	3.00	2.44	0.22 x 0.59
63-23-125-4	9.88	7.44	4.50	5.38	4.75	4.12	2.44	0.31 x 0.69
63-23-150-4	14.38	6.44	7.78	9.00	8.12	5.62	3.06	0.38 x 0.81
63-23-175-4	15.38	6.44	7.78	9.00	8.12	5.62	3.06	0.38 x 0.81
63-23-210-4	16.25	6.44	7.78	9.00	8.12	5.62	3.06	0.38 x 0.81
63-23-215-4	18.44	9.03	10.56	....	11.75	3.00	5.19	0.44 x 0.69
63-23-220-4	19.31	9.03	10.56	....	11.75	3.88	5.19	0.44 x 0.69
63-25-230-3	20.69	9.03	10.56	....	11.75	5.25	5.19	0.44 x 0.69
63-26-230	20.69	9.03	10.56	....	11.75	5.25	5.19	0.44 x 0.69
63-25-250	19.88	9.03	25.81	....	24.81	4.44	5.19	0.44 x 0.69
63-26-250	19.88	9.03	25.81	....	24.81	4.44	5.19	0.44 x 0.69
63-28-275	19.88	9.38	38.25	....	37.22	4.44	5.19	0.56 x 0.69

SPECIFICATIONS AND PRICING

Sola No.	Voltage Rating Regulated Output	Input Range	VA	App. Ship. Wt. (Lbs.)	Fig. No.	Net Each, Lots of 1-4	5-9	10-24	25-49
63-23-112-4	120	95–130 x 175–235 x 190–260 x 380–520	120	16	2	$ 162.10	$ 152.40	$ 147.55	$ 142.65
63-23-125-4			250	27	2	212.80	200.05	193.65	187.30
63-23-150-4			500	34	2	326.35	306.80	297.00	287.20
63-23-175-4			750	44	2	414.55	389.70	377.25	364.80
63-23-210-4			1000	55	2	496.10	466.35	451.45	436.60
63-23-215-4			1500	83	3	666.95	626.95	606.95	586.95
63-23-220-4			2000	98	3	844.45	793.80	768.45	743.15
63-25-230-3	120 x 240	95–130 x 175–235 x 190–260	3000	127	3	1250.20	1175.20	1137.70	1100.20
63-26-230		190–260 x 380–520	3000	127	3	1250.20	1175.20	1132.70	1100.20
63-25-250		95–130 x 175–235 x 190–260	5000	215	4	1954.60	1837.35	1778.69	1720.05
63-26-250		190–260 x 380–520	5000	215	4	1954.60	1837.35	1778.69	1720.05
63-28-275		190–260 x 380–520	7500	232	†	2404.35	2260.10	2188.00	2115.85

†Triplex assembly, same as Figure 4 except addition of one more transformer.



SOLA MINI UPS

A true UPS always between the AC line and critical load providing complete protection from brownouts and blackouts as well as line noise and transients. Output waveshape is sinusoidal with less than 3% single harmonic and 5% total harmonic distortion. Regulated output is ±3% when operating from either AC line or battery. Handles load surges and fault clearing providing 125% overload for 1 minute, 150% overload for 10 cycles and 200% into short circuit with 2 automatic restrikes before shutdown. Maintenance-free battery automatically recharges upon return of AC line. Oper. Temp. 0° C to 40° C. Especially designed for small, sensitive electronic equipment such as minicomputers, data terminals, P.O.S. systems. Units measure 12″ x 19″ x 10.5″.

SPECIFICATIONS AND PRICING

Sola No.	Output VA (0.8 pF)	Battery Time	Cooling	Input Volts	Input Hertz	Wt. (Lbs.)	Net Each
26-00-50400-3000	400	10 Min.	Convection	120	60	85	$1314.00
26-00-50400-3001	400	20 Min.	Convection	120	60	100	1339.00
26-00-50750-3000	750	10 Min.	Fan	120	60	120	1425.00
26-29-50300-3000	300	12 Min.	Convection	240	50	100	1445.00
26-29-50300-3001	300	24 Min.	Convection	240	50	115	1474.00
26-29-50600-3000	600	12 Min.	Fan	240	50	135	1568.00

SOLATRON/ACUVOLT LINE VOLTAGE REGULATORS

SOLATRON/ACUVOLT 0.5% LINE-VOLTAGE REGULATORS

The Solatron/Acuvolt LVR static-magnetic line voltage regulator combines fast response, "tight" regulation, adjustable output, remote sensing and high KVA capacity, using no moving parts. **Regulation:** ±0.5% for line changes; ±1% max. for any combination of line, load, temperature and frequency changes within limit **Variation Limits:** Frequency, 57–63 Hz, zero load to full loa temperature, +15° to +40°. **Output Voltage:** Adjustable ±10 of nominal output.

Max. Output KVA	Output Volts	Input Voltage Range	Sola Number	Fig.	Dimensions, Inches A	B	C	D	E	Shpg. Wt. Lbs.	Net Each
SINGLE PHASE—60 Hz ±3 Hz											
0.5	108–132	+10–20%	33-16-150	A	13 7/8	5 3/8	3 1/2	....	....	40	$ 948.00
1	108–132	+10–20%	33-16-210	A	16 3/8	5 3/8	3 1/2	....	....	58	1039.00
1	216–264	+10–20%	33-26-210	A	16 3/8	5 3/8	3 1/2	....	....	58	1039.00
2	108–132	+10–20%	33-16-220-6	B	18 5/8	6 1/4	....	....	....	81	1039.00
2	208–250	+10–20%	33-26-220-6	B	18 5/8	6 1/4	....	....	....	81	1039.00
3	108–132	+10–20%	33-16-230-6	B	19 1/2	6 1/4	....	....	....	95	1599.00
3	208–250	+10–20%	33-26-230-6	B	19 1/2	6 1/4	....	....	....	95	1599.00
5	108–132	+10–20%	33-16-250-6	B	21 3/8	8 1/4	....	....	....	127	2082.00
5	208–250	+10–20%	33-26-250-6	B	21 3/8	8 1/4	....	....	....	127	2082.00
5	432–528	+10–20%	33-46-250-6	B	21 3/8	8 1/4	....	....	....	127	2082.00
7.5	108–132	+10–20%	33-16-275-6	B	23 3/4	10 1/4	....	....	....	168	2579.00
7.5	208–250	+10–20%	33-26-275-6	B	23 3/4	10 1/4	....	....	....	168	2579.00
7.5	432–528	+10–20%	33-46-275-6	B	23 3/4	10 1/4	....	....	....	168	2579.00
10	108–132	+10–20%	33-16-310-6	B	23 3/4	10 1/4	....	....	....	193	2777.00
10	208–250	+10–20%	33-26-310-6	B	23 3/4	10 1/4	....	....	....	193	2777.00
10	432–528	+10–20%	33-46-310-6	B	23 3/4	10 1/4	....	....	....	193	2777.00
15	108–132	+10–20%	33-16-315	C	23 5/8	9	....	....	....	400	3025.00
15	188–228	+10–20%	33-06-315	C	23 5/8	9	....	....	....	400	3025.00
15	216–264	+10–20%	33-26-315	C	21 15/16	7 3/8	....	....	....	400	3025.00
15	432–528	+10–20%	33-46-315	C	22 7/16	7 13/16	....	....	....	400	3025.00
25	108–132	+10–20%	33-16-325	C	31 5/8	9 3/4	....	....	....	520	4433.00
25	188–228	+10–20%	33-06-325	C	31 5/8	9 3/4	....	....	....	520	4433.00
25	216–264	+10–20%	33-26-325	C	31 5/8	9 3/4	....	....	....	520	4433.00
25	432–528	+10–20%	33-46-325	C	31 5/8	9 3/4	....	....	....	520	4433.00
33	108–132	±10%	31-16-333-5	E	42	34	28	21	20	700	6079.00
33	216–264	±10%	31-26-333-5	E	42	34	28	21	20	700	6079.00
33	432–528	±10%	31-46-333-5	E	42	34	28	21	20	700	6079.00
37.5	108–132	±10%	31-16-337	C	24 3/8	9 3/4	....	....	....	525	5585.00
37.5	216–264	±10%	31-26-337	C	24 3/8	9 3/4	....	....	....	525	5585.00
37.5	432–528	±10%	31-46-337	C	24 3/8	9 3/4	....	....	....	525	5585.00
50	114–126	±10%	31-16-350-5	E	42	34	28	21	20	1050	6601.00
50	228–252	±10%	31-26-350-5	E	42	34	28	21	20	1050	6601.00
50	456–504	±10%	31-46-350-5	E	42	34	28	21	20	1050	6601.00
75	114–126	±10%	31-16-375-5	E	55	37	34	21	26	1500	8270.00
75	228–252	±10%	31-26-375-5	E	55	37	34	21	26	1500	8270.00
75	456–504	±10%	31-46-275-5	E	55	37	34	21	26	1500	8270.00
100	114–126	±10%	31-16-410-5	E	55	37	34	21	26	1900	9901.00
100	228–252	±10%	31-26-410-5	E	55	37	34	21	26	1900	9901.00
100	456–504	±10%	31-46-410-5	E	55	37	34	21	26	1900	9901.00
150	114–126	±10%	31-16-415-5	E	65	42	38	24	30	2500	11856.00
150	228–252	±10%	31-26-415-5	E	65	42	38	24	30	2500	11856.00
150	456–504	±10%	31-46-415-5	E	65	42	38	24	30	2500	11856.00
200	114-126	±10%	31-26-420-5	E	43	74	48	....	....	3100	13437.00
200	228–252	±10%	31-46-420-5	E	43	74	48	....	....	3100	13437.00
250	228–252	±10%	31-26-425-5	E	43	74	48	....	....	3600	14821.00
250	456–504	±10%	31-46-425-5	E	43	74	48	....	....	3600	14821.00
SINGLE PHASE—50 Hz ±3 Hz											
1	108–132	+10–20%	33-18-210	A	17 1/4	7 3/8	3 1/2	....	....	65	$1122.00
1	207–253	+10–20%	33-78-210	A	17 1/4	7 3/8	3 1/2	....	....	65	1122.00
2	108–132	+10–20%	33-18-220-6	B	19	6 1/4	....	....	....	89	1654.00
2	208–250	+10–20%	33-78-220-6	B	19	6 1/4	....	....	....	89	1654.00
3	108–132	+10–20%	33-18-230-6	B	20 1/8	6 1/4	....	....	....	106	1823.00
3	208–250	+10–20%	33-78-230-6	B	20 1/8	6 1/4	....	....	....	106	1823.00
5	108–132	+10–20%	33-18-250-6	B	22 1/4	10 1/4	....	....	....	143	2159.00
5	208–250	+10–20%	33-78-250-6	B	22 1/4	10 1/4	....	....	....	143	2159.00
7.5	108–132	+10–20%	33-18-275-6	B	23 3/4	10 1/4	....	....	....	189	2858.00
7.5	208–250	+10–20%	33-78-275-6	B	23 3/4	10 1/4	....	....	....	189	2858.00
10	108–132	+10–20%	33-18-310	C	20	5 3/8	....	....	....	340	2959.00
10	207–253	+10–20%	33-78-310	C	20	5 3/8	....	....	....	340	2959.00
15	108–132	+10–20%	33-18-315	C	23 5/8	9	....	....	....	465	3582.00
15	207–253	+10–20%	33-78-315	C	22 1/16	8 1/16	....	....	....	465	3582.00

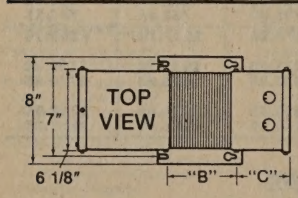


Fig. A

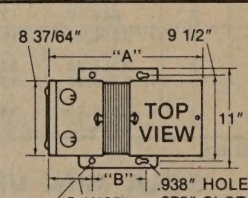


Fig. B

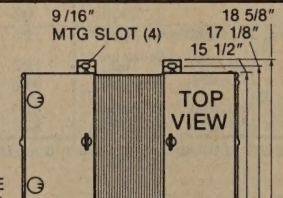


Fig. C

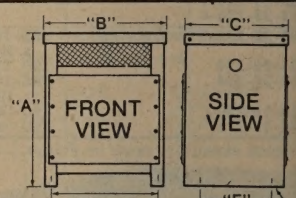


Fig. D

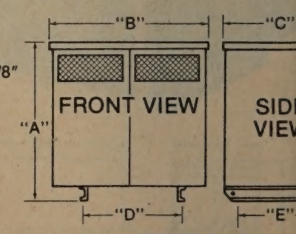


Fig. E

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PRICES LISTED ARE FOR GUIDANCE ONLY

SOLATRON/ACUVOLT LINE VOLTAGE REGULATORS

SOLATRON/ACUVOLT 0.5% LINE-VOLTAGE REGULATORS (CONTINUED)

Max. Output KVA	One Phase Output Volts	Input Voltage Range	Sola Number	Fig.	Dimensions, Inches A	B	C	D	E	Shpg. Wt. Lbs.	Net Each
THREE PHASE WYE—60 Hz ±3 Hz											
1.5	108–132	+10–20%	39-06-215	D	24	19	16	17⅛	11	210	$ 2730.00
3	108–132	+10–20%	39-06-230	D	24	19	16	17⅛	11	265	3014.00
6	108–132	+10–20%	39-06-260-6	D	43	29	19½	26¾	14½	325	3820.00
9	108–132	+10–20%	39-06-290-6	D	43	29	19½	26¾	14½	370	4250.00
15	108–132	+10–20%	39-06-315-6	D	43	29	19½	26¾	14½	452	5214.00
15	250–304	+10–20%	39-46-315-6	D	43	29	19½	26¾	14½	452	5214.00
22.5	108–132	+10–20%	39-06-322-6	D	43	29	19½	26¾	14½	558	6332.00
22.5	250–304	+10–20%	39-46-322-6	D	43	29	19½	26¾	14½	558	6332.00
30	108–132	+10–20%	39-06-330-6	D	43	29	19½	26¾	14½	610	7060.00
30	250–304	+10–20%	39-46-330-6	D	43	29	19½	26¾	14½	610	7060.00
45	108–132	+10–20%	39-06-345	D	51½	36	27	33	16	1300	8338.00
45	250–304	+10–20%	39-46-345	D	51½	36	27	33	16	1300	8338.00
50	114–126	±10%	39-06-375	E	35	36	36½	....	....	1200	11061.00
50	264–290	±10%	39-46-375	E	35	36	36½	....	....	1200	11061.00
75	108–132	+10–20%	37-06-350-5	D	51½	36	27	33	16	1645	9556.00
75	250–304	+10–20%	37-46-350-5	D	51½	36	27	33	16	1645	9556.00
75	114–126	±10%	37-06-375-5	E	46	52½	44½	16½	18	1700	11774.00
75	264–290	±10%	37-46-375-5	E	46	52½	44½	16½	18	1700	11774.00
100	114–126	±10%	37-06-410-5	E	44½	46	52½	....	....	2100	15139.00
100	264–290	±10%	37-46-410-5	E	44½	46	52½	....	....	2100	15139.00
150	114–126	±10%	37-06-415-5	E	54	60	50	19¼	22	3450	18546.00
150	264–290	±10%	37-46-415-5	E	54	60	50	19¼	22	3450	18546.00
225	114–126	±10%	37-06-422-5	E	60	62½	56	21	20	3700	20667.00
225	264–290	±10%	37-46-422-5	E	60	62½	56	21	20	3700	20667.00
300	114–126	±10%	37-06-430-5	E	60	62½	56	21	20	4800	23047.00
300	264–290	±10%	37-46-430-5	E	60	62½	56	21	20	4800	23047.00
500	114–126	±10%	37-06-450-5	E	72	66	60	22¼	26	6000	29776.00
500	264–290	±10%	37-46-450-5	E	72	66	60	22¼	26	6000	29776.00
750	264–209	±10%	37-46-475-5	E	78	80	72	....	....	8100	40003.00
THREE PHASE WYE—50 Hz ±3 Hz											
3	108–132	+10–20%	39-05-230	D	24	19	16	17⅛	11	285	$3023.00
3	207–253	+10–20%	39-75-230	D	24	19	16	17⅛	11	285	3023.00
6	108–132	+10–20%	39-05-260-6	D	43	29	19½	26¾	14½	340	4114.00
6	207–253	+10–20%	39-75-260-6	D	43	29	19½	26¾	14½	340	4114.00
9	108–132	+10–20%	39-05-290-6	D	43	29	19½	26¾	14½	385	4616.00
9	207–253	+10–20%	39-75-290-6	D	43	29	19½	26¾	14½	385	4616.00
15	108–132	+10–20%	39-05-315-6	D	43	29	19½	26¾	14½	475	5781.00
15	207–253	+10–20%	39-75-315-6	D	43	29	19½	26¾	14½	475	5781.00
22.5	108–132	+10–20%	39-05-322-6	D	43	29	19½	26¾	14½	530	7538.00
22.5	207–253	+10–20%	39-75-322-6	D	43	29	19½	26¾	14½	530	7538.00
30	108–132	+10–20%	39-05-330	D	51½	36	27	33	16	1135	7950.00
30	207–253	+10–20%	39-75-330	D	51½	36	27	33	16	1135	7950.00
45	108–132	+10–20%	39-05-345	D	51½	36	27	33	16	1495	9531.00
45	207–253	+10–20%	39-75-345	D	51½	36	27	33	16	1495	9531.00
THREE PHASE DELTA—60 Hz ±3 Hz											
1.7	216–264	+10–20%	39-29-217	D	24	19	16	17⅛	11	265	$ 3048.00
3.5	216–264	+10–20%	39-29-235-6	D	43	29	19½	26¾	14½	325	3820.00
5.2	216–264	+10–20%	39-29-252-6	D	43	29	19½	26¾	14½	370	4250.00
8.5	188–228	+10–20%	39-09-285-6	D	43	29	19½	26¾	14½	452	5216.00
8.5	216–264	+10–20%	39-29-285-6	D	43	29	19½	26¾	14½	452	5216.00
8.5	432–528	+10–20%	39-49-285-6	D	43	29	19½	26¾	14½	452	5216.00
13	188–228	+10–20%	39-09-313-6	D	43	29	19½	26¾	14½	508	6332.00
13	216–264	+10–20%	39-29-313-6	D	43	29	19½	26¾	14½	508	6332.00
13	432–528	+10–20%	39-49-313-6	D	43	29	19½	26¾	14½	508	6332.00
17	188–228	+10–20%	39-09-317-6	D	51½	36	27	33	16	1000	7060.00
17	216–264	+10–20%	39-29-317-6	D	51½	36	27	33	16	1000	7060.00
17	432–528	+10–20%	39-49-317-6	D	51½	36	27	33	16	1000	7060.00
26	188–228	+10–20%	39-09-326	D	51½	36	27	33	16	1300	8338.00
26	216–264	+10–20%	39-29-326	D	51½	36	27	33	16	1300	8338.00
26	432–528	+10–20%	39-49-326	D	51½	36	27	33	16	1300	8338.00
43	188–228	+10–20%	30-09-343	D	51½	36	27	33	16	1645	11057.00
43	216–264	+10–20%	39-29-343	D	51½	36	27	33	16	1645	11057.00
43	432–528	+10–20%	39-49-343	D	51½	36	27	33	16	1645	11057.00
50	216–264	±10%	37-29-350-5	E	35	36	36½	....	....	1200	9556.00
50	432–528	±10%	37-49-350-5	E	35	36	36½	....	....	1200	9556.00
65	216–264	±10%	37-29-365	D	51½	36	37	33	16	1660	10012.00
65	432–528	±10%	37-49-365	D	51½	36	37	33	16	1660	10012.00
75	216–264	±10%	37-29-375-5	E	44½	46	52½	....	....	1700	11922.00
75	432–528	±10%	37-49-375-5	E	44½	46	52½	....	....	1700	11922.00
100	216–264	±10%	37-29-410-5	E	44½	46	52½	....	....	2100	15552.00
100	432–528	±10%	37-49-410-5	E	44½	46	52½	....	....	2100	15552.00
150	216–264	±10%	37-29-415-5	E	50	56	60	....	....	2700	18546.00
150	432–528	±10%	37-49-415-5	E	50	56	60	....	....	2700	18546.00
225	216–264	±10%	37-29-422-5	E	56	60	62½	....	....	3700	20667.00
225	432–528	±10%	37-49-422-5	E	56	60	62½	....	....	3700	20667.00
300	216–264	±10%	37-29-430-5	E	56	60	62½	....	....	4500	23047.00
300	432–528	±10%	37-49-430-5	E	56	60	62½	....	....	4500	23047.00
500	216–264	±10%	37-29-450-5	E	72	72	66	....	....	6000	29766.00
500	432–528	±10%	37-49-450-5	E	72	72	66	....	....	6000	29766.00
750	432–528	±10%	37-49-475-5	E	78	80	72	....	....	8100	40003.00
THREE PHASE DELTA—50 Hz ±3 Hz											
1.7	207–253	+10–20%	39-78-217	D	24	19	16	17⅛	11	285	$3049.00
3.5	207–253	+10–20%	39-78-235-6	D	43	29	19½	26¾	14½	423	4162.00
5.2	207–253	+10–20%	39-78-252-6	D	43	29	19½	26¾	14½	504	4704.00
8.5	207–253	+10–20%	39-78-285-6	D	43	29	19½	26¾	14½	666	5779.00
13	207–253	+10–20%	39-78-313-6	D	51½	36	27	33	16	805	7237.00
17	207–253	+10–20%	39-78-317	D	51½	36	27	33	16	1135	8535.00
26	207–253	+10–20%	39-78-326	D	51½	36	27	33	16	1495	9529.00

Superior Electric Voltage Regulators

STABILINE® AUTOMATIC VOLTAGE CONTROLS

All STABILINE voltage controls listed are recognized under the Components Program of Underwriters Laboratories, Inc.

CR SERIES COMPUTER REGULATORS

Units maintain properly conditioned voltage to computers and other voltage-critical equipment. Simple plug and cord connection to voltage source; two grounded receptacles for connecting equipment. Provide output of 120 volts, rms, ±3%, 60 Hz, over an input range of 95 to 130 volts, rms. Also provide 60 dB common-mode noise rejection to help prevent computer errors, loss of information and other noise-related problems.

SVR SERIES AUTOMATIC VOLTAGE REGULATORS

Highly efficient, extremely fast, solid-state regulators designed for a variety of voltage control applications. They are very light in weight when compared with many other units of similar kVA ratings. Provide accuracy of ±3.5% for all line, load and power factor variations. Have virtually zero waveform distortion. Other series in the complete line include EMT and EMS (Electromechanical Solid-State), EMK (Electromechanical) and IES (Instantaneous Electronic Solid-State) with ratings to 300 kVA.

SVRS SERIES TRANSIENT SUPPRESSORS/VOLTAGE REGULATORS

In addition to correcting for high or low voltage from power sources, SVRS Series units attenuate transverse-mode (line-to-line) noise and transients. Transient voltage attenuation of 40 dB from 5 to 50 kHz. Provide the all-around protection needed by computers, business machines, word processors, micro-processor-based equipment and other voltage sensing devices to reduce or eliminate disruptions, data errors, loss of information and equipment failure. For 50/60 Hz duty

Superior Number	† Fig.	Nominal Output Volts	Input Voltage Range	Max. Output Amps	Rated Output kVA	Weight Lbs.	Net Each
CR COMPUTER REGULATORS							
CR7105PCU	A	120	95–130	4.17	0.5	39	$369.00
CR7110PCU	A	120	95–130	8.33	1.0	60	548.00
CR7120PCU	A	120	95–130	16.67	2.0	110	934.00
SVR AUTOMATIC VOLTAGE REGULATORS							
SVR8101CU	B	115	100–135	8.7	1.0	28	$502.00
SVR8102CU	B	115	100–135	17.4	2.0	40	709.00
SVR8104CU	B	115	100–135	34.8	4.0	45	939.00
SVR8201CU	B	220	192–255	4.5	1.0	28	537.00
SVR8202CU	B	220	192–255	9.1	2.0	40	747.00
SVR8204CU	B	220	192–255	18.2	4.0	49	997.00
SVRS TRANSIENT SUPPRESSORS/VOLTAGE REGULATORS							
SVRS88101CU	B	115	100–135	8.7	1.0	36	$ 697.00
SVRS88102CU	B	115	100–135	17.4	2.0	50	995.00
SVRS88104CU	B	115	100–135	34.8	4.0	52	1345.00
SVRS88201CU	B	220	192–255	4.5	1.0	41	790.00
SVRS88202CU	B	220	192–255	9.1	2.0	48	1083.00
SVRS88204CU	B	220	192–255	18.3	4.0	56	1414.00

TVS SERIES TRANSIENT VOLTAGE SUPPRESSORS

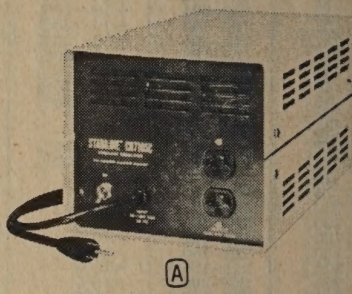
Attenuate transverse-mode (line-to-line) noise or transients. Attenuate consistently regardless of position on sine wave or direction the transient is applied. Do not rely on absolute magnitude before attenuation occurs. Response time is virtually instantaneous and transient reduction is 40 dB (100 to 1) from 5 to 50 kHz. For 50/60 Hz duty.

IT SERIES ISOLATION TRANSFORMERS

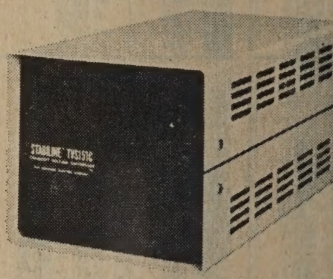
Multishielded isolation transformers exhibiting low capacitance between primary and secondary windings. Effective for isolating sensitive equipment and attenuating common-mode noise generated by power consuming devices. Interwinding capacitance is 0.005 pF and common-noise attenuation is 126 dB. For 50/60 Hz duty.

Superior Number	† Fig.	Line Volts	Output Volts	Output Amps	Weight Lbs.	Net Each
TVS TRANSIENT VOLTAGE SUPPRESSORS						
TVS151CU	B	120	120	15	11	$225.00
TVS151PCU	B	120	120	15	11	251.00
TVS301CU	B	120	120	30	13	346.00
TVS601CU	B	120	120	60	24	622.00
TVS152CU	B	240	240	15	11	304.00
TVS302CU	B	240	240	30	13	453.00
TVS602CU	B	240	240	60	24	698.00
IT ISOLATION TRANSFORMERS						
IT105	C	120	120	4.17	23	$254.00
	C	240	240	2.08		
IT110	C	120	120	8.35	40	401.00
	C	240	240	4.17		
IT125	C	120	120	20.85	61	466.00
	C	240	240	10.43		
IT150	C	120	120	41.70	100	533.00
	C	240	240	20.85		

†Figures are approximate; call for details.



A



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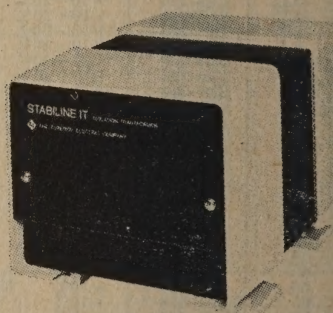


C

For full information about the complete line of STABILINE Automatic Voltage Controls in ratings from ½ to 300 kVA, contact your nearest sales office.

Model 743 Keyboard Send-Receive and Receive-Only Data Terminals

The compact *Silent 700* Model 743 KSR or RO with USASCII code and either EIA RS232-C serial interface or serial dc-current loop interface...ideal for computer input/output.

FEATURES

QUIET OPERATION
TI's unique solid state printhead develops characters on thermal sensitive paper and eliminates the undesirable noise associated with most other printers.

MICROPROCESSOR RELIABILITY
TI microprocessor, MOS/LSI integrated circuits, solid state printhead, and a minimum of moving parts are keys to performance and reliable, long life operation.

STANDARD FEATURES
Operator selectable speeds of 10 or 30 characters per second.

True 30 cps throughput, i.e., no filler characters required after line feed or carriage return characters.

5 x 7 dot matrix with print contrast control.

Switch-selectable half or full duplex operation.

EIA RS-232-C serial interface or serial dc-current loop interface; specify at purchase.

If EIA interface is selected, specify whether Bell 103A or Bell 113A cable is required.

Standard ASCII Keyboard with *calculator-type* embedded numeric key pad and two key roll-over.

OPTIONAL FEATURES
Answerback Memory—Factory set, read-only memory transmits serially up to 21 USASCII characters as a station identification. The answerback memory is activated locally by the HERE IS key and is triggered remotely via receipt of the ENQ character.

Internal Modem—Built-in 300 baud Bell 100 Series compatible modem *(originate* mode) enables communication via switched telephone network. Requires a CDT date access arrangement for manual originate only.

Full ASCII Keyboard—Standard Model 743 will decode and print lower case data received from the communications line as upper case characters. The Full ASCII Keyboard option enables the user to generate lower case data from the keyboard for direct transmission and print lower case data.

Dual APL/Full ASCII Keyboard—This option offers the user switch selectable APL or Full ASCII character sets. Other key features include backspace function, character repeat, and 5 x 5 font for true underscore.

EIA/Auxiliary Modem Cable—Cable enables auxiliary use of optional internal modem with such devices as data loggers, cassette recorders, mini-computers, etc. plus EIA interface to keyboard/printer.

Receive-Only Keyboard—
Replacing the standard keyboard, a modified front panel incorporates only paper advance and speed select switches.

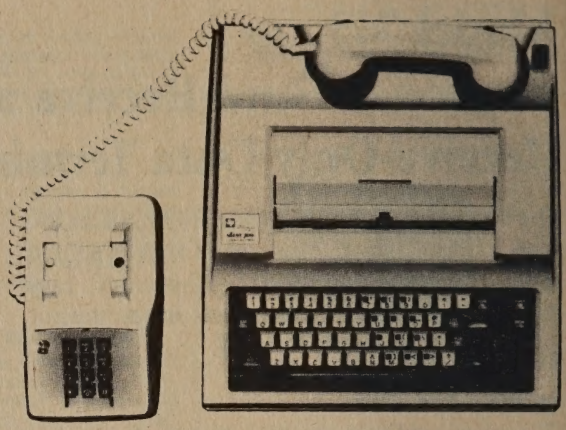
ITEM NO.	DESCRIPTION (Order by Item No.) MODEL 743 KSR	PURCHASE LIST PRICE $
110	Keyboard Send Receive (KSR)	1195
111	Receive only (RO)	995

Standard configuration:
- **Limited ASCII character set (R.O.)**
- **Limited ASCII keyboard (KSR Model)**
- **EIA or TTY interface must be specified on order. If EIA, specify Bell 103A or Bell 113A cable.**

ITEM NO.	CONFIGURATION OPTIONS (Order by Item No.)	Purchase Adder $
	KEYBOARD OPTIONS (Replaces Ltd. ASCII; select one or none)	
230	• Upper-lower case alphabet (KSR)	100
231	• Upper-lower case alphabet (RO)	100
232	• APL (KSR)	175
	INTERFACE OPTION	
330	• 300 baud built-in Modem (Originate-KSR)[2]	195
	CONTROL OPTION	
430	• Answer-back Memory (specify desired code, and print or no-print)	75

Model 745
Portable Data Terminal

Access to your home office computer can be as close as the nearest telephone and electrical outlet...*anywhere.* At just 6 kg (13 pounds), the *Silent 700* Model 745 Portable Data Terminal has that *briefcase mobility* which enables you to get the right information on-the-spot...when it counts.



FEATURES

QUIET OPERATION

TI's unique solid state printhead develops characters on thermal sensitive paper and eliminates the undesirable noise associated with most other printers.

MICROPROCESSOR RELIABILITY

TI microprocessor, MOS/LSI integrated circuits, solid state printhead, and a minimum of moving parts are keys to performance and reliable, long life operation.

STANDARD FEATURES

Operator selectable speeds of 10 or 30 characters per second.

True 30 cps throughout, i.e., no filler characters required after line feed or carriage return characters.

5 x 7 dot matrix with print contrast control

Built-in solid state acoustic coupler for communication via switched telephone network.

Switch-selectable half or full duplex.

Briefcase-like carrying case.

Standard ASCII keyboard with calculator-type embedded numeric keypad and two key roll-over feature.

OPTIONAL FEATURES

EIA/Auxiliary Coupler Cable Kit—Enables auxiliary use of the acoustic coupler with such devices as data loggers, cassette recorders, mini-computers, etc., plus EIA interface to keyboard/printer.

Answerback Memory—Factory set, read-only memory transmits serially up to 21 USASCII characters as a station identification. The answerback memory is activated locally by the HERE IS key and is triggered remotely via receipt of the ENQ character.

Full ASCII Keyboard—Standard Model 745 will decode and print lower case data received from the communications line as upper case characters. The Full ASCII Keyboard option enables the user to generate lower case data from the keyboard for direct transmission. The option provides an UPPER CASE ONLY key which prevents the Full ASCII Keyboard from generating lower case data for those applications where the user does not desire lower case.

Dual APL/Full ASCII Keyboard—This option offers the user switch-selectable APL or Full ASCII character sets. Other key features include backspace function, character repeat, and 5 x 5 font for true underscore.

ITEM NO.	DESCRIPTION (Order by Item No.)	PURCHASE LIST PRICE $
115	Model 745 Portable KSR	1695

Standard Configuration:
- **Limited ASCII Keyboard**
- **Built-in acoustic coupler**

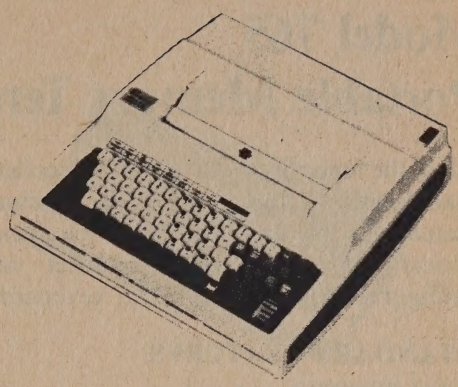
ITEM NO.	CONFIGURATION OPTIONS (ORDER BY ITEM NO.)	Purchase Adder $
	KEYBOARD OPTION (Replaces Ltd. ASCII; select one or none)	
238	• Upper-lower case keyboard	100
239	• APL/Full ASCII	175
	CONTROL OPTION	
439	• Answer-back memory (specify desired code, and print or no-print)	75

PRICES LISTED ARE FOR GUIDANCE ONLY

TEXAS INSTRUMENTS

Model 763 Memory Send-Receive Terminal

All of the functions required for data collection, manipulation, storage and transmission are included as standard features of the *Silent 700* Model 763. The user can select various configurations via the terminal keyboard.



STANDARD FEATURES

QUIET PRINTING

TI's unique solid state printhead gives 30 characters per second printing eliminating undesirable noise associated with most other printers.

BUBBLE MEMORY STORAGE

Using TI's new Bubble Memory technology allows nonvolatile data storage and eliminates reliability problems associated with storage media requiring moving parts or batteries.

SINGLE COMPACT ENCLOSURE

The Model 763 combines the latest technology with the state of the art design, to offer all the desired ASR features in a single enclosure that is compact in size and light in weight.

USER SELECTABLE CONFIGURATION

All the configuration parameters in the Model 763 can be changed by the user employing the COMMAND Key on the keyboard and followed by typing the desired change command in "English Text" form. These configuration parameters include the parity sense, communications mode, answer-back memory contents, communications baud rate, communications port select, designate record or play-back file, enable (or Disable) EDC (Extended Device Control), EOT disconnect, buffered operation, etc.

DUAL COMMUNICATIONS PORTS

The Model 763 provides two communications ports. One is an external EIA port; the other is an internal modem or D.C. current loop port. Both ports can be physically connected to its interfacing device. However, only one port can be activated at a time.

STANDARD FEATURES EIA RS-232-C serial interface or serial dc-current loop interface; specify at purchase. If EIA interface is selected, specify whether Bell 103A or Bell 113A cable is required.

OPTIONAL FEATURES

Memory Expansion—Standard Model 763 provides 20K characters of bubble memory storage. Additional memory is available in 20K increments up to 80K total.

Internal Modem—Built-in 300 baud Bell 100 Series compatible modem (*originate* mode) enables communication via switched telephone network. Requires a CDT data access arrangement for manual originate only.

ITEM NO.	DESCRIPTION (ORDER BY ITEM NO.)	PURCHASE LIST PRICE $
120	Model 763 Memory Send-Receive Terminal	2695

Standard configuration:
- **Upper/lower case keyboard**
- **EIA or TTY interface must be specified on order. If EIA, specify Bell 103A (Item No. 051) or Bell 113A (Item No. 055) cable.**

ITEM NO.	CONFIGURATION OPTIONS (ORDER BY ITEM NO.)	PURCHASE ADDER $
	INTERFACE OPTION	
350	• 300 Baud Built-in Modem (originate)	195
	MEMORY OPTION	
650	• Bubble Memory Expansion (20K Bytes)	500

TEXAS INSTRUMENTS

Model 765
Portable Memory Terminal

All of the functions required for data collection, manipulation, storage and transmission are included as standard features of the *Silent 700* Model 765. The user can select various configurations via the terminal keyboard.

STANDARD FEATURES

QUIET PRINTING
TI's unique solid state printhead gives 30 characters per second printing eliminating undesirable noise associated with most other printers.

BUBBLE MEMORY STORAGE
Using TI's new Bubble Memory technology allows nonvolatile data storage and eliminates reliability problems associated with storage media requiring moving parts or batteries.

SINGLE COMPACT ENCLOSURE
The Model 765 combines the latest technology with the state-of-the-art design, to offer all the desired ASR features in a single enclosure that is compact in size, light in weight, and as convenient to carry as a briefcase.

ITEM NO.	DESCRIPTION (ORDER BY ITEM NO.)	PURCHASE LIST PRICE $
125	Model 765 Portable Memory Terminal (Includes built-in acoustic coupler)	2995

USER SELECTABLE CONFIGURATION
All the configuration parameters in the Model 765 can be changed by the user employing the COMMAND Key on the keyboard and followed by typing the desired change command in "English Text" form. These configuration parameters include the parity sense, communications mode, answer back memory contents, communications baud rate, communications port select, designate record or play-back file, enable (or disable) EDC (Extended Device Control), EOT disconnect, buffered operation, etc.

DUAL COMMUNICATIONS PORTS
The Model 765 provides two communications ports. One is an external EIA port; the other is an acoustic coupler port. Both ports can remain physically connected to an interfacing device. However, only one port can be activated at a time.

OPTIONAL FEATURES
Standard Model 765 provides 20K characters of bubble memory storage. Additional memory is available in 20K increments up to 80K total.

Standard Configuration:
- **Upper/lower case keyboard**
- **Built-in acoustic coupler**

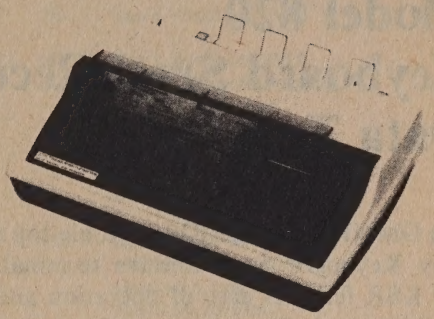
ITEM NO.	CONFIGURATION OPTIONS (ORDER BY ITEM NO.)	PURCHASE ADDER $
655	MEMORY OPTION • Bubble Memory Expansion (20K Bytes)	500

PRICES LISTED ARE FOR GUIDANCE ONLY

Model 810
Receive-Only Printer

Key features of the OMNI 800 Model 810 include high-speed smart printing, microprocessor reliability and high quality multicopies.

Cables are not supplied with the EIA, LBT or LBE interfaces. Should cables or connectors be required, they may be ordered.
The TTY interface is shipped with a 1.8 m (6 foot) cable. Connectors only are supplied with the PLL and LBP interfaces.



ITEM NO.	DESCRIPTION	PURCHASE LIST PRICE $
100	BASIC MODEL 810	1645

STANDARD FEATURES

- 150 character-per-second bidirectional printing
- 9×7 wire matrix assembly printhead
- EIA RS-232-C serial interface
- Character buffering
- Switch-selectable parity
- Switchable speeds: 110, 150, 300, 1200, 2400, 4800 and 9600 baud.
- Software or control panel programming allows for ease of defining forms length or setting of vertical tabs, without the necessity of punching paper tape.
- Off-line test capability
- Provides clear, legible printing on original and up to 5 copies
- Wide carriage handles forms from 77 to 381 mm (3 to 15 inches)

OPTIONAL FEATURES

- Vertical Forms Control
- Forms Length Control
- Compressed Print
- Expanded Print
- Five interfaces from which to choose if EIA RS-232-C not desired
- 9-Copy Printhead, providing clear, legible printing on airline ticket stock, is available upon request.
- Tear Bar
- Printer Stand, if desk-top operation not desired

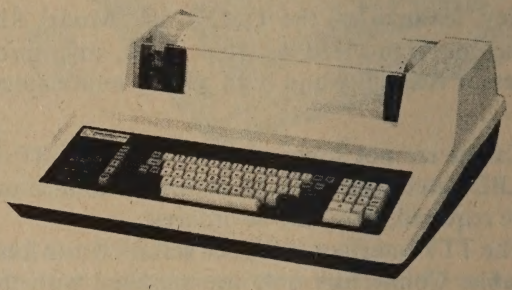
Standard configuration:
- **EIA RS-232-C interface with configuration descriptions no. 1, 3, 11, 13.**
- **Limited ASCII character set.**

ITEM NO.	OPTIONS (ORDER BY ITEM NO.)	PURCHASE ADDER $
	DOMESTIC CHARACTER SET OPTIONS (select one or none)	
201	• Full ASCII (replaces Ltd. ASCII)	100
202	• Expanded Characters 5 CPI (5c/25.4mm)	100
	INTERFACE OPTIONS (select one or none.)	
302	• TTY	50
303	• PLL	45
304	• LBE	200
305	• LBT	200
306	• LBP	200
	FORMS OPTIONS (select one or none)	
401	• Forms Length Control	100
402	• Forms Length Control with Compressed Print	200
403	• Vertical Forms Control	200
404	• Vertical Forms Control With Compressed Print	300
601	TEAR BAR OPTION	40
602	PRINTER STAND	100
604	STAND MOUNTED PAPER CATCH TRAY	50
606	PRINTER STAND W/STAND MOUNTED CATCH TRAY	150

Model 820 Keyboard Send-Receive Data Terminal

The OMNI 800 Model 820 is a table-top multi-copy Keyboard Send-Receive terminal. The 820 KSR features ease of operation and user flexibility and offers a large number of standard features and options.

To ensure proper ordering please refer to "820 KSR Operating Parameters/Configuration Options" in the *820 KSR Characteristics Guide.*



STANDARD FEATURES

PRINTER CHARACTERISTICS

- 150 character-per-second 9 x 7 wire matrix assembly printhead
- 640 character FIFO buffer provides maximum printing efficiency via uni-directional and bi-directional printing
- Buffer overflow protection
- 132 character position print line
- 10 characters per inch
- 95 printable ASCII characters
- Wide carriage handles forms from 77 to 381 mm (3.0 to 15.0 inches) in width
- Clear, legible printing on original and up to five copies
- Printhead-to-platen forms thickness control
- Rear and bottom paper feed
- Paper out/jam/fault detection and signal
- Operator selectable View Mode feature
- Quiet operation

KEYBOARD CHARACTERISTICS

- Full ASCII (ANSI typewriter compatible)
- N-Key roll over
- Automatic character repeat feature
- Operator control panel, including line status indicators and 3 digit LED Terminal Status Display

COMMUNICATION CHARACTERISTICS

- Asynchronous, USASCII, EIA RS-232-C interface
- Bell 103, 113, 202, 212 compatible
- Selectable baud rates (110 to 9600)
- Full/half duplex; half duplex with reverse channel
- Parity includes odd, even, mark, or space
- Automatic answer and disconnect features
- Operator programmable Answerback Memory with up to 21 programmable characters
- Operator configurable line turnaround characters, half duplex
- Printer ready/busy reporting

OPERATING PARAMETERS OF THE 820 KSR ARE USER CONFIGURABLE

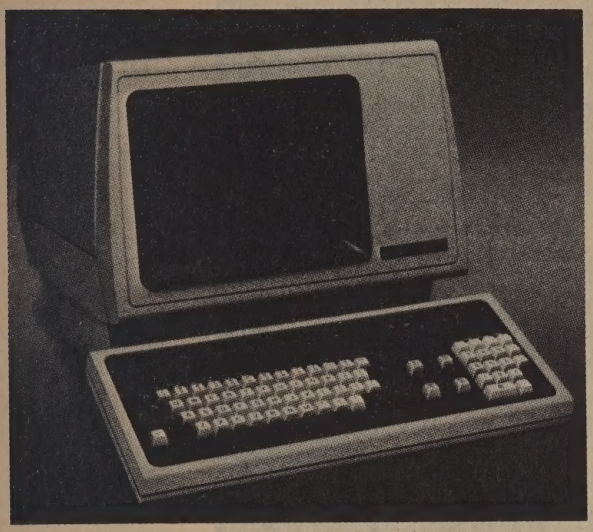
- Operating Parameters/Terminal Configurations initiated from terminal keyboard
- Error and special mode conditions reported via the 3 digit LED Terminal Status Control panel

ITEM NO.	DESCRIPTION	PURCHASE LIST PRICE $
101	MODEL 820 KSR INCLUDING NUMBERIC PAD, FORMS CONTROL, COMPRESSED PRINT, DATA SET CABLE -- 6 FT.	2395
102	BASIC MODEL 820 KSR	2165

PRICES LISTED ARE FOR GUIDANCE ONLY

TEXAS INSTRUMENTS

940 Electronic Video Terminal



Standard Features

- ☐ 12-inch diagonal screen.
- ☐ Operator selectable 80 or 132 columns.
- ☐ 25th status line.
- ☐ Scrolling regions.
- ☐ Vertical and horizontal screen splits.
- ☐ Automatic display disable.
- ☐ Formatted or unformatted displays.
- ☐ One page of memory, 1,920 characters.
- ☐ 128 displayable ASCII characters.
- ☐ 7 x 9 dot matrix character font.
- ☐ Reverse screen video and character highlighting.
- ☐ Detached keyboard with functionally clustered keys.
- ☐ Up to 16 operator programmable character string keys.
- ☐ Operator selectable contrast control, key click, tabs, margins and audible alarm.
- ☐ EIA RS-232-C interface.
- ☐ Auxiliary output port.
- ☐ From 110 to 19.2K bits-per-second transmission speed.
- ☐ Asynchronous full or half duplex operation.
- ☐ Interactive or block transmission mode.
- ☐ Self-test diagnostics capability.

Options

- ☐ One or three additional pages of memory storage for paging and smooth scrolling.
- ☐ Tiltable display monitor.
- ☐ Detachable nonglare screen filters (neutral/amber/green).
- ☐ International character sets.
- ☐ Graphic character set.

ITEM NO.	DESCRIPTION (Order by Item No.)	PRICE
150	Basic Model 940 EVDT[1]	$ 1895
151	Basic Model 940 EVDT w/5760 Character memory expansion and line drawing and scientific notation options, EIA Cable with auto speed select	2295
155	Basic Model 940 EVDT w/5760 character memory expansion, line drawing/ scientific notation options, EIA Cable with auto speed select, and Tri-modem (includes cable[2] and permissive connector)	3390
	CHARACTER SET OPTIONS	
261	• Line Drawing and Scientific Notation	125
	COMMUNICATION OYTIONS Current Loop Interface Kit (Select one only)	
336	• 20-mA Active	150
	Scientific Notation	
	COMMUNICATION OPTIONS Current Loop Interface Kit (Select one only)	
336	• 20-mA Active	150
337	• 20-mA Passive	150
338	• RS 422	150
	CABLE OPTIONS	
307	• EIA Cable	30
322	• 202/212 Data Set Cable	30
327	• EIA Data Terminal Cable	35
350	• 940/840 Interface Cable 6 ft.	35
339	• TI 990 Interface Cable	65
333	• Asynch/Synch Cable	30
501	• Tri-modem (includes cable & Permissive connector)	1095
	MEMORY OPTIONS Display Memory Expansion	
617	• 1920 characters	175
618	• 5760 characters	275
622	• Enhanced Video Option	65
623A	• Multiple Forms Option-16K RAM-Version	495
623B	• Multiple Forms Option-32K RAM Version	
624	• Downloadable Character Set	175

TEXAS INSTRUMENTS

Series 10 Personal Information Terminal

Standard Features

- ☐ 5½-inch diagonal non-glare screen.
- ☐ 40 columns by 24 lines, up to 960 characters displayed.
- ☐ 95 displayable characters (ASCII).
- ☐ 5×9 dot matrix characters in a 6×10 cell.
- ☐ Automatic scrolling lines.
- ☐ 53 key typewriter-like keyboard with repeat key function.

Technical Specifications

- ☐ 33 non-displayable ASCII control characters.
- ☐ Asynchronous 300 Baud communications.
- ☐ Internal direct-connect modem, Bell 113A compatible.
- ☐ Manual DATA/TALK transfer switch.
- ☐ EIA RS-232-C interface.
- ☐ Auxiliary port for optional hard copy print applications.
- ☐ Local copy or echoplex mode.

General

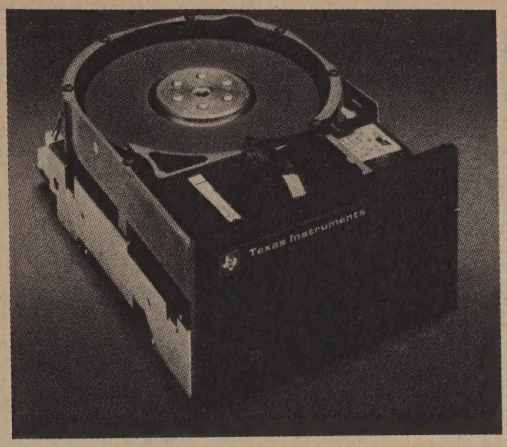
- ☐ Dimensions: Base: 34 cm × 34 cm (13.8-in. × 13.8-in.)
  Height: 28 cm (12-in.)
- ☐ Weight: 4 kg. (9 lbs.)
- ☐ Power: 110 VAC to 125 VAC
  57 to 63 HZ

ITEM NO.	DESCRIPTION (Order by Item No.)	PRICE
119	Series 10 Information Terminal	$ 695
121	Series 10/1 Printer with interface cable to Series 10	695
197	Series 10 Information Terminal/Printer Package	1250

ITEM NO.	CONFIGURATION OPTIONS (Order by Item No.)	PRICE
	CABLE OPTION	
307	• EIA Data Set Cable	$ 30
327	• TTY Data Terminal Cable	35
619	• Unprogrammed Command Module	50
621	• Programmed Command Module	100

PRICES LISTED ARE FOR GUIDANCE ONLY

TEXAS INSTRUMENTS 5¼-inch Winchester Disk.



Performance Specifications

Capacity

Unformatted
- ☐ Per Drive: 6.38 Mbytes
- ☐ Per Surface: 1.59 Mbytes
- ☐ Per Track: 10417 Bytes

Formatted
- ☐ Per Drive: 5.0 Mbytes
- ☐ Per Surface: 1.25 Mbytes
- ☐ Per Track: 8192 Bytes
- ☐ Per Sector: 256 Bytes
- ☐ Sectors/Track: 32
- ☐ Transfer Rate: 5.0 Mbits/sec

Access Time
- ☐ Track to Track: 3 ms
- ☐ Average: 170 ms
- ☐ Maximum: 500 ms
- ☐ Settling Time: 15 ms
- ☐ Average Latency: 8.33 ms

Functional Specifications
- ☐ Rotational Speed: 3600 rpm
- ☐ Recording Density: 7690 bpi
- ☐ Flux Density: 7690 fci
- ☐ Track Density: 254 tpi
- ☐ Cylinders: 153
- ☐ Tracks: 612
- ☐ R/W heads: 4
- ☐ Index: 1

Reliability Specifications
- ☐ MTBF: 11,000 POH Typical Usage
- ☐ PM: None
- ☐ MTTR: 30 minutes (includes diagnostic and repair time)
- ☐ Component Life: 5 years

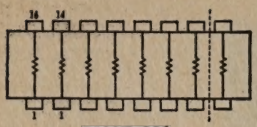
Error Rates
- ☐ Soft: $1/10^{10}$ bits read
- ☐ Hard: $1/10^{12}$ bits read
- ☐ Seek: $1/10^{6}$ seeks

Physical Specifications

Environmental Limits
- ☐ Ambient Temperature: 50°F to 115°F (10°C to 46°C)
- ☐ Relative Humidity: 8-80%
- ☐ Maximum Wet Bulb: 78°F Non-condensing
- ☐ AC Power Requirements: None
- ☐ DC Voltage Requirements: +12VDC ± 5% 1.8A typical 4.5A starting + 5VDC ± 5% 0.7A typical 1.0A maximum

Mechanical Dimensions:
- ☐ Height = 3.25 inches
- ☐ Width = 5.75 inches
- ☐ Depth = 8.00 inches
- ☐ Weight = 3.5 lbs.
- ☐ Heat Dissipation = 29 watts (97 BTU/HR)

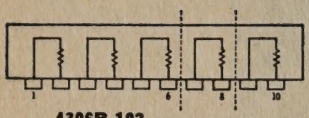
PART NUMBER	DESCRIPTION	PRICE
2224350-0001	6.38 Mb 5¼" Winchester Disk, Model 525/61 (1 Platter)	$ 1225
2217210-0001	6.38 Mb 5¼" Winchester Disk, Model 525/62 (2 Platters)	1360
2224376-0001	12.76 Mb 5¼" Winchester Disk, Model 525/122 (2 Platters)	1575



4114R-001
4116R-001

THICK FILM RESISTOR NETWORKS

The following resistor networks feature reduced PC board space; compatibility with automatic insertion equipment; uniform performance characteristics and compatibility with IC logic circuit environments. Molded epoxy body with tin plated copper alloy leads. Lead solderability meets requirements of MIL-STD-202E, Method 208; MIL-STD-883, Method 2003 and MIL-R-83401. Resistance Tolerance: ±2%. Operating Temperature Range: −55° C to +125° C. Resistance Range: Standard, 33 ohms to 220K ohms; special, 10 ohms to 1 megohm. Max. Operating Voltage: 150 Volts. Temperature Coefficient of Resistance: ±100 ppm. Operating Temperature: −55° C to +150° C.



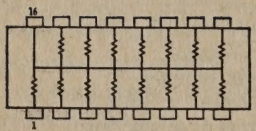
4306R-102
4308R-102
4310R-102

MULTIPLE EQUAL-VALUE RESISTOR NETWORKS

Circuitry and applications: Type 4306R, 3 isolated resistors; Type 4308R, 4 isolated resistors; Type 4310R, 5 isolated resistors; Type 4114R, 7 isolated resistors; Type 4116R, 8 isolated resistors. Intended for power gate pull-up, impedance balancing, current limiting, line termination and ECL output pull-down.

Bourns No.*	Pkg.	No. of Pins	Resistance Values, Ohms R1	R2	R3	Net Each, Lots of 1-24	25-99	100-249	250-499	500-999	1000-1999
4306R-102-*	SIP	6	†	....	....	$0.48	$0.48	$0.38	$0.38	$0.31	$0.30
4308R-102-*	SIP	8	†	....	....	.50	.50	.40	.40	.34	.31
4310R-102-*	SIP	10	†	....	....	.52	.52	.42	.42	.36	.32
4114R-001-*	DIP	14	†	....	....	1.15	1.15	.93	.75	.66	.59
4116R-001-*	DIP	16	†	....	....	1.20	1.20	.95	.77	.68	.61

Circuitry and applications: Type 4306R, 5 resistors with pin 1 common; Type 4308R, 7 resistors with pin 1 common; Type 4310R, 9 resistors with pin 1 common; Type 4114R, 13 resistors with pin 13 common; Type 4116R, 15 resistors with pin 16 common. Intended for open collector pull-up, wired OR pull-up, TTL input pull-down, MOS memory pull-up and pull-down, unused gate pull-up and power driver pull-up.



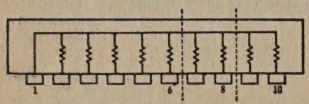
4116R-002

4306R-101-*	SIP	6	†	....	....	$0.48	$0.48	$0.38	$0.38	$0.31	$0.30
4308R-101-*	SIP	8	†	....	....	.50	.50	.40	.40	.34	.31
4310R-101-*	SIP	10	†	....	....	.52	.52	.42	.42	.36	.32
4114R-002-*	DIP	14	†	....	....	1.20	1.20	.95	.77	.68	.61
4116R-002-*	DIP	16	†	....	....	1.25	1.25	.98	.79	.70	.62

*Add suffix defining resistance value: two digits indicating significant figures and a third indicating number of zeroes following.

†STANDARD AVAILABLE RESISTANCE VALUES

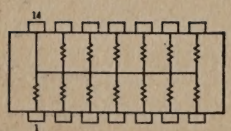
Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms
22	68	220	680	2200	6800	22K	68K	220K	820K
27	82	270	820	2700	8200	27K	82K	330K	1 Meg
33	100	330	1000	3300	10K	33K	100K	390K	2.2 Meg
39	120	390	1200	3900	12K	39K	120K	470K	
47	150	470	1500	4700	15K	47K	150K	560K	
56	180	560	1800	5600	18K	56K	180K	680K	



4306R-101
4308R-101
4310R-101

TERMINATING NETWORKS

Application: Provides TTL dual line termination.



4114R-002

Bourns No.*	Pkg.	No. of Pins	Resistance Values, Ohms R1	R2	R3	Net Each, Lots of 1-24	25-99	100-249	250-499	500-999	1000-1999
4308R-104-181/391	SIP	8	180	390	....	$1.07	$1.07	$0.86	$0.86	$0.73	$0.67
4308R-104-221/271			220	270	....						
4308R-104-221/331			220	330	....						
4116R-003-181/391	DIP	16	180	290	....	2.30	2.14	1.88	1.50	1.34	1.20
4116R-003-221/271			220	270	....						
4116R-003-221/331			220	330	....						

BOURNS® PART NUMBERING SYSTEM

Resistance tolerance given is standard; closer tolerances available. Standard resistance range given; special resistances available. Panel mount available with lead, lug or wire types as noted.

00, 3010	L	1	102	M
Basic Model	**Terminal Style**	**Modifying Number**	**Resistance Code**	**Panel Mount**
Contains 3 or 4 digits	J, S—Solder lugs L—Insulated stranded leads H—PC pins P, T, Y—Flat mounting PC pins W, W66, X—Edge mounting PC pins	1—Standard resistance 2—100K standard resistance	First 2 digits indicate significant numbers; 3rd digit indicates number of zeros	Available as noted

COMMERCIAL SINGLE-TURN POTENTIOMETERS

TRIMIT® WIRE-WOUND MODEL 3305

Model 3305P

Sealed to prevent contamination from fluxing, soldering and cleaning. Stops provided at each end of travel. Mechanical Rotation: 300° nom. Power Rating: 0.5 watt at 70° C. Operating Temperature: 125° C max. Tolerance: ±5%. Size: 0.31″ dia. x 0.19″ h. (**P**); 0.250″ d. x 0.312″ w. x 0.375″ h. (**W**).

Bourns Model	Specify Terminal	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
3305	P	10, 20, 50, 100, 200, 500, 1K, 2K, 5K	$2.32	$2.23	$2.13	$2.06	$1.95	$1.82
		10K	2.64	2.53	2.43	2.35	2.21	2.07
		20K, 25K	3.30	3.17	3.04	2.94	2.77	2.59
	W	10, 20, 50, 100, 200, 500, 1K, 2K, 5K	2.98	2.86	2.74	2.65	2.50	2.34
		10K	3.30	3.17	3.04	2.94	2.77	2.59
		20K, 25K	3.96	3.80	3.64	3.52	3.32	3.11

Model 3345P

WIRE-WOUND MODEL 3345

Sealed for printed circuit applications; meets MIL humidity test. Stops provided at each end of adjustment. Mechanical Rotation: 310° nom. Power Rating: 1.0 watt at 70° C. Operating Temperature: 150° C max. Tolerance: ±5%. Size: 0.45″ dia. x 0.24″ h. (**P**); 0.285″ d. x 0.450″ w. x 0.525″ h.

3345	P	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K	$2.58	$2.34	$2.11	$1.91	$1.80	$1.63
		20K, 50K	2.83	2.57	2.31	2.10	1.97	1.79
	W	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K	3.36	3.07	2.76	2.49	2.34	2.12
		20K, 50K	3.70	3.38	3.03	2.74	2.58	2.33

Model 3305W

HIGH PERFORMANCE CERMET MODEL 3329

Sealed to withstand any wave soldering and immersion cleaning process; meets MIL humidity test Mechanical Rotation: 260° nom. Power Rating: 0.5 watt at 85° C. Operating Temperature: 150° C max Tolerance: ±10%. Size: 0.25″ dia. x 0.18″ h. (**H**); 0.25″ dia. x 0.215″ h. (**P**); 0.29″ w. x 0.245″ d. x 0.360″ h. (**W**).

			1-49	50-99	100-499	500-999	1000-4999	5000-9999
3329	H P W	10, 20, 50, 100, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 200K, 250K, 500K, 1 meg	$1.41	$1.29	$1.17	$1.06	$0.96	$0.88

Model 3345W

CERMET MODEL 3386

Wide choice of terminal styles cover almost any PC board layout requirement. Meets MIL humidity test; sealed to withstand wave soldering processes. Electrical Rotation: 280° nom. Power Rating: 0.5 watt at 85° C. Operating Temperature: 125° C max. Tolerance: ±10%. Mounting: F, M, P, Y, T, and R are top adjust PC pins; B, C, H, S, X, and W are side adjust PC pins. **H, P, X** (TO-5), **C, W, T** (0.100″ inline), **B, M, R, S** (0.150″ inline), **F, Y** (0.200″ grid). Size: ⅜″ square x 0.19″ d.

Bourns Model	Specify Terminal Top	Side	Resistance Range, Ohms	Net Each, Lots of 1-49	50-99	100-499	500-999	1000-4999	5000-9999
3386	F	B	100, 200, 500, 1K, 2K, 5K, 10K, 20K, 25K, 50K, 100K, 200K, 250K, 500K, 1 meg, 2 megs	$0.72	$0.66	$0.60	$0.54	$0.49	$0.45
	M	C							
	P	H							
	R	S							
	T	W							
		X							

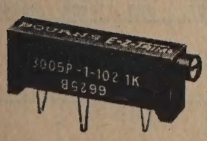
Model 3329H

CERMET MODEL 3352

Model 3386R

Choice of 7 terminal styles covers almost any PC board layout requirement. Meets MIL humidity test; withstands industrial board-cleaning processes with less than 1% shift in total resistance. **Mechanical rotation:** 230° nom. **Power Rating:** 0.75 W at 40° C. **Operating Temperature:** 125° C. max. **Tolerance:** ±20% standard, closer tolerances available. **Mounting:** T, E, and P are top adjust PC pins; W, H, and V are side adjust PC pins. Has thumb wheel with crossed slots.

Bourns Model	Specify Terminal Top	Side	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
3352	T	W	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 20K, 20K, 25K, 50K, 100K, 200K, 250K, 500K, 1 meg, 2 megs, 5 megs	$0.54	$0.51	$0.48	$0.45	$0.41	$0.39
	E	H							
	P	V							
	..	K							



Model 3005P

COMMERCIAL MULTI-TURN POTENTIOMETERS

WIRE-WOUND E-Z-TRIM® MODEL 3005

Humidity meets MIL-STD-202, Method 103. 20-turn screwdriver adjustment. Power Rating: 1.0 watt at 40° C. Abs. Min. Res.: 0.5% or 1.0 ohm, whichever is greater. Operating Temperature: 125° C. max. Tolerance: ±10%. Size: 0.16″ w. x 0.31″ h. x 0.75″ lg.

3005P	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 25K	$2.33	$2.16	$2.04	$2.00	$1.92	$1.81
	50K	2.80	2.59	2.45	2.41	2.31	2.17

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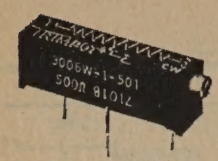
COMMERCIAL MULTI-TURN POTENTIOMETERS (CONT'D)

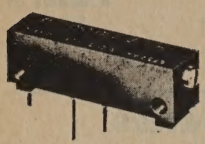


Model 3006W, 3009P

CERMET MODEL 3006

Low cost industrial model only 0.250″ high above the printed circuit board. TC: ±100 ppm/° C. Power Rating: 0.75 watt at 70° C. Operating Temperature: 125° C max. Tolerance: ±10%. Mechanical Adjustment: 15 turns nom. Size: 0.75″ x 0.190″ x 0.250″.

Bourns Model	Specify Terminal	Resistance Range, Ohms	Net Each, Lots of 1-49	50-99	100-499	500-999	1000-4999	5000-9999
3006	P, W, Y	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 25K, 50K, 100K, 200K, 250K, 500K, 1 meg, 2 megs	$0.96	$0.88	$0.80	$0.72	$0.65	$0.60


Model 3067P

CERMET E-Z-TRIM® MODEL 3009

Wiper assembly idles at both ends; 15 turns nominal adjustment. TC: ±100 ppm/° C. Power Rating: 1.25 watt at 25° C. Abs. Min. Res.: 2.0% or 1 ohm, whichever is greater. Operating Temperature: 125° C max. Tolerance: ±10%. Size: 0.19″ w. x 0.35″ h. x 0.75″ lg.

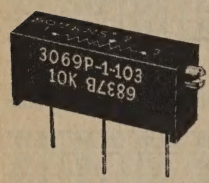
Bourns Model	Specify Terminal	Resistance Range, Ohms	Net Each, Lots of 1-49	50-99	100-499	500-999	1000-4999	5000-9999
3009	P, Y	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 25K, 50K, 100K, 200K, 250K, 500K, 1 meg, 2 megs	$1.65	$1.51	$1.37	$1.24	$1.12	$1.03

Model 3067S

WIRE-WOUND E-Z-TRIM® MODEL 3067

Wiper assembly idles at both ends of travel; 15-turn screwdriver adjustment. Power Rating: 0.5 watt at 25° C. Operating Temperature: 85° C max. Tolerance: ±10%. Size: 0.28″ w. x 0.36″ h. x 1.0″ lg.

Bourns Model	Specify Terminal	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
3067	P, S	50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K	$2.13	$1.97	$1.78	$1.68	$1.58	$1.50

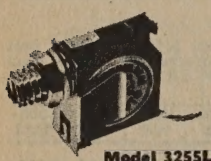


Model 3069P

CERMET E-Z-TRIM® MODEL 3069

MIL spec immersion seal; tinned pins for compatibility with automated and hand soldering methods; 15 turns nominal adjustment. TC: ±100 ppm/° C. Power Rating: 0.75 watt at 25° C. Abs. Min. Res.: 2% or 1 ohm, whichever is greater. Operating Temperature: 125° C max. Tolerance: ±10%. Size: 0.25″ w. x 0.35″ h. x 0.75″ lg.

Bourns Model	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
3069P	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 200K, 500K, 1 meg, 2 megs	$2.13	$2.02	$1.92	$1.87	$1.81	$1.70

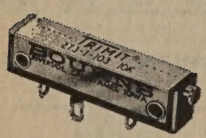

Model 3255L Panel Mount

WIRE-WOUND TRIMIT® MODELS 271, 273, 275

Ideal for industrial controls and lab type applications. Self-locking adjustment shaft; wiper assembly idles both ends; 25-turn screwdriver adjustment. Power Rating: 0.5 watt at 25° C. Abs. Min. Res.: 2.0%. Operating Temperature: 105° C max. Tolerance: ±10%. Size: 0.28″ w. x 0.32″ h. x 1.25″ lg.

Bourns Model	Terminal	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
271	L	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K	$3.86	$3.57	$3.22	$3.05	$2.86	$2.72
273	S	20K	5.23	4.84	4.36	4.14	3.88	3.68
275	P	50K	6.53	6.05	5.44	5.17	4.84	4.60
Panel mount		Add to price	1.10	1.02	.92	.87	.82	.77

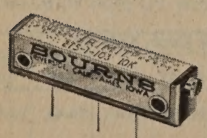
Models 271L, 272L


Models 273S, 274S

CONDUCTIVE PLASTIC TRIMIT® MODELS 272, 274, 276

Infinite resolution conductive plastic element. Self-locking shaft; 24-turn adjustment. Power Rating: 0.2 watt at 50° C. End Setting: 0–5.0% .Operating Temperature: 105° C max. Tolerance: ±20%. Size: 0.28″ w. x 0.32″ h. x 1.25″ lg.

272 274 276	L S P	5K, 10K, 20K, 50K, 100K, 200K, 500K, 750K, 1 meg, 2 megs, 5 megs	$4.16	$3.85	$3.47	$3.29	$3.08	$2.93
Panel mount		Add to price	1.10	1.02	.92	.87	.82	.77


Models 275P, 276P

CERMET MODEL 3299

Sealed to withstand wave-soldering and cleaning processes; humidity meets MIL-STD-202. Mechanical Adjustment: 25 turns nom. Power Rating: 0.5 watt at 70° C. Operating Temperature: 125° C max. Tolerance: ±10%. Size: 0.37″ w. x 0.39″ h. x 0.25″ lg.

Bourns Model	Specify Terminal	Resistance Range, Ohms	Net Each, Lots of 1-49	50-99	100-499	500-999	1000-4999	5000-9999
3299	P, W, X, Y, Z	100, 200, 500, 1K, 2K, 5K, 10K, 20K, 25K, 50K, 100K, 200K, 250K, 500K, 1 meg	$1.71	$1.57	$1.42	$1.28	$1.16	$1.07

Model 3299X

STAINLESS STEEL BLADE POTENTIOMETER SCREWDRIVER

For use on all Bourns potentiometer models. Complete with clip.
Bourns No. H-90—Net Each, Lots of 1-24.....**$0.35**; 25-99.....**$0.30**

PRICES LISTED ARE FOR GUIDANCE ONLY

BOURNS® TRIMPOT® Potentiometers

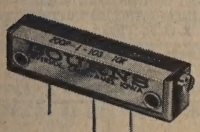
Model 3300W

Model 3300S

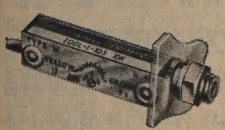
Model 3322P

Model 3339P

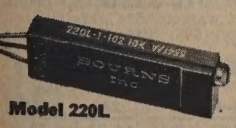
Model 260L



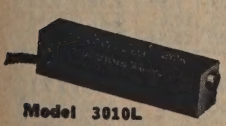
Model 260P



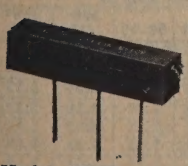
Models 200, 260 Panel Mount



Model 220L



Model 3010L



Model 3010P

INDUSTRIAL SINGLE-TURN POTENTIOMETERS

HUMIDITY-PROOF HIGH TEMPERATURE WIRE-WOUND MODEL 3300

High temperature; humidity-proof to MIL specs. Single turn adjustment, 300° nom. Power Rating: 0.5 watt at 70° C. Operating Temperature: 175° C max. Tolerance: ±5%. Size: 0.31″ dia. x 0.18″ h. (**P**); 0.31″ dia. x 0.46″ h. (**S**); 0.25″ w. x 0.37″ h. x 0.31″ lg. (**W**).

Bourns Model	Specify Terminal	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
3300	P or W	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K	$7.90	$7.32	$6.58	$6.25	$5.85	$5.56
		20K, 25K	10.07	9.32	8.39	7.97	7.46	7.09
	S	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K	11.86	10.98	9.89	9.38	8.79	8.35
		20K, 25K	14.01	12.97	11.68	11.08	10.38	9.86

CERMET MODEL 3322 (RJ50)

Meets or exceeds MIL-R-22097, Style RJ50. Single turn adjustment, 240° nom. Power Rating: 0.5 watt at 85° C. Operating Temperature: 175° C max. Tolerance: ±10%. Size: 0.25″ dia. x 0.22″ h.

Bourns Model	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
3322P	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 200K, 500K, 1 meg	$6.66	$6.32	$5.93	$5.64	$5.27	$5.00

INDUSTRIAL FOUR-TURN POTENTIOMETER

CERMET MODEL 3339

Sealed to withstand wave soldering and immersion cleaning process; humidity meets MIL-STD-202. Four turn adjustment. Power Rating: 0.5 watt at 85° C. Operating Temperature: 150° C max. Tolerance: ±10%. Size: 0.30″ dia. x 0.25″ thk. (**H, P**); 0.320″ w. x 0.315″ d. x 0.375″ h. (**W**).

Bourns Model	Specify Terminal	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
3339	H P	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 200K, 500K, 1 meg	$2.50	$2.32	$2.09	$1.98	$1.86	$1.76
	W	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 200K, 500K, 1 meg	3.50	3.25	2.93	2.78	2.61	2.47

INDUSTRIAL MULTI-TURN POTENTIOMETERS

HIGH TEMPERATURE WIRE-WOUND MODEL 220

Meets or exceeds all requirements of MIL-R-27208. Power Rating: 1.0 watt at 70° C. Mechanical Adjustment: 15 turns nom. Operating Temperature: 175° C max. Tolerance: ±5%. Size: 0.18″ w. x 0.32″ h. x 1.00″ lg.

Bourns Model	Specify Terminal	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
220	L P W	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K	$9.98	$9.24	$8.32	$7.89	$7.40	$7.03
		20K, 30K	11.85	10.97	9.88	9.37	8.78	8.34
Panel Mount		Add to price	1.10	1.02	.92	.87	.82	.77

HIGH TEMPERATURE WIRE-WOUND MODEL 260

Exceeds steady-state humidity requirements to MIL-STD-202. Power Rating: 1.0 watt at 70° C. Mechanical Adjustment: 25 turns nom. Operating Temperature: 175° C max. Tolerance: ±10%. Size: 0.28″ w. x 0.32″ h. x 1.25″ lg.

Bourns Model	Specify Terminal	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
260	L P S	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K	$7.18	$6.65	$5.98	$5.68	$5.32	$5.05
		20K, 25K	9.15	8.47	7.63	7.24	6.78	6.44
		50K	9.80	9.07	8.17	7.75	7.26	6.90
		100K	11.76	10.89	9.80	9.30	8.71	8.28
Panel mount		Add to basic price	1.10	1.02	.92	.87	.82	.77

HIGH TEMPERATURE WIRE-WOUND MODEL 3010

Meets MIL-R-27208. Sealed against humidity, liquids and potting compounds. Power Rating: 1.0 watt at 70° C. Mechanical Adjustment: 22 turns nom. Operating Temperature: 150° C max. Tolerance: ±5%. Size: 0.28″ w. x 0.32″ h. x 1.25″ lg.

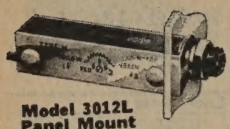
Bourns Model	Specify Terminal	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
3010	L P	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K	10.36	$9.59	$8.64	$8.19	$7.68	$7.29
		20K, 25K	12.75	11.81	10.63	10.09	9.45	8.98
		50K	13.55	12.55	11.29	10.72	10.04	9.54
Panel mount		Available **L** terminal. Add to basic price	1.10	1.02	.92	.87	.82	.77

HIGH TEMPERATURE CERMET MODEL 3012

Meets or exceeds requirements of MIL-R-22097. Power Rating: 1.0 watt at 70° C. Mechanical Adjustment: 22 turns nom. Operating Temperature: 150° C max. Tolerance: ±10%. Size: 0.28″ w. x 0.32″ h. x 1.25″ lg.

Bourns Model	Specify Terminal	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
3012	L P	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 200K, 500K, 750K, 1 meg, 2 megs	$7.18	$6.65	$5.98	$5.68	$5.32	$5.05

INDUSTRIAL MULTI-TURN POTENTIOMETERS (CONT'D)

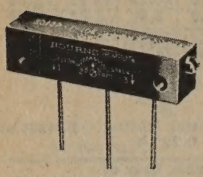


Model 3012L Panel Mount

HIGH TEMPERATURE HUMIDITY-PROOF WIRE-WOUND MODEL 3057 (RT12)

Humidity proof to MIL spec; meets MIL spec tests for styles RT12 and RTR12 level Mor P. Power Rating: 1.0 watt at 70° C. Mechanical Adjustment: 22 turns nom. Operating Temperature: 150° C max. Tolerance: ±5%. Size: 0.19″ w. x 0.32″ h. x 1.25″ lg.

Bourns Model	Specify Terminal	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
3057	J, L, P, Y	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K	$6.84	$6.05	$5.20	$4.68	$4.46	$4.26
		20K	7.54	6.67	5.78	5.16	4.93	4.70
		50K	8.22	7.27	6.29	5.62	5.36	5.12
		100K	10.40	9.19	7.96	7.48	7.12	6.70
Panel mount		Add to price	1.10	1.02	.92	.87	.72	.77



Model 3012P

HIGH TEMPERATURE HUMIDITY-PROOF CERMET MODEL 3059 (RJ12)

MIL spec immersion seal gives trouble free operation after PC board processes. Solderable pins for compatibility with automated and hand soldering methods. Power Rating: 1.0 watt at 70° C. Mechanical Adjustment: 22 turns nom. Operating Temperature: 150° C max. Tolerance: ±10%. Size: 0.19″ w. x 0.32″ h. x 1.25″ lg.

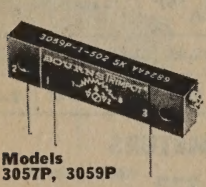
Bourns Model	Specify Terminal	Resistance Range, Ohms	Net Each, Lots of 1-49	50-99	100-499	500-999	1000-4999	5000-9999
3059	J, L, P, Y	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 25K, 50K, 100K, 200K, 250K, 500K, 750K, 1 meg, 2 megs	$3.32	$3.04	$2.77	$2.49	$2.26	$2.08
Panel mount		Add to price	1.10	.87	.82	.68	.68	.....

Models 3057L, 3059L

HUMIDITY-PROOF CERMET MODEL 3082

Meets MIL humidity spec. Power Rating: 0.6 watt at 25° C. Mechanical Adjustment: 10 turns nom. Operating Temperature: 150° C max. Tolerance: ±10%. Size: 0.10″ w. x 0.15″ h. x 0.50″ lg.

Bourns Model	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
3082P	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 200K, 500K, 750K, 1 meg, 2 megs	$7.70	$7.13	$6.42	$6.09	$5.71	$5.42



Models 3057P, 3059P

CERMET DUAL-IN-LINE MODEL 3099

Sealed to meet MIL-R-22097 immersion requirements. Standard DIP size (TO-116) compatible with DIP automatic insertion equipment. Power Rating: 1.0 watt at 70° C. Mechanical Adjustment: 20 turns nom. Operating Temperature: 150° C max. Tolerance: ±10%. Size: 0.25″ w. x 0.19″ h. x 0.75″ lg.

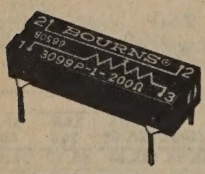
Bourns Model	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
3099P	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 200K, 500K, 1 meg, 2 megs	$3.75	$3.35	$3.00	$2.80	$2.60	$2.45

Model 3082P

HUMIDITY-PROOF HIGH TEMPERATURE CERMET MODEL 3262 (RJ26)

Meets or exceeds all requirements of MIL-R-22097, Style RJ26. Power Rating: 0.25 watt at 85° C. Mechanical Adjustment: 12 turns nom. Operating Temperature: 150° C. Tolerance: ±10%. Size: 0.25″ sq. x 0.17″ h.

Bourns Model	Specify Terminal	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
3262	P, W, X	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 25K, 50K, 100K, 200K, 250K, 500K, 1 meg	$7.35	$6.83	$6.13	$5.83	$5.46	$5.19



Model 3099P

¼″ SQUARE HUMIDITY-PROOF HIGH TEMP. WIRE-WOUND MODEL 3260 (RT26)

Meets or exceeds all requirements of MIL-R-27208, Style RT26. Power Rating: 0.2 watt at 85° C. Mechanical Adjustment: 11 turns nom. Operating Temperature: 150° C max. Tolerance: ±5%. Size: 0.25″ sq. x 0.17″ h.

Bourns Model	Specify Terminal	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
3260	H, W	10, 20, 50, 100, 200, 500, 1K	$9.08	$8.41	$7.57	$7.18	$6.73	$6.39
		2K, 5K	9.99	9.25	8.33	7.90	7.40	7.03
		10K, 20K	12.71	11.77	10.59	10.05	9.42	8.95
		25K	13.31	12.33	11.09	10.53	9.86	9.37

Model 3262P

Model 3260H

Model 3260W

½″ SQ. HUMIDITY-PROOF HIGH TEMP. WIRE-WOUND MODEL 3250 (RT22)

Humidity-proof; sealed in high-temperature plastic case. Power Rating: 1.0 watt at 70° C. Mechanical Adjustment: 25 turns nom. Operating Temperature: 150° C max. Tolerance: ±5%. Size: 0.50″ sq. x 0.19″ h. (**L**); 0.22″ h. (**P, W, W66**).

Bourns Model	Specify Terminal	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
3250	L	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K	$7.75	$7.18	$6.46	$6.13	$5.74	$5.45
		20K, 25K	8.74	8.09	7.28	6.91	6.47	6.15
		50K	11.55	10.71	9.63	9.14	8.56	8.13
	P, W, W66	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K	8.35	7.73	6.95	6.59	6.18	5.87
		20K, 25K	9.21	8.53	7.67	7.28	6.82	6.48
		50K	12.16	11.26	10.14	9.62	9.01	8.56
Panel mount		Available **L** or **W** terminals. Add to price	2.20	2.03	1.83	1.74	1.63	1.55

Model 3250L

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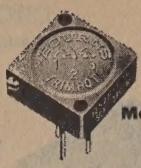
INDUSTRIAL MULTI-TURN POTENTIOMETERS (CONT'D)

½" SQ. HIGH PERFORMANCE HUMIDITY-PROOF CERMET MODEL 3252 (RJ22)

Meets or exceeds requirements of MIL-R-22097, Style RJ22. Power Rating: 1.0 watt at 70° C. Mechanical Adjustment: 22 turns nom. Operating Temperature: 150° C max. Tolerance: ±10%. Size: 0.50" sq. x 0.22" h

Bourns Model	Specify Terminal	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
3252	L, P, W, X	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 25K, 50K, 100K, 200K, 500K, 1 meg, 2 megs	$5.90	$5.62	$5.31	$5.01	$4.72	$4.25
Panel mount		Available L or W terminals. Add to price	2.20	2.03	1.83	1.74	1.63	1.55



⅜" SQUARE HUMIDITY-PROOF WIRE-WOUND MODEL 3290 (RT24)

Meets or exceeds MIL-R-27208. All plastic case provides sealing against liquids and potting; reliable moisture resistance. Power Rating: 1.0 watt at 70° C. Mechanical Adjustment: 25 turns nom. Operating Temperature: 150° C max. Tolerance: ±5%. Size: 0.375" sq. x 0.15" h.

3290	H, L, P, W	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K	$8.87	$8.21	$7.40	$7.02	$6.57	$6.24
		20K, 25K	10.59	9.81	8.83	8.38	7.85	7.46
		50K	12.22	11.32	10.19	9.67	9.06	8.60
Panel mount		Available H, L, W terminals. Add to price	2.20	2.03	1.83	1.74	1.63	1.55

⅜" SQUARE CERMET MODEL 3292 (RJ24 AND RJR)

Meets or exceeds all requirements of MIL-R-22097, Style RJ24. Power Rating: 0.5 watt at 85° C. Mechanical Adjustment: 22 turns nom. Operating Temperature: 150° C max. Tolerance: ±10%. Size: 0.375" sq. x 0.150" h.

3292	L, P, W, X	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 200K, 500K, 750K, 1 meg	$6.83	$6.49	$6.15	$6.01	$5.80	$5.44
Panel mount		Available L or W terminals. Add to price	2.20	2.03	1.83	1.74	1.63	1.55

MIL-SPEC ADJUSTMENT POTENTIOMETERS

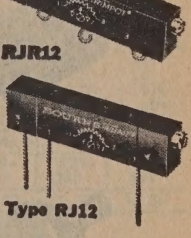
WIRE-WOUND MIL-R-27208 POTENTIOMETERS

Bourns Type	Resistance Range, Ohms	Net Each, Lots of 1-49	50-99	100-499	500-999	1000-4999	5000-9999
RT22C2L, RT22C2P, RT22C2W, RT22C2X	50, 100, 200, 500, 1K, 2K, 5K, 10K	$2.51	$2.30	$2.09	$1.88	$1.71	$1.57
	20K	3.01	2.76	2.51	2.26	2.05	1.88
RT24C2L, RT24C2P, RT24C2W, RT24C2X	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K	3.64	3.34	3.03	2.73	2.48	2.28

WIRE-WOUND MIL-R-39015 ESTABLISHED RELIABILITY POTENTIOMETERS

Failure rate level M and P.

RTR12DL, RTR12DP, RTR12DY	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K	$20.77	$19.23	$17.31	$16.43	$15.39	$14.62
	20K	22.47	20.81	18.73	17.77	16.65	15.82
RTR22DL, RTR22DP, RTR22DW, RTR22DX	500, 1K, 2K, 5K, 10K	12.34	11.39	10.21	9.87	9.32	8.82
	20K	14.08	13.00	11.65	11.26	10.63	10.06
RTR24DP, RTR24DW, RTR24DX	500, 1K, 2K, 5K, 10K	9.09	8.42	7.58	7.19	6.74	6.40



CERMET MIL-R-22097 POTENTIOMETERS

RJ12CL, RJ12CP, RJ12CY	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 250K, 500K, 1 meg	$5.84	$5.39	$4.95	$4.56	$4.23	$3.98
RJ22CL*, RJ22CP*, RJ22CW*, RJ22CX*	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 250K, 500K, 1 meg	6.94	6.59	6.25	5.89	5.55	5.00
RJ24CL, RJ24CP, RJ24CW, RJ24CX	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 250K, 500K, 1 meg	3.53	3.53	3.53	3.24	2.94	2.94
RJ26CP†, RJ26CW†, RJ26CX†	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 250K, 500K, 1 meg	4.61	4.61	4.61	4.23	3.84	3.84

*Also available at same price in Characteristic F (RJ22FP) in same resistance range. †Also available at same price in Characteristic F (RF26FP) in same resistance range.

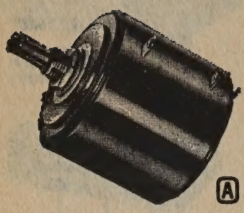
CERMET MIL-R-39035 ESTABLISHED RELIABILITY POTENTIOMETERS

RJR12CL*, RJR12CY*	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 25K, 50K, 100K, 250K, 500K, 1 meg	$ 8.66	$ 8.02	$ 7.22	$6.85	$6.42	$6.10
RJR24CP*, RJR24CW*, RJR24CX*	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 25K, 50K, 100K, 250K, 500K, 1 meg	11.56	10.76	10.25	9.85	8.58	8.34

*Also available at same price in Characteristic F (RJR12FL, RJR24FP) in same resistance range.

BUSHING MOUNT PRECISION POTENTIOMETERS

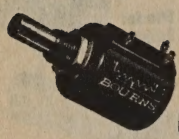
Lockwasher and mounting nut supplied. Standard resistance range given; special resistances available. Resistance Code: First 2 digits indicate significant Nos.; 3rd digit number of zeros, e.g., 101 = 100 ohms.


Ⓐ

10-TURN 1-13/16" DIAMETER WIRE-WOUND MODEL 3400 (FIG. A)

Power Rating: 5 watts at 40° C. Independent Linearity: ±0.15%. Operating Temperature: 105° C max. Resistance Tolerance: ±3%. Size: 1 13/16" dia. x 1¼" lg.

Bourns Model	Resistance Range, Ohms	Net Each, Lots of 1-4	5-9	10-24	25-49	50-99	100-249
3400S-1	100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 200K	$36.10	$30.68	$28.88	$27.07	$25.27	$23.46
	500K	59.70	50.15	47.76	44.78	41.79	38.81


Ⓑ

10-TURN ⅞" DIAMETER WIRE-WOUND MODEL 3500 (FIG. B)

Power Rating: 2.0 watts at 70° C. Independent Linearity: ±0.20%. Operating Temperature: 125° C max. Resistance Tolerance: ±3%. Size: ⅞" dia. x 1" lg.

3500S-1 or 3500S-2	50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 125K	$20.66	$17.56	$16.53	$15.50	$14.46	$13.43
	125K, 200K	41.80	35.53	33.49	31.35	29.26	27.17

Ⓒ

10-TURN ⅞" DIAMETER CONDUCTIVE PLASTIC MODEL 3501 (FIG. C)

Power Rating: 2 watts at 70° C. Independent Linearity: ±0.5%. Operating Temperature: 105° C max. Resistance Tolerance: ±10%. Size: ⅞" dia. x 1" lg.

Bourns Model	Resistance Range, Ohms	Net Each, Lots of 1-4	5-9	10-24	25-49	50-99	100-249
3501S-1	1K, 2K, 5K, 10K, 20K, 50K, 100K, 125K, 150K, 200K, 500K	$29.09	$24.72	$23.27	$21.81	$20.36	$18.91
	1 meg	69.85	59.37	55.88	52.39	48.90	45.40

Ⓓ

10-TURN ⅞" DIAMETER WIRE-WOUND MODEL 3509 (FIG. D)

Power Rating: 2 watts at 25° C. Independent Linearity: ±0.25%. Operating Temperature: 105° C max. Resistance Tolerance: ±5%. Size: ⅞" dia. x 1⅛" lg. Nonmetallic shaft and bushing (suffix -1); for stainless steel shaft and aluminum bushing, order 3509S-8.

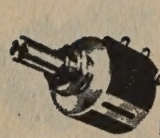
3509S-1	100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K	$11.60	$ 9.86	$ 9.28	$ 8.70	$ 8.12	$ 7.54
3509S-8	100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K	12.82	10.90	10.26	9.62	8.48	8.34

Ⓕ

5-TURN ⅞" DIAMETER WIRE-WOUND MODEL 3520 (FIG. F)

Power Rating: 1.5 watts at 70° C. Independent Linearity: ±0.3%. Operating Temperature: 125° C max. Resistance Tolerance: ±3%. Size: ⅞" dia. x 1 1/16" lg.

3520S-1	20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 75K	$27.85	$23.67	$22.28	$20.89	$19.50	$18.10
	100K	46.80	39.78	37.44	35.10	32.76	30.42


Ⓖ

10-TURN ⅞" DIAMETER WIRE-WOUND MODEL 3540 (FIG. G)

Power Rating: 2.0 watts at 70° C. Independent Linearity: ±0.25%. Operating Temperature: 125° C max. Resistance Tolerance: ±5%. Size: ⅞" dia. x ¾" lg.

3540S-1	100, 200, 500, 1K, 2K, 5K, 10K, 20K	$ 8.33	$ 7.49	$ 7.16	$ 6.83	$ 6.49	$ 6.16
	50K	8.84	7.96	7.60	7.25	7.90	6.54
	100K	9.23	8.31	7.94	7.57	7.20	6.83

10-TURN HYBRITON™ ⅞" DIAMETER MODEL 3541 CONDUCTIVE PLASTIC-ON-WIREWOUND (FIG. G)

Power Ratings: 2 watts at 70° C; optional second section, 1.5 watts at 70° C. Resistance Tolerance: ±10% Independent Linearity: ±0.25%. Operating Temperature Range: −55° C to +125° C. Temperature Coefficient: ±100 ppm/°C. Rotational Life: 5,000,000 shaft revolutions.

Bourns Model	Resistance Range, Ohms	Net Each, Lots of 1-4	5-9	10-24	25-49	50-99	100-249
3541-S	1K, 2K, 5K, 10K, 20K, 50K, 100K	$13.45	$12.11	$11.57	$11.03	$10.49	$ 9.96

Ⓗ

3-TURN ⅞" DIAMETER WIRE-WOUND MODEL 3543 (FIG. G)

Power Rating: 1 watt at 70° C. Resistance Tolerance: ±5%. Independent Linearity: ±0.25%. Operating Temperature Range: −55° C to +125° C.

3543S-1	20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K	$10.35	$ 9.32	$ 8.90	$ 8.49	$ 8.07	$ 7.66

5-TURN ⅞" DIAMETER WIRE-WOUND MODEL 3545 (FIG. G)

Power Rating: 1.5 watts at 70° C. Resistance Tolerance: ±5%. Independent Linearity: ±0.25%. Operating Temperature Range: −55° C to +125° C.

3545S-1	50, 100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K	$10.35	$ 9.32	$ 8.90	$ 8.49	$ 8.07	$ 7.66

10-TURN ½" DIAMETER WIRE-WOUND MODEL 3707 (FIG. H)

Power Rating: 1.0 watt at 40° C. Independent Linearity: ±1.0%. Operating Temperature: 105° C max. Resistance Tolerance: ±5%. Size: ½" dia. x 1" lg.

3707S-1	100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 75K, 100K	$24.08	$20.47	$19.27	$18.06	$16.86	$15.65

PRICES LISTED ARE FOR GUIDANCE ONLY

SINGLE-TURN VARIABLE RESISTORS

Resistance change after solvent bath in Freon* TFE or Trichloroethane is less than 1%.
See beginning of Bourns listing for Part Numbering System.
*Registered DuPont trademark.

Model 3352

3/8" DIAMETER CERMET MODEL 3352

Feature cermet resistance element and wide resistance range. Screwdriver and thumbwheel adjustment. **Power Rating:** 0.75 watt at 40° C. **Resistance Tolerance:** 20% standard, closer tolerances available. **Temperature Coefficient:** ±100 ppm/° C. **Operating Temperature Range:** −55° C to +125° C. **Humidity:** MIL-STD-202, Method 103. **Size:** .350" dia. x .150" th.

Bourns Model	Specify Terminal	Resistance, Ohms	Net Each, Lots of 1-49	50-99	100-499	500-999
3352	E, H, K, P, T, V, W	10, 20, 50, 100, 500, 1K, 2K, 5K, 10K, 20K, 25K, 50K, 100K, 200K, 250K, 500K, 1 meg, 2 meg, 5 meg	$0.54	$0.51	$0.48	$0.45

Model 3359P

3/8" DIAMETER CERMET MODEL 3359

Features infinite resolution, cermet element; easily adjusted with any tool; low TC. Power Rating: ½ watt at 70° C ambient; ¾ watt at 40° C ambient. Resistance Tolerance: ±20%. Operating Temperature: −65° C to +125° C. Humidity: Less than 1% change in total resistance after 500 hours at 95% relative humidity, 40° C. Size: 0.375" dia. x 0.288" thk. (P); 0.236" thk. (W).

Model 3359W

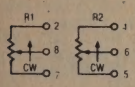
Bourns Model	Specify Terminal	Resistance Range, Ohms	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
3359	P	100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 200K, 500K, 1 meg	$1.05	$0.94	$0.83	$0.77	$0.72	$0.67
	W	100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 200K, 500K, 1 meg	1.08	.97	.86	.80	.74	.69

MFT™ MULTIFUNCTION TRIMMER POTENTIOMETERS

Multielement cermet trimmers combined with DIP packaging produces the first low-cost sealed trimmer compatible with auto-insertion equipment. Reduces total manufacturing costs and required board space. Improves circuit performance and increases reliability

TYPE 7102B

Two single-turn cermet trimmers in an 8-pin DIP.

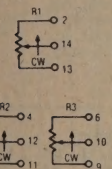


Bourns Number	R1 Ohms	R2 Ohms
7102B-210-101	100	100
7102B-210-102	1K	1K
7102B-210-103	10K	10K
7102B-210-104	100K	100K
7102B-210-504	500K	500K

Bourns Number	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499	500-999
7102B-210	$1.55	$1.43	$1.37	$1.31	$1.19	$1.14

TYPE 7103C

Three single-turn cermet trimmers in a 14-pin DIP.

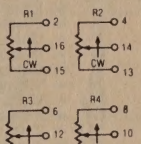


Bourns Number	R1 Ohms	R2 Ohms	R3 Ohms
7103C-310-101	100	100	100
7103C-310-102	1K	1K	1K
7103C-310-103	10K	10K	10K
7103C-310-104	100K	100K	100K
7103C-310-504	500K	500K	500K

Bourns Number	Net Each, Lots of 1-14	15-29	30-49	50-99	100-149	150-299
7103C-310	$2.32	$2.23	$2.10	$1.96	$1.87	$1.78

TYPE 7104D

Four single-turn cermet trimmers in a 16-pin DIP.



Bourns Number	R1 Ohms	R2 Ohms	R3 Ohms	R4 Ohms
7104D-410-101	100	100	100	100
7104D-410-102	1K	1K	1K	1K
7104D-410-103	10K	10K	10K	10K
7104D-410-104	100K	100K	100K	100K
7104D-410-504	500K	500K	500K	500K

Bourns Numbe	Net Each, Lots of 1-12	13-24	25-49	50-124	125-249	250-499
7104D-410	$3.10	$2.86	$2.74	$2.62	$2.38	$2.28

OUR STOCKS ARE FULLY UP TO DATE WITH ALL THE LATEST PRODUCTS.
ASK ABOUT NEW OR UNLISTED ITEMS.

SERIES 80 ⅜" SQUARE BUILDING BLOCK POTENTIOMETERS

Advanced modular construction with factory assembled reliability and quality assurance. Panel-mount ⅜" square potentiometers available in cermet, conductive plastic, wirewound (Models 83 and 84 only) and Hybritron®, wirewound with conductive plastic coating (Models 83 and 84 only); 1, 2, 3 or 4 sections (only 2 in Models 83 and 84); single or dual shafts; and switches (Models 85 and 86 only). Models 83 and 84 are precision, 10-turn wirewound type; all others are control type in cermet or plastic. Unique torque control eliminates torque build-up in multiple-section units. **Resistance Tolerance:** Models 83 and 84 wirewound, ±5%; all other in cermet, ±10%, ±5% available in linear taper; plastic, ±20%, ±10% available in linear taper. **Dielectric Strength:** 1000 V rms at sea level. **Insulation Resistance:** 1000 megohms **Operating Temperature Range:** Cermet, −65° C to +150° C; plastic, −65° C to +125° C; wirewound, −55° C to 125° C; Models 85 and 86 (all types), 0° C to +70° C. **Temperature Coefficient:** plastic, ±1000 ppm/°C; cermet, ±150 ppm/°C; wirewound, ±50 ppm/°C. **Shaft Torque:** any number of sections, 0.25 to 2 oz. in., except Models 85 and 86 with switch, 2 to 7 oz. in. **Terminals:** Models 81, 83, 85 and 87, printed circuit pins; Models 82, 84, 86 and 88, solder lugs. Mounting hardware supplied with units. Many special options are available; inquire about your special needs.

81 A 2 A — B 28 — A 23 / A 15

(A) (B) (C) (D) (E) (F) (G) (H) (I) (J)

(A) = Model and Terminal Style
81, 83, 85, 87 = PC pins
82, 84, 86, 88 = Solder lugs

(B) = Bushing Style and Size
A = Plain, ⅜" d. x ⅜" l., available with ½", ⅝", ¾" and ⅞" shaft lengths
B = Locking, ⅜" d. x ½" l. available with ⅜" shaft length
C = Plain, ¼" d. x ¼" l. available with ⅜", ½", ⅝", ¾", and ⅞" shaft lengths
E = Locking, ¼" d. x ½" l. available with ⅝" shaft length
J = Plain, ⅜" d. x ¼" lg., available with ¾", 1⅛" and 1¼" shaft lengths
N = Plain, ¼" d. x ⅜" l., available with ¾", 1" and 1⅛" shaft lengths

(C) = No. of Section
1 = Single section
2 = Double section
3 = Triple section
4 = Quad section■

(D) = Anti-rotation lug options
A = Single at .305" r., 90° CW
C = Single at .305" r., 270° CW
D = None
E = Single at .531" r,. 90° CW
H = Single at .437" r., 90° CW
J = Single at .375" r., 90° CW

(E) = Shaft Type and End Style
B = Single, ¼" dia. slotted w/A, B or J bushing
C* = Single, ¼" dia. flatted w/A, or J bushing
E = Single, ⅛" dia. slotted w/C, E or N bushing
F* = Single, ⅛" dia. flatted w/C, or N bushing
G = Dual concentric, ¼" and ⅛" plain w/A, or J bushing
K = Dual concentric, ⅛" and 5/64" plain w/C, or N bushing

(E) Cont
L = Dual concentric, ¼" and ⅛" plain w/A, B or J bushing
M = Dual concentric, ⅛" and 5/64" w/C, E or N bushing
N = Dual concentric, ¼" and ⅛" plain w/A, B or J bushing
P = Dual concentric, ⅛" and 5/64" plain w/C, E or N bushing

(F) = Shaft Length in 1/32" Increments From Mounting Surface
16* = ½" l. x ¼" d.
20* = 5/8" l. x ⅛" and ¼" d.
24 = ¾" l. x ⅛" and ¼" d.
28* = ⅞" l. x ⅛" and ¼" d.
32 = 1" l. x ⅛" & 5/64"
36 = 1⅛" l. x ¼" & ⅛"
40ɪ = 1¼" l. x ¼ " & ⅛"

(G) = Type of Element, Taper and Tolerance for 1st Section
A = Cermet, Linear, ±10%
B = Plastic, linear, ±20%
C = Cermet, CW audio, ±10%
D = Plastic, CW audio, ±20%
E = Plastic, linear, ±10%
F = Cermet, CCW audio, ±10%
G = Plastic, CCW audio, ±20%
H = Cermet, linear, ±5%
J§ = Wirewound, 10-turn, ±5%
K§ = Hybritron®, 10-turn, ±10%
L• = Plastic, linear, ±5%
M• = Cermet, linear, ±3%
N• = Plastic, linear, ±5%
P• = Cermet, linear, ±3%
S‡ = Plastic, CW audio, ±10%
T‡ = Plastic, CCW audio, ±10%

(H) = Resistance Code/Value for 1st Section

03‡†	= 50	15	= 10K
05‡†	= 100	16§	= 20K
06§	= 200	17*	= 25K
07*	= 250	18	= 50K
08	= 500	20	= 100K
10	= 1K	22*	= 250K
11§	= 2K	23*	= 500K
12	= 2.5K	25*	= 1 meg
13	= 5K	26*	= 2.5 meg

(I) = Type of Element, Taper and Tolerance for 2nd Section
Same Code Applies

(J) = Resistance Code/Value for 2nd Section
Same Code Applies

(K) = Switch Code (Models 85/86 only)
R50 = DPST—1 NO/1 NC, CW detent, in-line terms.
R51 = DPST—1 NO/1 NC, CCW detent, in-line terms.
R52 = DPST—1 NO/WO CW detent, in-line terms.
R53 = DPST—1 NO/1 NO CW detent, in-line terms.
R54 = DPST—1 NC/1 NC CW detent, in-line terms.
R55 = DPST—1 NC/1 NC CCW detent, in-line terms.
R56 = DPST—1 NO/1 NC CW detent, hor. terms.
R57 = DPST—1 NO/1 NC CCW detent, hor. terms.
R58 = DPST—1 NO/1 NO CW detent, hor. terms.
R59 = DPST—1 NO/1 NO CCW detent, hor. terms.
R60 = DPST—1 NC/1 NC CW detent, hor. terms.
R61 = DPST—1 NC/1 NC CCW detent, hor. terms.
R70 = DPDT—CW detent, in-line terms.
R71 = DPDT—CCW detent, in-line terms.
R72 = DPDT—CW detent, hor. terms.
R73 = DPDT—CCW detent, hor. terms.

*Not available on Models 83/84.
‡Available on Models 81/82 and 85/86 only. †Available in cermet only.
§Available on Models 83/84 only.
≠Not available on Models 87/88.
■Not available on Models 85/86.
▲Not available on Models 81/82, 83/84.
ɪNot available on Models 81/82.
•Available on Model 87/88 only.

ADDIT TO ABOVE POTENTIOMETERS, EACH (81/82, 87/88)

Net Each, Lots of	85A, C, J, N/86A, C, J, N Switch Codes	
	R50 thru R61	R70 thru R73
1–4	$7.13	$9.50
5–9	5.35	7.13
10–24	4.28	5.70
25–49	3.49	4.66
50–99	3.07	4.09
100–249	2.71	3.61

PRICING FOR BASIC POTENTIOMETERS

Bourns Model/ Bushing Style	Resistance, Ohms	Element Type	No. of Sections	Net Each, Lots of 1-4	5-9	10-24	25-49	50-99	100-249
81A, C, J, N 82A, C, J, N Plastic	250, 200, 1K, 2.5K 5K, 10K, 25K, 50K, 100K, 250K, 500K, 1M, 2.5M, 5M	B B B B	1 2 3 4	$ 6.16 10.19 17.28 22.68	$ 4.62 7.64 12.96 17.01	$ 3.70 6.11 10.37 13.61	$ 3.02 4.99 8.47 11.11	$ 2.65 4.38 7.43 9.75	$ 2.34 3.87 6.57 8.62
81A, C, J, N 82A, C, J, N Cermet	50, 100, 250, 500, 1K, 2.5K, 5K, 10K, 25K, 50K, 100K, 250K, 500K, 1M, 2.5M, 5M	A A A A	1 2 3 4	7.25 11.93 20.84 27.54	5.44 8.95 15.63 20.66	4.35 7.16 12.50 16.52	3.55 5.85 10.21 13.49	3.12 5.13 8.96 11.84	2.76 4.53 7.92 10.47
83A, C, J, N 84A, C, J, N Wirewound	200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K	J J	1 2	8.91 18.25	7.96 16.30	7.17 14.69	6.81 13.94	6.49 13.18	6.05 12.39
83A, C, J, N 84A, C, J, N Hybritron	1K, 2K, 5K, 10K, 20K, 50K, 100K	K K	1 2	12.42 25.49	11.09 22.76	10.00 20.52	9.49 19.47	8.97 18.40	8.43 17.31
87A, C, J, N 88A, C, J, N Plastic	250, 500, 1K, 2.5K, 5K, 10K, 25K, 50K, 100K, 250K, 500K, 1M, 2.5M	L L L L	1 2 3 4	10.45 17.60 29.15 38.50	7.84 13.20 21.86 28.88	6.27 10.56 17.49 23.10	5.12 8.62 14.28 18.87	4.49 7.57 12.53 16.56	3.97 6.69 11.08 14.63
87A, C, J, N 88A, C, J, N Cermet		M M M M	1 2 3 4	11.66 19.80 32.45 42.90	8.75 14.85 24.34 32.18	7.00 11.88 19.47 25.74	5.71 9.70 15.90 21.02	5.01 8.51 13.95 18.45	4.43 7.52 12.33 16.30

BOURNS INC Modular Panel Controls

SERIES 90 ⅜" SQUARE MODULAR POTENTIOMETERS

Advanced modular construction with factory assembled reliability and quality assurance. Panel-mount ⅜" square potentiometers available in conductive plastic element and one or two sections. **Resistance Tolerance:** ±20% standard, ±10% in tapers E, S, and T. **Dielectric Strength:** 1000 VAC at sea level. **Insulation Resistance:** 1000 megohms. **Operating Temperature Range:** −55° C to +125° C. **Temperature Coefficient:** ±1000 ppm/° C. **Terminals:** Model 91, printed circuit type; Model 92, J-hook lugs.

91 A 2 A — B 28 — B 23 / B 15

Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ Ⓖ Ⓗ Ⓘ Ⓙ

Ⓐ = **Model and Terminal Style**
- 91 = PC style
- 92 = J-hook lugs

Ⓑ = **Bushing Style and Size**
- A = Plain, ⅜" d. ¾" l.; with ¾" and ⅞" shaft lengths
- C = Plain, ¼" d. x ¼" l., with ½", ⅝", and ¾" shaft lengths

Ⓒ = **No. of Sections**
- 1 = Single
- 2 = Dual

Ⓓ = **Anti-rotation Lug Options**
- A = Single at 0.305" r., 90° CW
- D = None

Ⓔ = **Shaft Type and End Style**
- B = Single, ¼" d. slotted with A bushing
- D = Single, ⅛" d. plain with C bushing

Ⓕ = **Shaft Length in 1/32" Increments From Mounting Surface**
- 16 = ½" l. x ⅛" d.
- 20 = ⅝" l. x ⅛" d.
- 24 = ¾" l. x ⅛" and ¼" d.
- 28 = ⅞" l. x ¼" d.

Ⓖ = **Element Type, Taper, and Tolerance for 1st Section**
- B = Linear, ±20%, 250 Ohms to 5 megohms
- E = Linear, ±10%, 250 Ohms to 5 megohms
- D = CW audio, ±20%, 1K to 2.5 megohms
- G = CCW audio, ±20%, 1K to 2.5 megohms
- S = CW audio, ±10%, 1K to 2.5 megohms
- T = CCW audio, ±10%, 1K to 2.5 megohms

Ⓗ = **Resistance Code/Value for 1st Section**

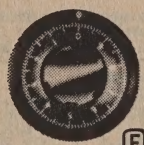
07	= 250	18	= 50K
08	= 500	20	= 100K
10	= 1K	22	= 250K
12	= 2.5K	23	= 500K
13	= 5K	25	= 1 meg
15	= 10K	26	= 2.5 meg
17	= 25K	27	= 5 meg

Ⓘ = **Element Type, Taper and Tolerance for Second Section**

Ⓙ = **Resistance Code/Value for 2nd Section**

Bourns Model/ Bushing Style	Resistance, Ohms	Element Type	No. of Sections	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-499
91A, C	250, 500, 1K, 2.5K,	B	1	$3.68	$2.76	$2.39	$2.10	$1.78	$1.41
92A, C	5K, 10K, 25K, 50K,	B	2	6.98	5.24	4.54	3.99	3.37	2.67
Plastic	100K, 250K, 500K,	E, D, G	1	4.25	3.19	2.76	2.43	2.05	1.63
	1M, 2.5M, 5M	E, D, G	2	8.14	6.11	5.29	4.66	3.93	3.12
		S, T	1	4.52	3.39	2.94	2.59	2.18	1.73
		S, T	2	8.66	6.50	5.63	4.95	4.18	3.32

TURNS-COUNTING DIALS



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H-400 Series (Fig. F)—1" dia.; for use with precision potentiometers or other rotating devices up to 10 turns. Readability of 1 part in 1000 for 10 turns.

H-490 Series (Fig. F)—1" dia.; for use with precision potentiometers or other rotating devices up to 30 turns. Readability of 1 part in 1000 for ten turns.

H-510 Series (Fig. G)—1⅜" dia.; for use with precision potentiometers or other rotating devices up to 10 turns. Readability equal to larger 1 13/16" dia. dials; excellent number definition in two-thirds the panel space

H-1400 Series (Fig. F)—1" dia.; for use with precision potentiometers or other rotating devices up to 10 turns. Readability of 2 parts in 1000 for 10 turns.

Bourns Model	Finish	Shaft Dia.	Bushing Size	Brake	Net Each, Lots of 1-4	5-9	10-24	25-49	50-99	100-249
H-411	Black	¼"	⅜"-32NEF-2A	No	$11.44	$10.30	$ 9.84	$ 9.38	$ 8.92	$ 8.47
H-412	Black	¼"	⅜"-32NEF-2A	Yes	12.32	11.09	10.60	10.10	9.61	9.12
H-461	Clear	¼"	⅜"-32NEF-2A	No	11.44	10.30	9.84	9.38	8.92	8.47
H-462	Clear	¼"	⅜"-32NEF-2A	Yes	12.32	11.09	10.60	10.10	9.61	9.12
H-491-1*	Clear	3/32"	¼"-32NEF-2A	No	14.52	12.34	11.62	10.89	10.16	9.44
H-492-1*	Clear	3/32"	¼"-32NEF-2A	Yes	14.52	12.34	11.62	10.89	10.16	9.44
H-493-1*	Black	3/32"	¼"-32NEF-2A	No	13.66	11.61	10.93	10.25	9.56	8.88
H-494-1*	Black	3/32"	¼"-32NEF-2A	Yes	13.66	11.61	10.93	10.25	9.56	8.88
H-491-3	Clear	¼"	⅜"-32NEF-2A	No	11.88	10.10	9.50	8.91	8.32	7.72
H-492-3	Clear	¼"	⅜"-32NEF-2A	Yes	11.88	10.10	9.50	8.91	8.32	7.72
H-493-3	Black	¼"	⅜"-32NEF-2A	No	12.88	10.95	10.30	9.66	9.02	8.37
H-494-3	Black	¼"	⅜"-32NEF-2A	Yes	12.88	10.95	10.30	9.66	9.02	8.37
H-510-1	Clear	⅛"	.....	Yes	14.26	12.12	11.40	10.70	9.98	9.27
H-510-2	Clear	¼"	.....	Yes	14.26	12.12	11.40	10.70	9.98	9.27
H-1411	Black	¼"	⅜"-32NEF-2A	No	9.09	8.18	7.82	7.45	7.09	6.73
H-1412	Black	¼"	⅜"-32NEF-2A	Yes	9.97	8.97	8.57	8.18	7.78	7.38
H-1461	Gray	¼"	⅜"-32NEF-2A	No	9.09	8.18	7.82	7.45	7.09	6.73
H-1462	Gray	¼"	⅜"-32NEF-2A	Yes	9.97	8.97	8.57	8.18	7.78	7.38

Ⓖ

*Available with ⅛" shaft dia.; to order, substitute -2 for suffix -1 (H-491-2).

OUR STOCKS ARE FULLY UP TO DATE WITH ALL THE LATEST PRODUCTS.

ASK ABOUT NEW OR UNLISTED ITEMS.

KNOBPOT® WIRE-WOUND READOUT POTENTIOMETERS

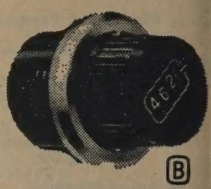
Knob, readout dial and potentiometer in one package requires less front panel space than most dials alone Self-locking feature provides excellent stability during vibration and shock; 100% contact pressure contro insures high mechanical life. Sealed to pass MIL-STD-202, Method 103, humidity. Shock: 50G. Vibration 10G. Electrical Rotation: 3600° nom. Mechanical Life: 200,000 dial revolutions (Model 3610, 50,000 dia revolutions). Lockwasher and mounting nut included.

A

10-TURN ¾" DIA. CLOCK FACE READOUT KNOBPOT® MODEL 3600 (FIG. A)

Dial Accuracy: ±0.5% VR. Dial Repeatability: ±0.1% VR. Power Rating: 1.5 watts at 25° C. Operating Temperature: −65° C to +85° C max. Resistance Tolerance: ±5%. Size: ¾" dia. x 1" lg. FMS; 1 1/32" lg. overall.

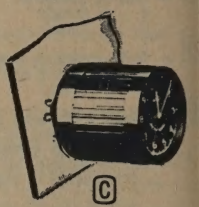
Bourns Model	Resistance Range, Ohms	Net Each, Lots of				
		1-4	5-9	10-24	25-49	50-99
3600S-1	100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K	$27.18	$25.64	$25.13	$22.82	$21.28


B

10-TURN ⅞" DIA. DIGITAL READOUT KNOBPOT® MODEL 3610 (FIG. B)

Dial Accuracy: ±0.5% VR. Dial Repeatability: ±0.1% VR. Power Rating: 1.5 watts at 25° C. Operating Temperature: −25° C to +85° C max. Resistance Tolerance: ±5%. Size: ⅞" dia. x ¾" lg. FMS; 1 3/16" lg. overall.

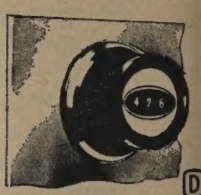
Bourns Model	Resistance Range, Ohms	Net Each, Lots of				
		1-4	5-9	10-24	25-49	50-99
3610S-1	100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 200K	$27.76	$26.19	$25.67	$23.31	$21.74


C

10-TURN 1¼" DIA. CLOCK FACE READOUT KNOBPOT® MODEL 3640 (FIG. C)

Dial Accuracy: ±0.1% VR. Dial Repeatability: ±0.05% VR. Power Rating: 2.5 watts at 25° C. Operating Temperature: −65° C to +85° C max. Resistance Tolerance: ±3%. Size: 1¼" dia. x 1½" lg. FMS; 2½" lg. overall.

Bourns Model	Resistance Range, Ohms	Net Each, Lots of				
		1-4	5:9	10-24	25-49	50-99
3640S-1	100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 75K, 100K, 125K, 200K	$40.60	$38.98	$37.35	$35.73	$34.10

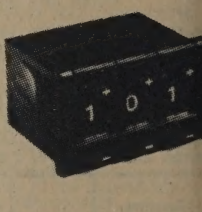

D

10-TURN 1¼" DIA. DIGITAL READOUT KNOBPOT® MODEL 3650 (FIG. D)

Dial Accuracy: ±0.1% VR. Dial Repeatability: ±0.05% VR. Power Rating: 2.5 watts at 25° C. Operating Temperature: −25° C to +85° C max. Resistance Tolerance: ±3%. Size: 1¼" dia. x 2 9/32" lg. FMS; 2 15/32" lg. overall.

Bourns Model	Resistance Range, Ohms	Net Each, Lots of				
		1-4	5-9	10-24	25-49	50-99
3650S-1	100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 75K, 100K, 200K	$57.85	$55.54	$53.22	$50.91	$48.59

PUSHBUTTON DIGITAL KNOBPOT SERIES 3680



Resistance ranges from 10 ohms to 1 megohm at 1% tolerance. Power dissipation is 2 watts at 25° C. **Dielectric strength:** 1000 VAC. **Resolution:** Model 3681, 10%; Model 3682, 1%; Model 3683, 0.1%; Model 3684, 0.01%; Model 3685, 0.001%.

Bourns Model	Resistance, Ohms	Net Each, Lots of					
		1-4	5-9	10-24	25-49	50-99	100-249
3681S-1	10, 20, 50, 100, 200, 500, 1K, 2K, 5K, 10K, 100K	$ 7.34	$ 6.92	$ 6.79	$ 6.16	$ 5.75	$ 5.47
3682S-1	100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K, 1 meg	13.65	12.88	12.62	11.46	10.69	10.18
3683S-1	1K, 2K, 5K, 10K, 20K, 50K, 100K, 500K, 1 meg	20.33	19.18	18.80	17.07	15.92	15.15
3684S-1	10K, 20K, 50K, 100K, 500K, 1 meg	27.95	26.37	25.84	23.47	21.89	20.83
3685S-1	100K, 500K, 1 meg	38.12	35.96	35.24	32.00	29.85	28.41

SINGLE TURN PRECISION POTENTIOMETERS

High quality, single-turn, precision potentiometers at economical prices. Conductive plastic potentiometers feature super-smooth rotation and infinite resolution, long-life elements. Molded-in, rear turret type terminals provide increased protection from mechanical shock and handling damage. Bushing mount; lock washer and mounting nut supplied. **Operating Temperature Range:** −65° C to +125° C. **Resistance Range:** 1K to 100K ohms. **Resistance Tolerance:** ±10%. **Linearity (Independent) Standard:** ±1%; other linearities available. **Resolution:** Essentially infinite. **Effective Electrical Angle:** 340° ±3°. **End Voltage:** 0.5% maximum. **Output Smoothness:** 0.1%. **Power Rating:** Model 6637, 1 Watt at 70° C; Model 6657, 1.5 Watt at 70° C; both models, 0 Watts at 125° C. **Dielectric Strength:** 750 VAC at sea level. **Insulation Resistance:** Model 6637, 500 megohms minimum at 500 VDC; Model 6657, 1,000 megohms at 500 VDC. **Vibration (Contact Bounce 0.1 millisecond max.):** 15G. **Shock (Contact Bounce 0.1 millisecond max.):** 50G. **Mechanical Angle:** Continuous. **Backlash:** 0.17% maximum. **Shaft Runout:** Model 6637, 0.005 T.I.R. Model 6657, 0.001 T.I.R. **Shaft End Play:** 0.005 T.I.R. **Shaft Radial Play:** Model 6637, 0.005 T.I.R.; Model 6657, 0.003 T.I.R. **Rotational Life:** 10,000,000 shaft revolutions. **Torque (Starting and Running):** 0.50 oz.-in. maximum.

OPTIONAL FEATURES

Front shaft extensions, Model 6637; front and rear shaft extensions, Model 6657. Shaft flats, slots, grooves and special shaft diameters. Special bushing lids. Mechanical stops. High or low torque. Antirotation pin. Special electrical angles. Special linearity tolerances. Special resistance tolerances. Center tap (within linearity tolerance). Voltage or resistance shorts. Non-linear functions, Model 6657 only.

MODEL 6637

⅞" diameter.

Bourns Model	Resistance (Ohms)	Net Each, Lots of					
		1-4	5-9	10-24	25-49	50-99	100-249
6637S-1-102	1K	11.33	10.88	10.42	$9.97	$9.52	$9.06
6637S-1-202	2K	11.33	10.88	10.42	9.97	9.52	9.06
6637S-1-502	5K	11.33	10.88	10.42	9.97	9.52	9.06
6637S-1-103	10K	11.33	10.88	10.42	9.97	9.52	9.06
6637S-1-203	20K	11.33	10.88	10.42	9.97	9.52	9.06
6637S-1-503	50K	11.33	10.88	10.42	9.97	9.52	9.06
6637S-1-104	100K	11.33	10.88	10.42	9.97	9.52	9.06

MODEL 6657

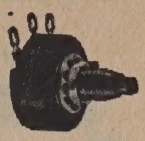
1 5/16" diameter.

Bourns Model	Resistance (Ohms)	Net Each, Lots of					
		1-4	5-9	10-24	25-49	50-99	100-249
6657S-1-102	1K	12.24	11.75	11.26	10.77	10.28	$9.79
6657S-1-202	2K	12.24	11.75	11.26	10.77	10.28	9.79
6657S-1-502	5K	12.24	11.75	11.26	10.77	10.28	9.79
6657S-1-103	10K	12.24	11.75	11.26	10.77	10.28	9.79
6657S-1-203	20K	12.24	11.75	11.26	10.77	10.28	9.79
6657S-1-503	50K	12.24	11.75	11.26	10.77	10.28	9.79
6657S-1-104	100K	12.24	11.75	11.26	10.77	10.28	9.79

CERMET CONTROLS

Cermet infinite resolution element offers stable performance in all environments. Resistance Tolerance: ±10%. Taper: Linear (A). Contact Resistance Variation: ±3% max. of total resistance. TC: ±150 ppm/° C. High Performance Models meet or exceed the applicable requirements of MIL-R-94 and MIL-R-23285. Single turn except otherwise noted. **High Performance Model 3852:** Housing ¼" dia. x ¼" lg. Resistance Range: 50 ohms to 5 megs. Power Rating: 2 watts at 70° C. Operating Temperature: −65° C to +150° C. **Multi-Turn Model 3856:** Features 3¾ turns which provide 1350° of electrical continuity travel. Housing: ¾" dia. x ¼" lg. Resistance Range: 50 ohms to 5 megs. Power Rating: 2 watts at 70° C. Operating Temperature Range: −65° C to +150° C. **Commercial Model 3859:** Same as Model 3852 except Operating Temperature Range: −65° C to +125° C and has plastic bushing. **High Performance Model 3862:** Housing ½" dia. x 0.453" lg. Resistance Range: 100 ohms to 5 megs. Power Rating: 1 watt at 125° C. Operating Temperature Range: −65° C to +175° C. All models supplied with hardware; types with locking bushings supplied with lock nut.

Available Options: (With Minimum Order Requirements.) Plain and flatted shaft ends; lug or PC terminals; other nominal resistance values; 10% audio CW taper (C) and CCW taper (F) with ±10% resistance tolerance; and ±5% resistance tolerance (H) are also available on special order.



Model 3852E

Model 3859B

Model 3862C

Model 3862E

PART NUMBERING SYSTEM AND ORDERING

3852	A	16	2	101	A

Bourns Model	Bushing Style	Bushing Lgth.	Bushing Shaft Dia.	Standard Shaft Lgth. (FMS) Lgth.	Standard Shaft Lgth. (FMS) Code*
3852	A	⅜"	¼"	½"†	16
				⅞"	28
3852	B	½"	¼"	⅝"†	20
3852	C	¼"	⅛"	⅜"†	12
				⅞"	28
3852	E	⅜"	⅛"	½"†	16
3856	A	⅜"	¼"	⅞"†	28
3856	H	⅜"	⅛"	⅞"†	28
3859	A	⅜"	¼"	½"†	16
				⅞"	28
3859	B	¼"	¼"	⅜"†	12
3862	C	¼"	⅛"	⅜"†	12
				⅞"	28
3862	E	½"	⅛"	⅝"†	20

Terminal and Shaft End	Resistance Code Value Ohms	Code	Value Ohms	Code	Taper and Resistance Tolerance
2, lugs, slotted	50‡	500	25K	253	Linear taper, ±10% resistance tolerance
	100	101	50K	503	
	250	251	100K	104	
6, printed circuit, slotted	500	501	250K	254	
	1K	102	500K	504	
	2.5K	252	1,000K	105	
	5K	502	2,500K	255	
	10K	103	5,000K	505	

*Shaft length numbering code is based on the number of 1/32" increments in the length from the mounting surface (FMS), thus a ⅞" shaft length is ordered as **28.** Shaft lengths other than those listed above are available with Minimum Order Requirements.
†Minimum length slotted shaft available for each model bushing combination shown. ‡50 ohm value not available in Model 3862.

DESCRIPTION AND PRICING

Bourns Model	Bushing Style	Bushing Lgth.	Shaft Dia.	Standard Shaft Lgth. (FMS)	Net Each, Lots of 1-4	5-9	10-24	25-49	50-99	100-249
3852A	⅜-32 UNEF	⅜"	¼"	½" or ⅞"	$3.99	$3.79	$3.55	$3.30	$2.99	$2.55
3852B	⅜-32 UNEF locking	½"	¼"	⅝"	5.04	4.79	4.49	4.17	3.78	3.23
3852C	¼-32 UNEF	¼"	⅛"	⅜" or ⅞"	4.62	4.39	4.11	3.82	3.47	2.96
3852E	¼-32 UNEF locking	⅜"	⅛"	½"	5.20	4.94	4.63	4.30	3.90	3.33
3856A	⅜-32 UNEF	½"	¼"	⅞"	7.26	6.90	6.46	6.00	5.45	4.65
3859A	⅜-32 UNEF threaded plastic	⅜"	¼"	½" or ⅞"	3.68	3.50	3.28	3.04	2.76	2.36
3859B	Plastic snap-in	¼"	¼"	⅜"	3.68	3.50	3.28	3.04	2.76	2.36
3862C	¼-32 UNEF-2A	¼"	⅛"	⅜" or ⅞"	6.26	6.26	5.50	5.01	4.44	3.41
3862E	¼-32 UNEF-2A locking	½"	⅛"	⅝"	7.13	7.13	6.26	5.70	5.06	3.89

CONDUCTIVE PLASTIC CONTROLS

The conductive plastic resistance element offers improved stability, low noise, and stable performance in all environments. The one-piece, molded-in terminations eliminate bonded connections and stress problems. **Housing:** ¾" diameter. **Resistance Range:** 1K to 100K in linear tapers, 2K to 50K in audio tapers. **Power Rating:** ½ W at 70° C.

Bourns Model	Bushing Style	Bushing Lgth.	Shaft Dia.	Standard Shaft Length Lgth.	Standard Shaft (FMS) Code*	Terminal & Shaft End	Resistance Code Value Ohms	Code	Taper and Resistance Tolerance
3851	A	⅜"	¼"	½"†	16	2, lugs, slotted	1K	102	B—Linear ±20%
				⅞"	28		2.5K	252	
	B	½"	¼"	⅝"†	20		5K	502	
	C	¼"	⅛"	⅜"†	12	6, PC, slotted	10K	103	
				⅞"	28		25K	253	
	E	¼"	⅛"	½"†	16		50K	503	
3858	A	⅜"	¼"	½"†	16		100K	104	
				⅞"	28				
	B	¼"	¼"	⅜"†	12				

*Shaft length numbering code is based on the number of 1/32" increments in the length from the mounting surface (FMS), thus a ⅞" shaft length is ordered as 28. †Minimum length slotted shaft available for each model bushing combination shown.

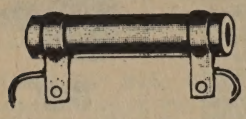
DESCRIPTION AND PRICING

Bourns Model	Bushing Style	Shaft Dia.	Standard Shaft Length FMS	Net Each, Lots of 1-4	5-9	10-24	25-49	50-99	100-249
3851A	⅜-32 UNEF	¼"	½" or ⅞" or 2"	$3.51	$3.33	$3.12	$2.90	$2.63	$2.25
3851B	⅜-32 UNEF locking	¼"	⅝"	4.59	4.36	4.09	3.80	3.44	2.94
3851C	¼-32 UNEF	⅛"	⅜" or ⅞"	4.16	3.95	3.70	3.44	3.12	2.66
3851E	¼-32 UNEF locking	⅛"	½"	4.75	4.51	4.23	3.93	3.56	3.04
3858A	⅜-32 UNEF	¼"	½" or ⅞" or 2"	3.05	2.90	2.71	2.52	2.29	1.95
3858B	Plastic Snap-in	¼"	⅜"	3.05	2.90	2.71	2.52	2.29	1.95

STANDARD RESISTANCE VALUE ORDER CODE

50	(500)
100	(101)
250	(251)
500	(501)
1K	(102)
2.5K	(252)
5K	(502)
10K	(103)
25K	(253)
50K	(503)
100K	(104)
250K	(254)
500K	(504)
1 meg	(105)
2.5 meg	(255)
5 meg	(505)

GREENOHM V™ FIXED POWER RESISTORS



Vitreous enamel, wire-wound power resistors are engineered to meet or exceed MIL-R-26 specifications. Wire windings are finest grade resistance alloy. Designed for utmost reliability and stability under adverse conditions. Teal green enamel finish withstands over-heating without peeling or cracking. Tolerance, ±5% except values under 1 ohm, ±10%. VPR types (up to 20 watts) have wire lead and lug terminals, illustrated at left. VP and VK types (25 watts and up) have lug terminals, and mounting bracket. **Core Size:** VPR-5-F, 1" × 9/16" dia.; VPR-10-F, 1¾" × 9/16" dia.; VPR-20-H, 2" × 9/16" dia.; VP-25-K 2" × 9/16" dia.; VP-50-K, 4" × 9/16" dia.; VK-100-N, 6½" × ¾" dia. VK-160-W, 8½" × 1⅛" dia.; VK-200-W, 10½" × 1⅛" dia.

STOCK VALUES—WITH WIRE AND LUG TERMINALS

8-WATT SERIES VPR-5-F

Ohms	Ohms	Ohms	Ohms
1	50	750	4500
1.5	75	800	5000
2	100	900	6000
3	125	1000	7000
4	150	1100	7500
5	200	1200	8000
7.5	225	1250	9000
10	250	1500	10K
12	300	1750	12.5K
15	350	2000	15K
20	400	2250	17.5K
25	450	2500	20K
30	500	3000	22.5K
35	600	3500	25K
40	700	4000	

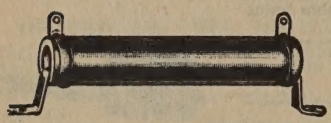
12-WATT SERIES VPR-10-F

Ohms	Ohms	Ohms	Ohms	Ohms
0.4	30	500	3000	13.5K
1	35	600	3500	14.3K
1.2	40	700	4000	15K
1.3	50	750	4500	16K
1.5	75	800	5000	17.5K
2	100	900	6000	18K
3	125	1000	7000	20K
4	150	1100	7500	22.5K
5	200	1200	8000	25K
7.5	225	1250	8500	30K
10	250	1500	9000	35K
12	300	1750	10K	40K
15	350	2000	11K	45K
20	400	2250	12K	50K
25	450	2500	12.5K	

20-WATT SERIES VPR-20-H

Ohms	Ohms	Ohms	Ohms	Ohms
0.4	350	1850	7500	55K
0.6	400	2000	8000	60K
0.8	500	2250	9000	65K
5	650	2400	10K	70K
10	700	2500	12.5K	75K
25	750	2750	15K	80K
50	800	3000	20K	85K
75	850	3500	25K	90K
100	1000	4000	30K	95K
150	1200	4500	35K	100K
200	1250	5000	40K	
250	1500	6000	45K	
300	1750	7000	50K	

STOCK VALUES—WITH LUG TERMINALS AND MOUNTING BRACKET



25-WATT SERIES VP-25-K

Ohms	Ohms	Ohms	Ohms	Ohms
1	50	800	5000	30K
2	75	1000	6000	35K
3	100	1500	7500	40K
4	150	2000	10K	50K
5	200	2500	12K	60K
10	250	3000	15K	70K
15	500	3500	20K	80K
25	750	4000	25K	100K

50-WATT SERIES VP-50-K

Ohms	Ohms	Ohms	Ohms	Ohms
1	100	1000	7500	50K
2	150	1250	8000	75K
3	200	1500	10K	100K
4	250	2000	12K	125K
5	300	2500	15K	150K
10	400	3000	20K	175K
25	500	4000	25K	200K
50	750	5000	30K	225K
75	800	6000	35K	250K

100-WATT SERIES VK-100-N

Ohms	Ohms	Ohms	Ohms	Ohms
1	75	750	7500	60K
2	100	1000	10K	75K
3	125	1500	15K	100K
4	150	2000	20K	200K
5	200	2500	25K	
10	250	3000	30K	
25	300	4000	40K	
50	500	5000	50K	

160-WATT SERIES VK-160-W

Ohms	Ohms	Ohms	Ohms	Ohms
1	50	750	7500	50K
2	75	1000	10K	60K
3	100	1500	15K	75K
4	125	2000	20K	100K
5	150	2500	25K	
10	250	3000	30K	
25	500	5000	40K	

200-WATT SERIES VK-200-W

Ohms	Ohms	Ohms	Ohms	Ohms
1	50	500	5000	40K
2	75	750	7500	50K
3	100	1000	10K	60K
4	125	1500	15K	75K
5	150	2000	20K	100K
10	200	2500	25K	
25	250	3000	30K	

"GREENOHM V" FIXED RESISTOR PRICES

Series	Range, Ohms	Net Each, Lots of 1-9	10-24	25-99	100-249	250 Up
VPR-5-F 8-Watt	1.0-1K	$0.82	$0.72	$0.59	$0.47	$0.41
	1001-5K	.89	.77	.62	.50	.45
	5001-10K	.93	.80	.65	.56	.47
	10001-20K	1.04	.92	.75	.60	.55
	20001-25K	1.19	1.03	.84	.68	.60
VPR-10-F 12-Watt	Min.-0.9	1.48	1.29	1.02	.83	.74
	1.0-1K	.92	.80	.64	.53	.48
	1001-5K	1.00	.85	.70	.56	.49
	5001-10K	1.02	.87	.79	.64	.56
	10001-20K	1.27	1.10	.89	.72	.64
	20001-35K	1.34	1.17	.81	.77	.66
	35001-50K	1.50	1.30	1.03	.84	.76
VPR-20-H 20-Watt	Min.-0.9	1.52	1.34	1.06	.87	.77
	1.0-1K	1.04	.91	.72	.59	.53
	1001-5K	1.09	.93	.77	.61	.54
	5001-10K	1.28	1.10	.89	.72	.64
	10001-20K	1.33	1.14	.91	.74	.65
	20001-40K	1.52	1.34	1.08	.85	.77
	40001-60K	1.76	1.49	1.24	1.01	.89
	60001-75K	1.86	1.63	1.30	1.05	.93
	75001-100K	2.00	1.75	1.40	1.12	1.00
VP-25-K 25-Watt	1.0-1K	1.10	.99	.92	.62	.56
	1001-5K	1.16	1.01	.80	.65	.58
	5001-10K	1.31	1.14	.91	.74	.66
	10001-20K	1.38	1.19	.99	.79	.70
	20001-40K	1.61	1.40	1.13	.90	.80
	40001-60K	1.86	1.62	1.29	1.04	.93
	60001-75K	2.18	1.92	1.51	1.24	1.11
	75001-100K	2.53	2.19	1.76	1.43	1.27
VP-50-K 50-Watt	1.0-1K	1.70	1.49	1.18	.97	.87
	1001-5K	1.75	1.61	1.14	1.00	.89
	5001-10K	1.89	1.64	1.31	1.08	.96
	10001-20K	2.08	1.81	1.45	1.17	1.04
	20001-40K	2.40	2.10	1.62	1.37	1.22
	40001-60K	2.65	2.40	1.83	1.51	1.34
	60001-80K	3.02	2.65	2.12	1.70	1.51
	80001-100K	3.30	2.85	2.29	1.86	1.64
	100001-125K	3.77	2.95	2.63	2.12	1.95
	125001-150K	4.22	3.62	2.95	2.39	2.12
	150001-175K	4.66	4.06	3.28	2.66	2.35
	175001-200K	4.92	4.28	3.43	2.78	2.51
	200001-250K	5.24	4.58	3.65	2.97	2.65
VK-100-N 100-Watt	1-2	3.33	2.84	2.52	2.16	.....
	3-10	3.01	2.71	2.28	1.95	.....
	15-10K	2.69	2.28	2.04	1.74	.....
	15K-20K	2.88	2.44	2.18	1.87	.....
	25K-75K	2.96	2.60	2.33	2.00	.....
	100K	3.49	2.96	2.66	2.28	.....
	200K	4.61	3.92	3.39	2.91	.....
VK-160-W 160-Watt	1-5	6.27	5.32	4.76	4.07	.....
	10	5.16	4.37	3.90	3.34	.....
	25-20K	4.52	3.83	3.41	2.92	.....
	25K-50K	4.78	4.05	3.62	3.11	.....
	60K-75K	4.99	4.24	3.79	3.24	.....
	100K	5.24	4.46	3.97	3.41	.....
VK-200-W 200-Watt	1-5	8.40	7.13	6.37	5.46	.....
	10	6.08	5.17	4.61	3.95	.....
	25-5K	5.44	4.62	4.13	3.54	.....
	7.5K-50K	5.74	4.86	4.36	3.73	.....
	60K-75K	5.89	5.00	4.46	3.82	.....
	100K	6.39	5.43	4.85	4.23	.....

*Net Each, 100-Up.

PRICES LISTED ARE FOR GUIDANCE ONLY

GREENOHM V™ ADJUSTABLE POWER RESISTORS

STOCK VALUES

12-WATT SERIES VP-10-FA

Ohms	Ohms	Ohms	Ohms	Ohms
1	50	500	2500	8000
2	75	600	3000	8500
3	100	750	3500	9000
5	150	800	4000	10K
7.5	200	1000	4500	
10	250	1250	5000	
15	300	1500	6000	
20	350	2000	7000	
25	400	2250	7500	

25-WATT SERIES VP-25-KA

Ohms	Ohms	Ohms	Ohms	Ohms
1	50	750	3500	9000
2	75	800	4000	10K
3	100	1000	4500	12K
5	150	1250	5000	15K
7.5	200	1500	6000	20K
10	250	2000	7000	25K
15	300	2250	7200	
20	400	2500	7500	
25	500	3000	8000	

50-WATT SERIES VP-50-KA

Ohms	Ohms	Ohms	Ohms	Ohms
1	100	1250	6000	25K
2	150	1500	7000	30K
3	200	2000	7200	35K
4	250	2250	7500	40K
5	300	2500	8000	50K
10	400	3000	9000	60K
20	500	3500	10K	75K
25	750	4000	12K	80K
50	800	4500	15K	100K
75	1000	5000	20K	

75-WATT SERIES VP-75-KA

Ohms	Ohms	Ohms	Ohms	Ohms
1	200	2000	7200	35K
2	250	2250	7500	40K
3	300	2500	8000	45K
4	400	3000	9000	50K
5	500	3500	10K	60K
10	750	4000	12K	80K
15	800	4500	15K	100K
25	1000	5000	20K	
50	1250	6000	25K	
100	1500	7000	30K	

100-WATT SERIES VK-100-NA

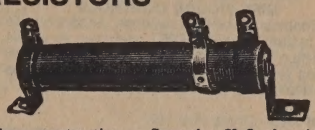
Ohms	Ohms	Ohms	Ohms	Ohms
1	25	400	3500	40K
2	50	500	5000	50K
3	100	750	10K	75K
4	150	1000	15K	100K
5	200	1500	20K	
10	250	2000	25K	
15	300	2500	30K	

160-WATT SERIES VK-160-WA

Ohms	Ohms	Ohms	Ohms	Ohms
1	10	250	5000	30K
2	25	500	10K	40K
3	50	1000	15K	50K
4	100	1500	20K	75K
5	150	2500	25K	100K

200-WATT SERIES VK-200-WA

Ohms	Ohms	Ohms	Ohms	Ohms
1	20	200	2500	30K
2	25	250	5000	40K
3	50	300	10K	50K
4	75	500	15K	75K
5	100	1000	20K	100K
10	150	1500*	25K	



Same construction as Greenohm V fixed resistors. Tolerance, ±10%. **Core Size:** VP-10-FA, 1¾" × 9/16" dia.; VP-25-KA, 2" × 9/16" dia.; VP-50-KA, 4" × 9/16" dia.; VP-75-KA, 6" × 9/16" dia.; VK-100-NA, 6½" × ¾" dia.; VK-160-WA, 8½" × 1⅛" dia.; VK-200-WA, 10½" × 1⅛" dia.

ADJUSTABLE POWER RESISTOR PRICES

Series	Range, Ohms	Net Each, Lots of 1-9	10-24	25-99	100-249	250 Up
VP-10-FA 12-Watt	1.0-100	$1.19	$1.10	$0.93	$0.83	$0.80
	1001-5K	1.28	1.14	1.00	.85	.81
	5001-10K	1.40	1.28	1.08	.93	.90
VP-25-KA 25-Watt	1.0-1000	1.35	1.22	1.02	.87	.83
	1001-5K	1.40	1.25	1.04	.91	.85
	5001-10K	1.58	1.38	1.16	1.00	.92
	10001-20K	1.97	1.47	1.22	1.03	.97
	20001-40K	1.83	1.64	1.37	1.16	1.08
VP-50-KA 50-Watt	1.0-1000	2.05	1.81	1.50	1.29	1.22
	1001-5K	2.08	1.86	1.53	1.31	1.24
	5001-10K	2.23	1.97	1.84	1.40	1.30
	10001-20K	2.40	2.14	1.77	1.50	1.40
	20001-40K	2.74	2.33	1.98	1.68	1.54
	40001-60K	2.99	2.65	2.17	1.83	1.69
	60001-80K	3.34	2.96	2.44	2.05	1.87
	80001-100K	3.65	3.16	2.64	2.18	2.00
VP-75-KA 75-Watt	1.0-1000	2.89	2.55	2.12	1.81	.....
	1001-5K	2.95	2.64	2.17	1.83	.....
	5001-10K	3.01	2.67	2.23	1.91	.....
	10001-20K	3.10	2.75	2.29	1.93	.....
	20001-60K	3.44	3.05	2.52	2.12	.....
	60001-100K	3.91	3.44	2.84	2.39	.....
VK-100-NA 100-Watt	1-2	5.74	4.86	4.36	3.73	.....
	3-10	5.28	4.48	4.01	3.43	.....
	15-10K	5.99	4.19	3.73	3.20	.....
	15K-20K	5.19	4.40	3.93	3.37	.....
	25K-30K	5.28	4.48	4.01	3.44	.....
	35K-100K	5.95	5.05	4.52	3.87	.....
VK-160-WA 160-Watt	1-5	8.39	7.12	6.35	5.45	.....
	10	7.20	6.11	5.46	4.69	.....
	25-20K	6.94	5.89	5.26	4.50	.....
	25K-50K	7.09	6.02	5.39	4.61	.....
	60K-75K	7.36	6.24	5.58	4.78	.....
	100K	8.13	6.91	6.15	5.28	.....
VK-200-WA 200-Watt	1-5	10.92	9.26	7.94	6.80	.....
	10	8.42	7.14	6.38	5.47	.....
	25-20K	7.95	6.74	6.03	5.18	.....
	25K-50K	8.09	6.86	6.13	5.26	.....
	60K-75K	8.39	7.12	6.35	5.45	.....
	100K	8.80	7.48	6.68	5.73	.....

*Net Each, 100-Up.

AXIAL LEAD VITREOUS RESISTORS

Ideal for printed circuit, terminal board, and point-to-point wiring applications. Space-saving design, due to elimination of mounting brackets and terminal lugs. Standard resistance tolerance, ±5%. Designed for critical applications, providing high stability and reliability under widely variable environmental conditions. Finished in vitreous shade of teal green. Available in three sizes: 3, 5 or 10 watts. **Size:** VC3D, ¼" dia. × ½" long; VC5E, ⅜" dia. × 1" long; VC10F, 7/16" dia. × 1⅞" long. Leads 1½" long, .032" dia.

STOCK VALUES

Ohms	Ohms	Ohms	Ohms	Ohms
.1	27	330	2200	12K*
.13	30	350	2250	12.5K#
.15	33	390	2500	13.5K*
.2	35	400	2700	15K#
.25	39	450	3000	16K*
.3	40	470	3300	17.5K#
.33	47	500	3500	18K#
.5	50	560	3900	20K#
.75	56	600	4000	22K#
1.	68	680	4500	22.5K#
1.5	75	700	4700	25K#
2	82#	750	5000	27K*
3	100	800	5600	30K*
4	120	820	6000	33K*
5	125	900	6800	35K*
7.5	150	1000	7000	39K*
10	180	1100	7500	40K*
12	200	1200	8000	45K*
15	220	1250	8200	47K*
18	225†	1500	8500*	50K*
20	250	1750	9000	
22	270	1800	10K	
25	300	2000	11K*	

*Available in 10-watt series VC10F only.
#Available in 5- and 10-watt series only.
†Available in 3- and 5-watt series only.

PRICES

When ordering, specify resistance value desired from stock values shown at left.

Series	Range, Ohms	Net Each, Lots of 1-9	10-24	25-99	100-249	250 Up
VC3D 3-Watt	0.1-0.75	$0.77	$0.67	$0.53	$0.44	$0.39
	1-100	.72	.62	.50	.40	.35
	101-2.5K	.65	.57	.45	.36	.33
	2501-5.5K	.75	.64	.52	.42	.36
	5501-7.5K	.80	.69	.55	.45	.40
	7501-10K	.94	.81	.65	.53	.46
VC5E 5-Watt	0.1-0.75	.94	.81	.65	.53	.46
	1-1000	.72	.62	.48	.40	.35
	1001-5K	.75	.64	.52	.42	.37
	5001-10K	.80	.69	.55	.45	.40
	10001-15K	.92	.75	.58	.48	.43
	15001-20K	.97	.84	.67	.55	.48
	20001-25K	1.29	1.10	.88	.73	.65
VC10F 10-Watt	0.1-0.75	1.20	1.06	.84	.68	.61
	1-1000	.77	.67	.53	.44	.39
	1001-5K	.85	.75	.58	.48	.43
	5001-10K	.94	.81	.65	.53	.48
	10001-20K	1.05	.92	.75	.61	.54
	20001-40K	1.20	1.06	.84	.68	.61
	40001-50K	1.42	1.22	.98	.81	.72

SERIES A43 AND A43S 2-WATT WIRE-WOUND CONTROLS

A43 Controls are without switches. A43S Controls have factory attached SPST switches. Available with factory assembled shafts at no extra charge by omitting prefix "A" from number and designating shaft desired. Tolerance, ±10%.

Model A43—Ohms thru 10K
Without switch..... **$2.29**
Model A43—15K, 20K, 25K
Without switch..... **$2.86**
Model A43—30K, 40K, 50K
Without switch..... **$3.61**
Any Model A435—With switch..... **$3.47**

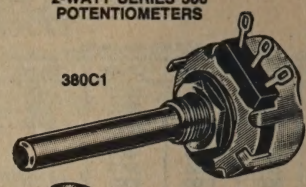
Ohms	No. A43- or A43S-	Ohms	No. A43- or A43S-
5	5	400	400
10	10	500	500
20	20	750	750
25	25	1000	1000
30	30	1500	1500
40	40	2000	2000
50	50	2500	2500
75	75	3000	3000
100	100	4000	4000
150	150	5000	5000
200	200	7500	7500
300	300	10K	10K

SERIES A58 WIRE-WOUND CONTROLS

Wire-wound 3-watt controls that will take any of the 13 Pick-A-Shafts. Overall resistance tolerance ±10% for all values. All controls are linear. Available with factory assembled shafts at no extra cost; just order by dropping the prefix letter "A" from the number and specify the type of shaft desired. Prices and information on request.

Resistance Ohms	Clarostat Number	Net Each
1	A58-1	$2.52
2	A58-2	2.52
4	A58-4	2.52
6	A58-6	2.52
10	A58-10	2.52
15	A58-15	2.52
20	A58-20	2.52
25	A58-25	2.52
30	A58-30	2.52
40	A58-40	2.52
50	A58-50	2.52
60	A58-60	2.52
75	A58-75	2.52
100	A58-100	2.52
200	A58-200	2.52
250	A58-250	2.52
300	A58-300	2.52
400	A58-400	2.52
500	A58-500	2.52
750	A58-750	2.52
1000	A58-1000	2.52
1500	A58-1500	2.52
2000	A58-2000	2.52
2250	A58-2250	2.52
2500	A58-2500	2.52
3000	A58-3000	2.52
4000	A58-4000	2.52
5000	A58-5000	2.52
7500	A58-7500	2.52
10K	A58-10K	2.52
15K	A58-15K	3.14
20K	A58-20K	3.14
25K	A58-25K	3.14
30K	A58-30K	3.97
40K	A58-40K	3.97
50K	A58-50K	3.97

2-WATT SERIES 380 POTENTIOMETERS



The "Quiet One" Series 380 exceeds MIL-R-94 specifications. Manufactured in a controlled environment, features stainless steel shafts. 1% dynamic noise and 5% independent linearity. Electrical tolerances are ±10% for values up to 1 megohm; ±20%, 1 meg and above. Linear taper. Specify resistance per table below. **Size:** $1^{3}/_{32}$" dia. max. × $^{9}/_{16}$" d.

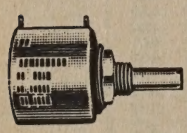
Clarostat Model 380C1, Taper S—2" round shaft FMS; ⅜" long bushing with ⅜-32-NEF-2A thread. Net Each..... **$3.77**

Clarostat Model 380C2, Taper S—⅝" screwdriver slotted shaft FMS; with ½" split locking bushing. Net Each..... **$5.04**

Clarostat Model 380C3, Taper S—⅞" screwdriver slotted shaft FMS; ⅜" long bushing with ⅜-32-NEF-2A thread.
Net Each..... **$3.77**

Ohms	Ohms	Ohms	Ohms
100	2500	50K	1 meg
150	3500	75K	1.5 meg
250	5000	100K	2 meg
350	7500	150K	2.5 meg
500	10K	200K	3 meg
750	15K	250K	3.5 meg
1000	20K	350K	4 meg
1500	25K	500K	5 meg
2000	35K	750K	

SMALL, 10-TURN 2-WATT POTENTIOMETER ONLY ¾" IN BODY LENGTH

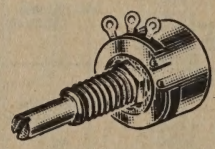


Series 73JA has brought the ten-turn potentiometer down in size, down in price and down in wear-outs. Only ¾" body length, and a rotational life of 500,000 cycles. **Resistance Range:** 100-100K ohms. **Resistance Tolerance:** ±5% **Power Rating:** At 20° C, 2 watts. **Operating Temperature Range:** −55°C to +105° C. **Temperature Coefficient:** ±20 PPM/° C max. **End Resistance:** 0.25% or 1 ohm. **Noise During Adjustment (ENR):** 100 ohms, maximum. **Insulation Resistance:** 1000 megohms at 500 VDC. **Dielectric Strength:** 1000 V rms. **Actual Electrical Travel:** 3600° + 10° −0°. **Linearity:** 0.25%, independent. **Mechanical Torque:** 0.5 oz.-in. maximum. **Stop Strength:** 75 oz.-in. minimum. To order, add resistance required to Clarostat No., example 73JA-100. See stock value, ohms, below.

73JA Resis. Range	Net Each, Lots of					
	1-9	10-24	25-49	50-99	100-249	250 Up
100-25K 50K & 100K	$8.10 10.10	$7.05 9.50	$6.60 8.80	$6.15 7.70	$5.75 7.20	$5.40 6.70

Stock Value, Ohms	Nominal Resolution	Stock Value, Ohms	Nominal Resolution
100	.055%	5000	.020%
200	.037%	10K	.017%
500	.030%	20K	.015%
1000	.025%	50K	.011%
2000	.021%	100K	.009%

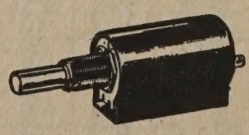
SERIES 381 1-WATT ⅝" DIA. POTENTIOMETERS



Clarostat "Quiet One" series, a new, low cost potentiometer with characteristics exceeding those of higher priced models. Features reliable, homogeneous, strain-free resistance element with 1% dynamic noise and 5% independent linearity. Mechanical parts precision machine-finished for smooth operation, long life. Manufactured to MIL-R-94 specifications. **Resistance Tolerance:** Linear, up to 500K ohms ±10%; above 500K ohms, ±20%. **Power Rating:** 1 watt max. continuous power rating for linear taper, but voltage not to exceed rating. Full rating at 70° C, derated linearly to zero watts at 120° C. Derate all non-linear tapers by multiplying wattage rating by 0.5. **Mechanical and Rotation:** 300° ±5° with switch. **Dynamic Noise:** Linear single controls maximum initial noise level 1% of total resistance. **Linearity:** ±5% independent. **Working Voltage:** 350 VDC across end terminals, power not to exceed rating. Models 381N have plain ¼" long bushing, ½" long shaft, screwdriver slotted. Models 381NS same, but equipped with attached SPST switch rated 1 amp at 125 VAC or DC. Models 381L have ⅜" shaft-locking bushing, $^{1}/_{16}$" long shaft, screwdriver slotted.To order, add resistance required to Clarostat No., example: 381N-100. See Stock Values Table, below.

Clarostat Number	Shaft Length, Screwdriver Slotted	Bushing Length	Net Each, Lots of			
			1-9	10-49	50-99	100-249
381N	¾"	¼"	$4.15	$3.11	$2.67	$1.94
381NS	¾"	¼"	6.29	4.72	4.05	2.93
381L	$^{7}/_{16}$"	⅜"	4.42	3.32	2.85	2.06

SERIES 62JA TEN-TURN POTENTIOMETER



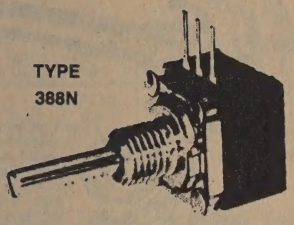
Opens new application areas for the advantages of multi-turn potentiometer design, including far greater resolution in trimming, better instrument control and settings for all types of electronic equipment. Resistance tolerance, ±5%. Functional output, linear. Absolute linearity, ±0.25%. Power dissipation at 25° C, 2 watts, derated to zero at 85° C. Dielectric strength, 1000 VAC. Electrical and mechanical rotation, 3600°, +10, −0. Maximum torque, 3 oz.-in. Stop strength, 50 oz.-in. Insulation resistance, 1000 megohms. Life, 100,000 shaft revolutions. Max. rotation speed, 60 rpm. Size, ⅞" dia. × 2½" overall.
Net Each, Lots of 1-9..... **$11.72**
Net Each, Lots of 10-99..... **10.15**
Net Each, Lots of 100-Up..... **9.37**

Stock Value, Ohms	Resolutions 100/Total Turns	Stock Value, Ohms	Resolutions 100/Total Turns
100*	.062%	5,000	.026%
200*	.048%	10,000	.024%
250*	.038%	20,000	.019%
500	.036%	25,000	.017%
1,000	.030%	30,000	.016%
2,000	.023%	50,000	.013%
2,500	.022%	100,000	.012%

*Absolute linearity, ±0.5%.

CLAROSTAT SERIES 388, 389 AND 389-5 ½" SQUARE MODULAR POTENTIOMETERS

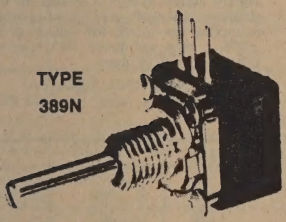
Modular design allows free interchange of resistive elements. The manufacturing process includes exclusive Clarostat TempMaturing™ to insure a reliable, homogeneous and strain-free resistance element. These potentiometers are manufactured to meet MIL-R-94C specifications where applicable.



TYPE 388N

SERIES 388 ½ WATT CONDUCTIVE PLASTIC (CARBON) ELEMENT

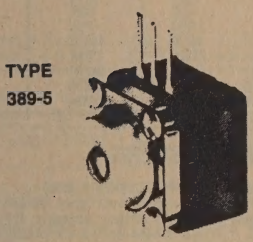
Resistance Tolerance: ±10% up to 500K, ±20% above. **Electrical and Mechanical Rotation:** 295° ±5°. **Effective Rotation:** 265° ± 5°. **Dielectric Strength:** 750 VAC for 60 sec. **Working Voltage:** 350 VDC across terminals. **Linearity:** ±5%. **Rotational Life:** 50,000 cycles. **Power Rating:** .5 watt at 70°C. **Torque Range:** .2 to 4.5 oz.-in. **Stop Torque:** 3 lb.-in. **Weight:** .018 lb. (typical). **Insulation Resistance:** 1,000 meg per MIL Std. 202. **Taper:** Linear. **Resolution:** Infinite. **Terminal Style:** Inline PC pins spaced .100". **Mounting Bushing and Shaft:** Type 388N, ¼" plain bushing and ¾" long round slotted shaft; Type 388L, ⅜" locking bushing and 7/16" long round slotted shaft.



TYPE 389N

SERIES 389 1 WATT CERMET ELEMENT

Resistance Tolerance: ±10%. **Electrical and Mechanical Rotation:** 295° ± 5°. **Effective Rotation:** 250° ± 5°. **Dielectric Strength:** 900 VAC for 60 sec. **Working Voltage:** 350 VDC across terminals. **Linearity:** ±5°. **Rotational Life:** 25,000 cycles. **Power Rating:** 1 watt at 85° C. **Torque Range:** .2 to 4.5 oz.-in. **Operating Temperature:** −55° C to +150° C. **Stop Torque:** 3 lb.-in. **Weight:** .018 lb. (typical). **Insulation Resistance:** 100 meg per MIL Std. 202. **Taper:** Linear except Type 389N—Z, left-hand logarithmic Z audio taper. **Resolution:** Infinite. **Terminal Style:** Inline PC pins spaced .100". **Mounting Bushing and Shaft:** Type 389N, ¼" plain bushing and ¾" long round slotted shaft; Type 389L, ⅜" locking bushing and 7/16" long round slotted shaft.



TYPE 389-5

SERIES 389-5 ½ WATT BUSHINGLESS CERMET ELEMENT

The series 389-5 is similar in characteristics to the series 389, but is designed for bushingless mounting on a PC board and have a flush screwdriver slot for adjustment. **Power Rating:** 0.5 watt at 85° C. **Terminal Style:** Inline PC pins spaced .100".

STOCK RESISTANCE VALUES

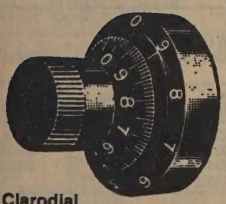
100	1000	10K	100K	1 meg
250	2500	25K	250K	2.5 meg*
500	5000	50K	500K	5 meg*

*Not available in Z taper.

PRICING

Clarostat Number*	Net Each, Lots of				
	1-9	10-49	50-99	100-249	250-Up
388N	$4.08	$3.06	$2.63	$1.90	$1.76
388L	4.36	3.27	2.81	2.03	1.88
389N	4.67	3.57	3.06	2.22	2.05
389L	5.04	3.78	3.24	2.35	2.17
389N—Z	5.44	4.08	3.50	2.53	2.34
389-5	4.48	3.36	2.89	2.09	1.93
389-5—Z	5.16	3.87	3.32	2.40	2.22

*For complete catalog number, add resistance value, from stock value chart, at end or between **N** and **Z**.



Clarodial

CLARODIALS—10-TURN CONCENTRIC SCALE DIALS

Calibrated dials designed for multi-turn potentiometers up to ten turns or other rotary devices. Requires only one inch of panel space. Knob attaches directly to the shaft, and the body of the dial is mounted rigidly to the panel. Therefore, accurate readings with a ratio of 1000 to one for 10 turns are provided with zero backlash and no reading error. Made of anodized aluminum. Mounting requirements: ¼" shaft and ⅜"-32 NEF-2A bushing. Model 411 is black, has no lock.

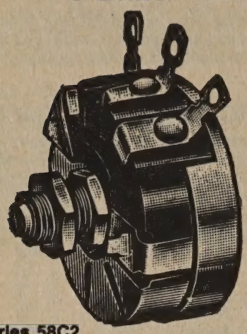
Model 412 is black, has lock. Model 461 is clear, has no lock. Model 462 is clear, has lock.

Clarostat No.	Net Each, Lots of			
	1-24	25-49	50-99	100-Up
411	$8.74	$8.17	$7.82	$7.36
412	9.43	8.80	8.45	7.82
461	8.74	8.17	7.82	7.36
462	9.43	8.80	8.45	7.82

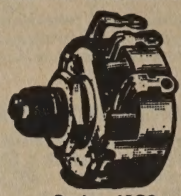
WRITE US FOR INFORMATION AND PRICING ON ALL NEW OR UNLISTED ITEMS. NO SPECIAL ORDER NUMBERS NECESSARY, JUST USE THE MANUFACTURER'S MODEL NUMBERS.

CLAROSTAT CONTROLS

"C LINE®" WIRE-WOUND INDUSTRIAL CONTROLS



Series 58C2



Series 43C2

Clarostat "C Line" controls are designed primarily for industrial applications. They feature moisture and dust-proof construction, corrosion proof finish and locking or standard bushing. Suffix C1 indicates 1⅝" round shaft beyond bushing and ⅝" long bushing with ⅜-32-NEF-2 thread. Suffix C2 indicates ⅛" screwdriver slotted shaft, ½" split locking bushing. One nickel plated hex mounting nut and internal lock washer supplied with all units. All C2 units supplied with a nickel plated machined hex locking nut. Switches, ohmages not listed, tapers not listed, bushings and shaft lengths not listed, and dual combinations are also available on special order. (Prices and delivery information available on request.)

SERIES 43C1 AND 43C2 2-WATT CONTROLS

Smallest 2-watt wire-wound control available up to 50K ohms. Tolerance ±5%. Independent Linearity ±2%.

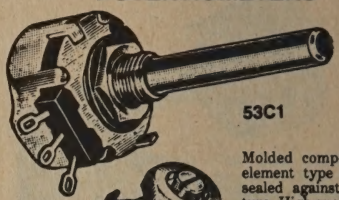
Ohms	Net Each 43C1	Net Each 43C2	Ohms	Net Each 43C1	Net Each 43C2
5	$3.78	$4.20	1000	$3.78	$4.20
10	3.78	4.20	1500	3.78	4.20
20	3.78	4.20	2000	3.78	4.20
25	3.78	4.20	2500	3.78	4.20
30	3.78	4.20	3000	3.78	4.20
40	3.78	4.20	4000	3.78	4.20
50	3.78	4.20	5000	3.78	4.20
75	3.78	4.20	7500	3.78	4.20
100	3.78	4.20	10K	3.78	4.20
150	3.78	4.20	15K	4.28	4.73
200	3.78	4.20	20K	4.28	4.73
300	3.78	4.20	25K	4.28	4.73
400	3.78	4.20	30K	5.04	5.54
500	3.78	4.20	40K	5.04	5.54
750	3.78	4.20	50K	5.04	5.54

SERIES 58C1 AND 58C2 3-WATT CONTROLS

Tolerance ±5%. Linearity ±1%.

Ohms	Net Each 58C1	Net Each 58C2	Ohms	Net Each 58C1	Net Each 58C2
1	$3.78	$4.20	500	$3.78	$4.20
2	3.78	4.20	750	3.78	4.20
4	3.78	4.20	1000	3.78	4.20
6	3.78	4.20	1500	3.78	4.20
10	3.78	4.20	2000	3.78	4.20
15	3.78	4.20	2500	3.78	4.20
20	3.78	4.20	3000	3.78	4.20
25	3.78	4.20	5000	3.78	4.20
30	3.78	4.20	7500	3.78	4.20
40	3.78	4.20	10K	3.78	4.20
50	3.78	4.20	15K	4.28	4.73
60	3.78	4.20	20K	4.28	4.73
75	3.78	4.20	25K	4.28	4.73
100	3.78	4.20	30K	5.04	5.54
200	3.78	4.20	40K	5.04	5.54
300	3.78	4.20	50K	5.04	5.54
400	3.78	4.20			

2-WATT "C-LINE®" POTENTIOMETERS



53C1

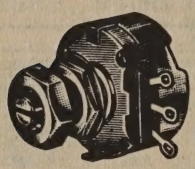
53C2

Molded composition element type totally sealed against moisture. High quality resistance device has high stability under extreme conditions. Use for critical applications such as test equipment, military, computers, servomechanisms, etc. One-piece wiper assembly; carbon to carbon contact for low noise level; stainless steel shaft; gold plated terminals. Electrical tolerances are ±10% for values up to 1 megohm, ±20%, 1 meg and above. "S" taper supplied. Size: 1 1/16" dia. × 9/16" deep.

Clarostat Model 53C1, Taper Z— Specify resistance value. Net Each **$3.30**

Ohms	Ohms	Ohms
50	7.5K	500K
100	10K	750K
150	15K	1 meg
250	20K	1.5 meg
350	25K	2 meg
500	35K	2.5 meg
750	50K	3 meg
1000	75K	3.5 meg
1500	100K	4 meg
2000	150K	5 meg
2500	200K	7.5 meg
3500	250K	10 meg
5000	350K	

MILITARY WIRE-WOUND AND CARBON POTENTIOMETERS



RV4LAYSA, 53C2

MIL-R-19A VARIABLE WIRE-WOUND POTENTIOMETERS

Certified for MIL-R-19A and available in common shaft lengths and values. Linear taper. **Tolerance:** ±10%. **Ratings:** RA10, one watt. RA20, two watts. RA30, four watts. **Bushing and Shaft:** Specify by letters (i.e. RA20**NASD**351A). RA10: NASD, ⅜" lg. × ¼" dia.; NASL, 5/16" lg. × ¼" dia.; LASM, 1/16" lg. × ¼" dia., lock bushing. RA10, 20: LASD, ⅜" lg. × ¼" dia., lock bushing. RA20, 30: NASA, ½" lg. × ¼" dia.; NASD, ⅜" lg. × ¼" dia.; LASB, ⅝" lg. × ¼" dia., lock bushing. All have slotted shafts.

Ohms ±10%	No. RA10()-, RA20()-, RA30()-	Ohms ±10%	No. RA10()-, RA20()-, RA30()-
3	3R0A*	350	351A
6	6R0A*	500	501A
8	8R0A*	750	751A
10	100A*	1000	102A
15	150A	1500	152A
20	200A*	2000	202A
25	250A	2500	252A
35	350A*	3500	352A*
50	500A	5000	502A*
75	750A	7500	752A*
100	101A	10K	103A*
150	151A	15K	153A*
200	201A	20K	203A†
250	251A	25K	253A†

*Not available in one-watt type. †Not available in one- or two-watt types.

MIL-R-94B VARIABLE 2-WATT CARBON POTENTIOMETERS

Certified for MIL-R-94B and available in common shaft lengths and values. Linear taper. **Tolerance:** ±10% unless otherwise specified. **Rating:** 2 watts. **Bushing and Shaft:** Specify by letters (example: RV4**NAYSD**101A, or 53C3-100-S): NAYSD (53C3) for standard bushing with ⅜"l. × ¼" dia. slotted shaft; LAYSA (53C2) for lock bushing and ⅝"l. × ¼" dia. slotted shaft. **Note:** Where no military number is shown, no MIL value is available; and, only the commercial version may be ordered (53C). All others are dual-marked.

Resis., Ohms ±10%	MIL No. RV4()-	Clarо. No. 53C()-	Resis. Ohms ±10%	MIL No. RV4()-	Clarо. No. 53C()-	Resis., Ohms ±10%	MIL No. RV4()-	Clarо. No. 53C()-
50	500A	50-S	7500	752A	7500-S	500K	504A	500K-S
100	101A	100-S	10K	103A	10K-S	750K†	754B	750K-S
150	151A	150-S	15K	153A	15K-S	1 meg†	105B	1 Meg-S
250	251A	250-S	20K	.....	20K-S	1.5 meg†	155B	1.5 Meg-S
350	351A	350-S	25K	253A	25K-S	2 meg†	205B	2 Meg-S
500	501A	500-S	35K	353A	35K-S	2.5 meg†	255B	2.5 Meg-S
750	751A	750-S	50K	503A	50K-S	3 meg†	.....	3 Meg-S
1000	102A	1000-S	75K	753A	75K-S	3.5 meg†	355B	3.5 Meg-S
1500	152A	1500-S	100K	104A	100K-S	4 meg†	.....	4 Meg-S
2000	.....	2000-S	150K	154A	150K-S	5 meg†	505B	5 Meg-S
2500	252A	2500-S	200K	.....	200K-S	10 meg†	.....	10 Meg-S
3500	352A	3500-S	250K	254A	250K-S			
5000	502A	5000-S	350K	354A	350K-S			

MIL-R-94B HOT MOLDED ½-WATT CARBON POTENTIOMETERS

Rated 0.5 watt at 70° C, derated to zero at 120°C. Available with standard (RV6NAYSD) or locking (RV6LAYSA) bushing. Dia., ½"; 350 WVDC.

Ohms ±10%	No.* RV6()-	Ohms ±10%	No.* RV6()-	Ohms ±10%	No.* RV6()-	Ohms ±10%	No.* RV6()-
100	101A	2,500	252A	25,000	253A	250,000	254A
250	251A	5,000	502A	50,000	503A	500,000	504A
500	501A	10,000	103A	100,000	104A	1 meg	105A
1000	102A	15,000	153A	150,000	154A		

INDUSTRIAL NET PRICES

MIL or (Clarostat) Type*	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249	250-Up
RV4NAYSD- or (53C3-)	$5.99	$4.19	$4.19	$3.35	$2.39	$1.68
RV4LAYSA- or (53C2-)	6.56	4.59	4.59	3.68	2.63	1.84
RV6NAYSD-	5.50	4.02	4.02	2.41	2.09	1.77
RV6LAYSA	5.50	4.27	4.27	2.56	2.22	1.88
RA20NAS( )-	5.24	3.66	3.66	2.57	2.11	1.75
RA20LAS( )-	5.24	3.79	3.79	2.70	2.27	1.85
RA30NAS( )-	5.92	4.33	4.33	3.13	2.59	2.29
RA30LASB-	5.92	4.47	4.47	3.29	2.80	2.48
RA10NAS( )-	10.00	7.56	6.50	5.51	4.79	3.73
RA10LAS( )-	10.34	7.82	6.73	5.66	4.96	3.85

*Ordering number must show bushing and shaft desired (as described above) and appropriate suffix to indicate ohms. Example: RA20**NASD**3R0A.

CORNING® Metal-Film Resistors

Body Configuration: Conformal coating is tightly controlled to extend over the shoulder of the cap only—not down to the leads (Meniscus control). Prices apply to standard values only.

C

NA, NC

FP

TYPE C LOW MULTIWATTAGE TYPES

TC: ±100 ppm/°C. At ΔR Max.: Moisture resistance, ±0.5%; thermal shock, ±0.25%; short time overload, ±0.25% (±0.5% for C3); low temp. operation, ±0.25% (±0.5% for C5 and C6); DWV, ±0.1%; effect solder heat, ±0.1%; thermal strength, ±0.1% (0.2% for C3); shock, ±0.1%; vibration, ±0.1%.

Corning Style	MIL Type	MIL Spec. MIL-R-	Wattage at T_A 70° C	Wattage at T_A 125° C	Max. Voltage	Size, In. Dia. x L.	Std. Tol. ±	Resistance Range, Ohms	Net Each, Lots of 25-99	100-249	250-999	1000-4999	5000-9999	10,000 Up
C3	.....	22684	1/8	1/10	200	.062 x .145	1% 2% 5% 10%	10–150K 10–150K 10–150K 10–150K	PRICES AVAILABLE ON REQUEST					
C4	RL07S	22684	1/4	1/8	250	.090 x .225	1% 2% 5%	10–301K 10–301K 10–301K						
CT4								10–1 meg						
C5	RL20S	22684	1/2	1/4	350	.148 x .355	1% 2% 5%	10–1 meg 10–1 meg 10–1 meg						
C6	RL32S	22684	1	1/2	500	.190 x .554	1% 2% 5%	10–2 meg 10–2 meg 10–2 meg						

2 WATT GENERAL PURPOSE TYPES

TC: ±200 ppm/° C from −55° C to +150° C. At ΔR Max.: Moisture resistance, ±1%; thermal shock ±1%; short time overload, low temp. operation, shock and vibration, ±0.5%.

Corning Style	MIL Type	MIL Spec. MIL-R-	Wattage at T_A 70° C	Wattage at T_A 125° C	Max. Voltage	Size, In. Dia. x L.	Std. Tol. ±	Resistance Range, Ohms	Net Each, Lots of 25-99	100-249	250-999	1000 Up
FP42	RL42S	22684	2	.....	500	.310 x .687	2% 5%	10–1.5 megs 10–1.5 megs	PRICES AVAILABLE ON REQUEST			

*1000 Up.

TYPE NA PRECISION TYPES

TC: ±100 ppm/° C from −55° C to +175° C. At ΔR Max.: Moisture resistance, ±0.5%; thermal shock, short time overload and low temp. operation, ±0.25%; shock and vibration, ±0.10%.

Corning Style	MIL Type	MIL Spec. MIL-R-	Wattage at T_A 70°C	Wattage at T_A 125°C	Max. Voltage	Size, In. Dia. x L.	Std. Tol. ±	Resistance Range Ohms	Net Each, Lots of 25-99	100-249	250-999	1000-9999	10,000 Up
NA55	RN55D	10509	1/8 1/4*	1/10 1/8*	200	.090 x .225	1% 0.5%	10–301K 49.9–150K	PRICES AVAILABLE ON REQUEST				
CT55								10–1 meg					
NA60	RN60D	10509	1/4 1/2*	1/8 1/4*	300	.148 x .355	1% 0.5%	10–1 meg 49.9–499K					
NA65	RN65D	10509	1/2	1/4	350	.190 x .554	1% 0.5%	10–2 meg 49.9–1 meg					
NA70	RN70D	10509	3/4	1/2	500	.248 x .719	1% 0.5%	51.1–1 meg 51.1–1 meg					

*Commercial rating.

TYPE NC PRECISION TYPES

TC: ±50 ppm/° C from −55° C to +175° C. At ΔR Max.: Moisture resistance, ±0.5%; thermal shock, short time overload and low temp. operation, ±0.25%; shock and vibration, ±0.10%.

Corning Style	MIL Type	MIL Spec. MIL-R	Wattage at T_A 70° C	Wattage at T_A 125° C	Max. Voltage	Size, In. Dia. x L.	Std. Tol. ±	Resistance Range Ohms	Net Each, Lots of 25-99	100-249	250-999	1000-9999	10,000 Up
NC3	RN50C	10509	1/10	1/20	200	.062 x .145	1%	49.9–100K	PRICES AVAILABLE ON REQUEST				
NC55	RN55C	10509	1/4	1/10	200	.088 x .245	1%*†	49.9–499K 500K–1 meg					
NC60	RN60C	10509	1/2	1/8	250	.135 x .375	1%*†	49.9–1 meg					
NC6	RN65C	10509	1/2	1/4	300	.190 x .554	1%*†	49.9–1 meg					
NC7	RN70C	10509	3/4	1/2	350	.248 x .719	1%*	51.1–1 meg					

*For 0.5% tolerance, add **9c** to resale. †For 0.25% tolerance, add **16c** to resale; for 0.1% tolerance, add **23c** to resale.

TYPE NE PRECISION TYPES

TC: ±25 ppm/° C from −55° C to +150° C. At ΔR max.: Moisture resistance, ±0.5%; thermal shock, short time overload and low temp. operation, ±0.25%; shock and vibration, ±0.1%.

Corning Style	MIL Type	MIL Spec. MIL-R-	Wattage at T_A 70° C	Wattage at T_A 125° C	Max. Voltage	Size, In. Dia. x L.	Std. Tol. ±	Resistance Range, Ohms	Net Each, Lots of 25-99	100-249	250-999	1000 Up
NE55	RN55E	10509	1/4	1/10	200	.088 x .245	1%*	49.9–499K 500K–1 meg	PRICES AVAILABLE ON REQUEST			
NE60	RN60E	10509	1/2	1/8	250	.135 x .375	1%*	49.9–1 meg				
ME65	RN65E	10509	1	1/4	300	.178 x .555	1%*	49.9–1 meg				

*For 0.5% tolerance, add **9c** to price; for 0.25% tolerance, add **16c** to price; for 0.1% tolerance, add **23c** to price.

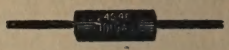
STANDARD VALUES AVAILABLE

Style: RN55D, 60D, 65D (in temperature coefficients of T-0 [10 to 24.3 ohms], T-1 [24.9 ohms up]. The following chart shows standard values for film resistors. Each value listed is within one percent of the preceding and succeeding values shown. All decade multiples of these values, within the catalog range shown for each resistor model, are standard values. (RN55D, 2.00, 20, 200, 2,000, 20,000 and 200,000 ohms are all decade multiples of 2.00 and are all standard values.)

1.00	1.02	1.05	1.07	1.10	1.13	1.15	1.18	1.21	1.24	1.27	1.30	1.33	1.37	1.40	1.43	1.47	1.50	1.54	1.58
1.62	1.65	1.69	1.74	1.78	1.82	1.87	1.91	1.96	2.00	2.05	2.10	2.15	2.21	2.26	2.32	2.37	2.43	2.49	2.55
2.61	2.67	2.74	2.80	2.87	2.94	3.01	3.09	3.16	3.24	3.32	3.40	3.48	3.57	3.65	3.74	3.83	3.92	4.02	4.12
4.22	4.32	4.42	4.53	4.64	4.75	4.87	4.99	5.11	5.23	5.36	5.49	5.62	5.76	5.90	6.04	6.19	6.34	6.49	6.65
6.81	6.98	7.15	7.32	7.50	7.68	7.87	8.06	8.25	8.45	8.66	8.87	9.09	9.31	9.53	9.76				

CORNING® ESTABLISHED RELIABILITY RESISTORS

Designed for the many military applications where both established reliability and value are critical. **MIL-R-39017** semi-precision fixed film; this specification supersedes MIL-R-22684. **MIL-R-55182** precision fixed film; this specification supersedes MIL-R-10509. Prices apply to standard values only.



GENERAL ESTABLISHED RELIABILITY INFORMATION

MIL-R-39017

Semi-Precision, Fixed Film, Established Reliability Specification. This specification supersedes MIL-R-22684.

FAILURE RATES

M—1%/1000 hours at 60% confidence
P —.1%/1000 hours at 60% confidence
R —.01%/1000 hours at 60% confidence
S —.001%/1000 hours at 60% confidence

DESIGNATION

RL	R	07	C	1003	G	R
Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ

Ⓐ **RL**—Style, Semi-Precision, Fixed Film Resistor, 100 ppm/°C

Ⓑ **R**—Established Reliability—RLR MIL-R-39017 Semi-Precision Specification

Ⓒ **07**—Case Size
05—⅛ W, 70° C
07—¼ W, 70° C
20—½ W, 70° C
32—1 W, 70° C

Ⓓ **C**—Lead Material
Type C oxygen free, high conductivity copper leads per MIL-STD-1276.

Ⓔ **1003**—Value
3 Significant Figure Decade Table

Ⓕ **G**—Tolerance
F (±1%), G (±2%) and J (±5%) are available

Ⓖ **R**—Failure Rate

MIL-R-55182

Precision Fixed Film Established Reliability Specification. This specification supersedes MIL-R-10509.

FAILURE RATES

M—1%/1000 hours at 60% confidence
P —.1%/1000 hours at 60% confidence
R —.01%/1000 hours at 60% confidence
S —.001%/1000 hours at 60% confidence

DESIGNATION

RN	C	55	H	1001	F	M
Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ

Ⓐ **RN**—Style, Precision Fixed Film Resistors

Ⓑ **C**—a. Established Reliability—RNC, MIL-R-55182 Precision Fixed Film Established Reliability.
b. Lead Material—Oxygen free high conductivity Type C Copper per MIL-STD-1276

Ⓒ **55**—Case Size
55—1/10 W, 125° C
60—⅛ W, 125° C

Ⓓ **H**—Temperature Coefficient
H—50 PPM
J —25 PPM
K—100 PPM

Ⓔ **1001**—Value
3 Significant Figure Decade Table

Ⓕ **F**—Tolerance
B = ±.1%
D = ±.5%
F = ±1%

Ⓖ **M**—Failure Rate

SEMI-PRECISION MIL-R-39017

TC: 100 ppm/° C. At ΔR Max.: Thermal shock and low temp. operation, ±0.25%; shock and vibration, ±0.10%; short time overload, ±0.25% (HC3, ±0.50%; HC4, ±0.5%); moisture, ±0.50%. Load Life: Qualification ΔR/2000 hrs., ±2%; failure rate ΔR/10,000 hrs., ±4%. Prices given are for **R** level .01%/1000 hrs., except HC6 **M** level 1%/1000 hrs.

Corning Style	MIL Type	Wattage Rating at 70° C	Max. Voltage	Size, Inch Dia. x L.	Std. Tol. ±	Resistance Range, Ohms	Net Each, Lots of 25-99	100-249	250-999	1000-4999	5000-9999	10,000 Up
HC3	RLR05C	⅛	200	.062 x .145	1%	10–150K	PRICES AVAILABLE ON REQUEST					
					2%	10–150K						
					5%	10–150K						
HC4	RLR07C	¼	250	.090 x .225	1%	10–300K						
					2%	10–300K						
					5%	10–300K						
HN4						10–1 meg						
HC5	RLR20C	½	350	.148 x .355	1%	10–1 meg						
					2%	10–1 meg						
					5%	10–1 meg						
MHC6	RLR32C	1	500	.198 x .583	1%	10–1 meg						
					2%	10–1 meg						
					5%	10–1 meg						

PRECISION MIL-R-55182

Conformally coated epoxy or molded silicone insulation coating. **At ΔR Max.:** Load life, 2,000 hrs. MIL rating, ±0.5%; moisture resistance, ±0.4%; overload and thermal shock, ±0.2%; low temp. operation, ±0.15%; effect solder heat, terminal strength, shock, vibration and DWV, ±0.1%; high temp. exposure, ±0.5%. Meets MIL-R-55182 requirements. **Lead Material:** Type C per MIL-STD-1276 and type R. Units listed are failure rate level S; per MIL-R-55182, substitutable for failure rate levels M, P and R. Tolerance of ±0.5% available on all styles; ±0.1% available on all styles except MK55 and MK60. Prices on request.

Corning Style	Military Type	Wattage Rating, @ 125° C	Max. Voltage	Size, In. Dia. x L.	Tol. ±	Resistance Range, Ohms	Net Each, Lots of 25-99	100-249	250-999	1000-Up
MH55	RNC55H/RNR55H	1/10	200	.098 x .270	1%	10–48.7 49.9–301K	PRICES AVAILABLE ON REQUEST			
CH55	RNC55J/RNR55J	1/10	200	.098 x .245	1%	49.9–301K				
MH60	RNC60H/RNR60H	⅛	250	.160 x .410	1%	10–48.7 49.9–499K				
CH60	RNC60J/RNR60J	⅛	250	.135 x .375	1%	49.9–499K				

SERIES RH PRECISION POWER WIREWOUND RESISTORS

For applications requiring high power and precision tolerances. Choice of six models, 5 thru 250 watts. Complete welded construction, terminal to terminal. Thoroughly protected against moisture, salt spray, vibration and shock. Molded construction housed in aluminum. All types have flat marking surface on top of housing. Designed to use heat-sink effect of chassis. Screw mounted to chassis. Temperature Coefficient, ±20 ppm/° C., ±30 ppm/° C .or ±50 ppm/° C., depending on resistance value. Units meet or exceed requirements of MIL-R-18546. Also available in non-inductive winding.

Series Dale	MIL-R-18546 Type	Rating, Watts	Resistance Range, Ohms		Max. Working Volts	Size, Inches		
			0.05%, 0.1%	1%, 3%, 5%		L.	W.	H.
RH-5	RE60G	7.5 5.0	1-6.5K	1-24.5K 0.1-3.32K	160	.600	.334	.320
RH-10	RE65G	12.5 10	1-12.7K	0.008-47.1K 0.1-5.62K	265	.750	.420	.390
RH-25	RE70G	25 20	0.5-25.7K	0.01-95.2K 0.1-12.1K	550	1.062	.550	.546
RH-50	RE75G	50 30	0.5-73.4K	0.01-273K 0.1-392K	1250	1.968	.630	.610
RH-100	RE77G	100 75	0.3-50K	0.05-59K 0.05-29.4K	1900	3.50	1.812	1.750
RH-250	RE80G	250 120	0.3-75K	0.1-75K 0.1-35.7K	2300	4.500	2.125	2.188

PRICING FOR RH SERIES—1%, 3% AND 5% TOLERANCE
OBSERVE OHMIC LIMITS FOR EACH SERIES

Dale Type & Ohmic Limits	MIL-R-18546 Type and Ohmic Limits	Resistance Range, Ohms	Net Each, Lots of			
			1-24	25-49	50-99	100-249
RH-5 0.1 to 24.5K	RE60G 0.1 to 3.32K	0.1 to 0.49	$3.74	$3.37	$3.06	$2.81
		0.5 to 0.99	3.60	3.12	2.89	2.66
		1 to 1K	2.94	2.35	2.21	2.05
		1.1K to 5K	3.08	2.47	2.31	2.16
		5.1K to 10K	3.37	2.68	2.52	2.35
		10.1K to 12K	3.68	2.94	2.78	2.58
		12.1K to 15K	4.00	3.20	3.01	2.81
		15.1K to 25K	4.30	3.95	3.59	3.21
RH-10 0.008 to 47.1K	RE65G 0.1 to 5.62K	0.008 to 0.012	3.74	3.36	3.06	2.81
		0.013 to 0.025	3.62	3.24	2.94	2.71
		0.026 to 0.046	3.60	3.13	2.89	2.66
		0.047 to 0.099	3.61	3.23	2.94	2.71
		0.1 to 0.49	3.74	3.37	3.06	2.81
		0.5 to 0.99	3.60	3.12	2.89	2.66
		1 to 1K	2.94	2.35	2.21	2.05
		1.1K to 5K	3.08	2.47	2.31	2.16
		5.1K to 10K	3.37	2.68	2.52	2.35
		10.1K to 12K	3.68	2.94	2.78	2.58
		12.1K to 15K	4.00	3.20	3.01	2.81
		15.1K to 25K	4.30	3.95	3.59	3.21
		25.1K to 40K	4.78	4.37	3.97	3.57
		40.1K to 47.1	5.24	4.75	4.36	3.99
RH-25 0.01 to 95.2K	RE70G 0.1 to 12.1K	0.01 to 0.015	3.92	3.60	3.27	3.02
		0.016 to 0.03	3.88	3.51	3.21	2.96
		0.031 to 0.05	3.82	3.48	3.16	2.92
		0.051 to 0.072	3.78	3.41	3.10	2.86
		0.073 to 0.099	3.82	3.48	3.16	2.92
		0.1 to 0.49	3.92	3.60	3.27	3.02
		0.5 to 0.99	3.78	3.41	3.10	2.86
		1 to 1K	2.94	2.35	2.21	2.05
		1.1K to 5K	3.08	2.47	2.31	2.16
		5.1K to 10K	3.36	2.68	2.52	2.34
		10.1K to 12K	3.68	2.94	2.78	2.58
		12.1K to 15K	4.01	3.21	3.02	2.82
		15.1K to 25K	4.30	3.95	3.59	3.21
		25.1K to 40K	4.78	4.37	3.97	3.57
		40.1K to 50K	5.24	4.76	4.36	3.99
		50.1K to 60K	5.72	5.22	4.71	4.17
		60.1K to 75K	6.23	5.68	5.10	4.54
		75.1K to 95.2K	6.86	6.23	5.61	5.04
RH-50 0.01 to 273K	RE75G 0.1 to 39.2K	0.01 to 0.015	4.18	3.84	3.51	3.27
		0.016 to 0.035	4.14	3.78	3.48	3.23
		0.036 to 0.05	4.09	3.73	3.41	3.15
		0.051 to 0.075	4.03	3.67	3.36	3.12
		0.076 to 0.099	4.00	3.63	3.32	3.07
		0.1 to 0.49	4.09	3.73	3.40	3.15
		0.5 to 0.99	4.03	3.67	3.37	3.12
		1 to 5.9	4.01	3.64	3.23	2.97
		6 to 1K	3.61	2.88	2.69	2.52
		1.1K to 5K	3.76	3.03	2.84	2.65
		5.1K to 10K	4.08	3.25	3.06	2.87
		10.1K to 20K	4.53	3.62	3.39	3.19
		20.1K to 55K	4.94	3.95	3.68	3.46
		55.1K to 75K	5.37	4.28	4.01	3.76
		75.1K to 100K	5.75	4.58	4.34	4.02
		100.1K to 125K	6.26	4.99	4.69	4.38
		125.1K to 150K	6.72	5.39	5.04	4.70
		150.1K to 175K	7.21	5.75	5.39	5.04
		175.1K to 225K	7.65	6.04	5.78	5.31
		225.1K to 273K	8.25	6.48	6.25	5.68
RH-100 0.1 to 59K	RE77G 0.05 to 29.4K	0.1 to 0.99	17.71	15.63	14.59	13.54
		1 to 5	16.63	14.64	13.71	12.74
		5.1 to 50	16.29	14.37	13.40	12.44
		50.1 to 1K	14.98	13.27	12.38	11.52
		1.1K to 10K	16.04	14.77	13.21	12.29
		10.1K to 20K	17.35	15.32	14.28	13.27
		20.1K to 35K	18.38	16.20	15.11	14.05
		35.1K to 50K	19.25	17.02	15.84	14.73
		50.1K to 59K	20.21	17.83	16.63	15.48
RH-250 0.1 to 75K	RE80G 0.1 to 35.7K	0.1 to 0.99	21.44	18.91	17.66	16.39
		1 to 5	20.13	17.76	16.59	15.41
		5.1 to 50	19.71	17.38	16.21	15.05
		50.1 to 1K	18.18	16.06	14.98	13.93
		1.1K to 10K	19.41	17.15	15.99	14.89
		10.1K to 20K	20.99	18.55	17.28	16.04
		20.1K to 35K	22.24	19.61	18.28	16.99
		35.1K to 55K	23.29	20.59	19.16	17.83
		55.1K to 75K	24.45	21.58	20.13	18.73

STANDARD VALUES IN OHMS FOR RH SERIES

0.008	3.0	25	82	430	2K
0.01	3.3	27	100	450	2.2K
0.02	4.0	30	110	470	2.5K
0.03	5.0	33	120	500	3K
0.05	6.0	35	150	560	3.5K
0.1	7.0	40	160	600	4K
0.15	7.5	45	180	680	5K
0.2	8.0	47	200	700	10K
0.25	10	50	220	750	15K
0.3	12	56	250	910	20K
0.5	15	60	270	1K	25K
0.75	16	62	300	1.2K	40K
1.0	20	70	330	1.3K	50K
1.5	22	75	390	1.5K	100K
2.0	22.5	80	400	1.8K	150K
2.5					

PRICE ADDERS FOR HIGHER TOLERANCES

Required Tolerance	Price Adder
±0.5%	2 × Base Price
±0.25%	2.5 × Base Price
±0.1%	3 × Base Price
±0.05%	4 × Base Price

DALE® Wirewound Resistors

PRECISION POWER WIREWOUND RESISTORS

SERIES RS PRECISION POWER WIREWOUND RESISTORS

Designed to meet precision power requirements where space is at a premium. Outstanding silicone coating protects against moisture and salt spray; also maintains stable performance under severe environmental conditions. Completely welded construction from terminal to terminal. Meets or exceeds applicable MIL-R-26C, MIL-R-26E and MIL-R-23379 requirements. Dielectric strength, 500 VAC for 1/4, 1/2 and 1 watt types; 1000 VAC for all others. Temperature coefficient, ±30 to +90 ppm/° C. depending on resistance value.

STANDARD VALUES IN OHMS FOR RS SERIES

0.1	5.0	50	332	825	3.5K
0.13	6.0	60	350	900	4K
0.15	7.0	75	400	909	5K
0.2	7.5	100	450	1K	7K
0.25	8.0	110	470	1.1K	8.2K
0.3	10	120	500	1.2K	10K
0.33	15	125	510	1.3K	12K
0.5	20	150	560	1.5K	15K
0.75	25	180	600	1.78K	20K
1.0	30	200	619	1.8K	25K
1.2	33	220	620	2K	30K
1.5	35	250	681	2.2K	40K
2.0	40	270	700	2.5K	50K
3.0	45	300	750	3K	100K
4.0	47	330	800	3.3K	150K

PRICING ADDERS FOR HIGHER TOLERANCES

Required Tolerance	Price Adder
±0.5%	2 × Base Price
±0.25%	2.5 × Base Price
±0.1%	3 × Base Price
±0.05%	4 × Base Price

PRICING FOR RS SERIES—1%, 3% AND 5% TOLERANCE OBSERVE OHMIC LIMITS FOR EACH SERIES

Dale Types & Ohmic Limits	MIL Type & Ohmic Limits	Resistance Range, Ohms	Net Each, Lots of 1-24	25-49	50-99	100-24
RS 1/4 1 to 3.4K		0.1 to 0.49	$3.02	$2.72	$2.41	$1.98
RS 1/2 1 to 4.9K	RW-70	0.5 to 0.99 1 to 1K	2.33 1.60	2.05 1.26	1.74 1.19	1.47 1.11
RS-1A 1 to 10.4K	0.1 to 2.74K	1.1K to 4K 4.1K to 15K	1.76 2.03	1.41 1.58	1.31 1.50	1.22 1.37
RS-1B 0.1 to 15K						
RS-2A 0.1 to 42.1K		0.1 to 0.49	$2.72	$2.44	$2.17	$1.78
RS-2B 0.1 to 24.5K	RW-79 0.1 to 6.49K	0.5 to 0.99 1 to 1K	2.10 1.22	1.85 .97	1.56 .92	1.33 .84
RS-2C 0.1 to 32.3K		1.1K to 5K 5.1K to 10K	1.35 1.41	1.08 1.11	1.02 1.04	.93 .97
RS-2 0.1 to 47.1K		10.1K to 15K 15.1K to 20K	1.47 1.91	1.17 1.33	1.09 1.16	1.03 1.08
RS-5-69 0.1 to 71K	RW-74 0.1 to 24.3K	20.1K to 40K 40.1K to 55K	1.63 1.75	1.30 1.41	1.22 1.31	1.12 1.22
RS-5 0.1 to 95.2K		55.1K to 75K 75.1K to 100K	1.92 2.12	1.52 1.70	1.45 1.60	1.34 1.48
RS-7 0.1 to 154K		100.1K to 125K 125.1K to 150K	2.32 2.53	1.91 2.03	1.75 1.90	1.63 1.77
RS-10-38 0.1 to 265K	RW-78 0.1 to 71.5K	150.1K to 175K 175.1K to 225K	2.79 2.95	2.21 2.43	2.07 2.28	1.93 2.13
RS-10 0.1 to 273K		225.1K to 273K	3.32	2.67	2.51	2.37

STACKPOLE® Composition Resistors

Standard Values in ⅛, ¼ and ½ Watt Types

Extremely reliable fixed composition resistors for commercial and stringent industrial and military applications. Meet or exceed the requirements of MIL-R-11 including such essential characteristics as load life and moisture resistance. Hot molded construction assures the utmost uniformity from lot to lot. Component materials as well as finished resistors are repeatedly tested, inspected and checked in pre-production stages, during manufacture, upon completion and after storage. Standard EIA color-coding for easy identification; glossy finish cannot be scrubbed off with commercially used flux solvents. **Body Size:** ¼-watt, .250″ lg. x .090″ dia.; ½-watt, .375″ lg. x .138″ dia.

INDUSTRIAL NET PRICES

Stackpole Number	Resistance Range ±5% Tolerance	Net Each, Lots of 10	100	500	1000
RC 1/8	2.2 ohms–1 megohm	$0.27	$0.15	$0.11	$0.07
RC 1/4	2.2 ohms–5.6 megohms	.23	.17	.11	.06
RC 1/2	2.2 ohms–20 megohms	.18	.15	.08	.04

STOCK VALUES

Tolerance of ±5% available in all values; ±10% available only in values in **bold** type.

Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Megs	Megs	Megs
2.7	16	**100**	620	**3900**	24000	**0.1**	0.62	**3.9**
3.0	**18**	110	**680**	4300	**27000**	0.11	**0.68**	4.3
3.3	20	**120**	750	**4700**	30000	**0.12**	0.75	**4.7**
3.6	**22**	130	**820**	5100	**33000**	0.13	**0.82**	5.1
3.9	24	**150**	910	**5600**	36000	**0.15**	0.91	**5.6**
4.3	**27**	160	**1000**	6200	**39000**	0.16	**1.0**	6.2
4.7	30	**180**	1100	**6800**	43000	**0.18**	1.1	**6.8**
5.1	**33**	200	**1200**	7500	**47000**	0.20	**1.2**	7.5
5.6	36	**220**	1300	**8200**	51000	**0.22**	1.3	**8.2**
6.2	**39**	240	**1500**	9100	**56000**	0.24	**1.5**	9.1
6.8	43	**270**	1600	**10000**	62000	**0.27**	1.6	**10.0**
7.5	**47**	300	**1800**	11000	**68000**	0.30	**1.8**	11.0
8.2	51	**330**	2000	**12000**	75000	**0.33**	2.0	**12.0**
9.1	**56**	360	**2200**	13000	**82000**	0.36	**2.2**	13.0
10	62	**390**	2400	**15000**	91000	**0.39**	2.4	**15.0**
11	**68**	430	**2700**	16000	.....	0.43	**2.7**	16.0
12	75	**470**	3000	**18000**	.....	**0.47**	3.0	**18.0**
13	**82**	510	**3300**	20000	.....	0.51	**3.3**	22.0
15	91	**560**	3600	**22000**	.....	**0.56**	3.6	**22.0**

SOLD IN STANDARD PACKAGES ONLY

MONO-KAP™ CERAMIC CAPACITORS

MINIATURE MONOLITHIC, RADIAL LEAD, EPOXY COATED

Provide very high capacitance in extremely small size ceramic package. Reliable Ceramolithic® construction and 100% testing assures top performance and maximum quality. **Operating Temperature:** −55° C to +125° C. **Insulation Resistance:** 100K megs or 1000 megohm-microfarads, whichever is less at 25° C, rated VDCW applied. **Leads:** Tinned wire.

CN SERIES—ULTRA-STABLE

EIA Temperature Characteristic: COG (NPO). **Temp. vs Cap.:** 0 ±30 ppm/° C max. cap. change from +25° C reading over temp. range of +25° C to +85° C. **Dissipation Factor:** 0.15% max. at 1 kHz and +25° C. **Tolerance:** ±10% (suffix **K**).

100 VDCW

Capacitance pF or μF	CRL Number*	Net Each, Lots of 1-99	Pkgs. of 100 100-900	Pkgs. of 1000 1000-9000
10	CN15A100K	$0.38	$0.15	$0.122
15	CN15A150K	.38	.15	.122
22	CN15A220K	.38	.15	.122
33	CN15A330K	.38	.15	.122
47	CN15A470K	.38	.15	.122
68	CN15A680K	.38	.15	.122
100	CN15A101K	.38	.15	.122
150	CN15A151K	.43	.18	.143
220	CN15A221K	.43	.18	.143
330	CN20A331K	.73	.39	.200
470	CN20A471K	.73	.39	.200
680	CN20A681K	.73	.39	.200
.001 μF	CN20A102K	.73	.39	.200
.0015	CN20A152K	.97	.49	.262
.022	CN30A222K	1.99	.82	.644
.0033	CN30A332K	1.99	.82	.644
.0047	CN30A472K	2.96	1.22	.955
.0068	CN30A682K	4.49	1.85	1.454
.01	CN40A103K	3.81	1.56	1.23

CW SERIES—TEMPERATURE STABLE

EIA Temperature Characteristic: X7R. **Temp. vs Cap.:** ±15% max. cap. change from +25° C reading over temp. range of −55° C to +125° C. **Dissipation Factor:** 2.5% max. at 1 kHz and +25° C. **Tolerance:** ±10% (suffix **K**); ±20% (suffix **M**).

50 VDCW

150pF	CW15C151K	$0.42	$0.15	$0.122
180	CW15C181K	.42	.15	.122
220	CW15C221K	.42	.15	.122
270	CW15C271K	.42	.15	.122
330	CW15C331K	.42	.15	.122
390	CW15C391K	.42	.15	.122
470	CW15C471K	.42	.15	.122
560	CW15C561K	.42	.15	.122
680	CW15C681K	.42	.15	.122
820	CW15C821K	.42	.15	.122
.001 μF	CW15C102K	.42	.15	.122
.001	CW15C102M	.28	.14	.103
.0012	CW15C122K	.42	.15	.122
.0015	CW15C152K	.42	.15	.122
.0018	CW15C182K	.42	.15	.122
.0022	CW15C222K	.42	.15	.122
.0027	CW15C272K	.42	.15	.122
.0033	CW15C332K	.42	.15	.122
.0039	CW15C392K	.42	.15	.122
.0047	CW15C472K	.45	.17	.132
.0068	CW15C682K	.45	.17	.132
.0082	CW15C822K	.50	.18	.144
.01	CW15C103K	.50	.18	.144
.01	CW15C103M	.33	.17	.122
.012	CW15C123K	.50	.18	.144
.015	CW15C153K	.50	.18	.144
.018	CW20C183K	.52	.25	.192
.022	CW20C223K	.52	.25	.192
.027	CW20C273K	.52	.25	.192
.033	CW20C333K	.52	.25	.192
.039	CW20C393K	.53	.32	.253
.047	CW20C473K	.53	.32	.253
.056	CW20C563K	.82	.51	.395
.068	CW20C683K	.82	.51	.395
.082	CW20C823K	.82	.51	.395
.1	CW30C104K	1.05	.65	.505
.1	CW30C104M	.85	.54	.442
.15	CW30C154K	1.39	.85	.661
.22	CW30C224K	1.85	1.14	.891

100 VDCW

150 pF	CW15A151K	$0.42	$0.15	$0.122
180	CW15A181K	.42	.15	.122
220	CW15A221K	.42	.15	.122
270	CW15A271K	.42	.15	.122
330	CW15A331K	.42	.15	.122
390	CW15A391K	.42	.15	.122
470	CW15A471K	.42	.15	.122
560	CW15A561K	.42	.15	.122
680	CW15A681K	.42	.15	.122
820	CW15A821K	.42	.15	.122

CW SERIES (CONTINUED)

100 VDCW

Capacitance pF of μF	CRL Number*	Net Each, Lots of 1-99	Pkgs. of 100 100-900	Pkgs. of 1000 1000-9000
.001 μF	CW15A102K	$0.42	$0.15	$0.122
.0012	CW15A122K	.42	.15	.122
.0015	CW15A152K	.42	.15	.122
.0018	CW15A182K	.42	.15	.122
.0022	CW15A222K	.42	.15	.122
.0027	CW15A272K	.45	.17	.132
.0033	CW15A332K	.45	.17	.132
.0039	CW15A392K	.45	.17	.132
.0047	CW15A472K	.45	.17	.132
.0056	CW15A562K	.45	.17	.132
.0068	CW20A682K	.48	.25	.192
.0082	CW20A822K	.48	.25	.192
.01	CW20A103K	.52	.25	.192
.012	CW20A123K	.52	.25	.192
.015	CW20A153K	.52	.25	.192
.018	CW20A183K	.52	.25	.192
.022	CW20A223K	.53	.32	.253
.027	CW20A273K	.53	.32	.253
.033	CW20A333K	.82	.51	.395
.039	CW30A393K	1.05	.65	.505
.047	CW30A473K	1.05	.65	.505
.056	CW30A563K	1.05	.65	.505
.068	CW30A683K	1.05	.65	.505
.082	CW30A823K	1.39	.85	.661
.1	CW30A104K	1.39	.85	.661
.15	CW40A154K	2.64	1.36	.787
.22	CW40A224K	2.64	1.36	.787
.33	CW50A334K	3.84	1.97	1.144
.47	CW50A474K	4.46	2.29	1.333
.56	CW50A564K	5.08	2.62	1.516

CY SERIES—GENERAL PURPOSE

EIA Temperature Characteristic: Y5V (General Purpose). **Temp. vs Cap.:** +22%, −82% max. cap. change from +25° C reading over temp. range of −30° C to +85° C. **Dissipation Factor:** 2.5% max. at 1 kHz and +25° C. **Tolerance:** ±20% (suffix **M**); GMV +100–0% (suffix **P**).

50 VDCW

470 pF	CY15C471M	$0.40	$0.17	$0.133
680	CY15C681M	.40	.17	.133
.001 μF	CY15C102M	.40	.17	.133
.0015	CY15C152M	.40	.17	.133
.0022	CY15C222M	.40	.17	.133
.0033	CY15C332M	.40	.17	.133
.0047	CY15C472M	.40	.17	.133
.0068	CY15C682M	.42	.17	.139
.01	CY15C103M	.40	.17	.133
.01	CY15C103P	.27	.14	.112
.015	CY15C153M	.40	.17	.133
.022	CY15C223M	.42	.17	.139
.033	CY15C333M	.42	.17	.139
.047	CY15C473M	.42	.17	.139
.068	CY15C683M	.42	.17	.139
.1	CY20C104M	.85	.35	.285
.1	CY20C104P	.57	.31	.239
.15	CY20C154M	.85	.35	.285
.22	CY20C224M	.85	.35	.285
.33	CY20C334M	.85	.35	.285
.47	CY20C474M	.85	.35	.285
1.0	CY30C105M	1.62	.68	.535
1.0	CY30C105P	1.07	.57	.448
1.5	CY30C155M	2.42	1.02	.804
2.2	CY30C225M	2.42	1.02	.804
3.3	CY40C335M	8.07	4.14	2.407
4.7	CY40C475M	10.54	5.42	3.146

100 VDCW

.0068 μF	CY15A682M	$0.42	$0.17	$0.139
.01	CY15A103M	.40	.17	.133
.01	CY15A103P	.27	.14	.112
.015	CY15A153M	.40	.17	.133
.022	CY15A223M	.42	.17	.139
.033	CY15A333M	.42	.17	.139
.047	CY20A473M	.85	.35	.285
.068	CY20A683M	.85	.35	.285
.1	CY20A104M	.85	.35	.285
.1	CY20A104P	.57	.31	.239
.15	CY20A154M	.85	.35	.285
.22	CY20A224M	.85	.35	.285
.33	CY30A334M	2.42	1.02	.804
.47	CY30A474M	2.42	1.02	.804
.68	CY30A684M	2.42	1.02	.804
1.0	CY30A105M	2.42	1.02	.804
1.5	CY40A155M	5.46	2.80	1.63
2.2	CY40A225M	8.85	4.56	2.643

*SIZE CHART

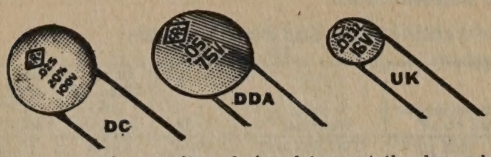
First two numbers of CRL No. indicate size code (e.g., CN**15** = Size 15). Lead length, 1.25" min.

Size Code	Size, Inches Maximum Lgth.	Maximum Width	Maximum Thk.	Lead Spacing	Lead AWG
15	.150	.150	.100	.100	26
20	.200	.200	.125	.100	24
30	.300	.300	.150	.200	24
40	.400	.400	.150	.200	24
50	.500	.500	.200	.400	22

CENTRALAB, INC.
A NORTH AMERICAN PHILIPS COMPANY

Ceramic Capacitors

LOW VOLTAGE CAPACITORS



Miniature ceramic capacitors designed to meet the demands for high capacity, low voltage applications in transistor circuits. Double durez insulation with high vacuum wax impregnation to withstand extreme temperature, humidity and vibration. Where size permits, capacitors are stamped with capacity and voltage.

TYPE UK ULTRA-KAP® (3 WVDC) TOL. GMV

Cap., μF	CRL No.	Net Each, Lots of 1-99	Pkgs. of 100 100-900	Pkgs. of 1000 1000-9000	Pkgs. of 1000 10,000-24,000
.1	UK-104	$0.43	$0.22	$0.131	$0.095
.22	UK-224	.58	.30	.17	.125
.47	UK-474	.58	.30	.17	.125
1.0	UK-105	.74	.38	.217	.158
2.2	UK-225	1.27	.68	.38	.277

TYPE UK10 ULTRA-KAP (10 WVDC) TOL. +80, −20%

.05	UK10-503	$0.40	$0.21	$0.115	$0.084
.1	UK10-104	.45	.22	.132	.097
.2	UK10-204	.57	.28	.164	.119
.47	UK10-474	.96	.51	.285	.207

TYPE UK12 ULTRA-KAP (12 WVDC) TOL. ±20%

.05	UK12-503	$0.41	$0.21	$0.121	$0.088
.1	UK12-104	.48	.25	.14	.099
.2	UK12-204	.67	.35	.197	.141
.47	UK12-474	1.20	.65	.361	.262

TYPE UK16 ULTRA-KAP (16 WVDC) TOL. ±20%

.01	UK16-103	$0.40	$0.21	$0.115	$0.084
.022	UK16-223	.40	.21	.115	.084
.033	UK16-333	.40	.21	.115	.084
.05	UK16-503	.43	.22	.128	.092
.068	UK16-683	.45	.22	.132	.097
.1	UK16-104	.52	.28	.157	.113
.15	UK16-154	.62	.32	.186	.133
.2	UK16-204	.93	.49	.275	.20
.3	UK16-304	1.20	.65	.361	.262

TYPE UK20 ULTRA-KAP (20 WVDC) TOL. +80, −20%

.05	UK20-503	$0.45	$0.22	$0.132	$0.097
.1	UK20-104	.57	.28	.164	.119
.2	UK20-204	.95	.49	.284	.204

TYPE UK25 ULTRA-KAP (25 WVDC) TOL. ±20%

.01	UK25-103	$0.40	$0.21	$0.12	$0.085
.022	UK25-223	.40	.21	.12	.085
.033	UK25-333	.43	.22	.128	.092
.05	UK25-503	.45	.25	.135	.098
.068	UK25-683	.53	.28	.16	.116
.1	UK25-104	.62	.32	.186	.133
.15	UK25-154	.93	.49	.275	.20
.2	UK25-204	1.08	.57	.323	.235

TYPE UK50 ULTRA-KAP (50 WVDC) TOL. ±20%

.01	UK50-103	$0.41	$0.21	$0.121	$0.088
.015	UK50-153	.43	.22	.128	.092
.022	UK50-223	.53	.28	.16	.116
.033	UK50-333	.58	.30	.17	.125
.047	UK50-473	.62	.35	.189	.137
.05	UK50-503	.62	.35	.189	.137
.068	UK50-683	1.00	.54	.298	.216
.1	UK50-104	1.19	.63	.351	.256

TYPE CK DISC CAPACITORS (50 WVDC) TOL. +80, −20%

.005	CK-502	$0.24	$0.12	$0.069	$0.049
.01	CK-103	.27	.14	.076	.052
.02	CK-203	.37	.20	.106	.076
.025	CK-253	.39	.20	.11	.08
.03	CK-303	.41	.21	.117	.083
.05	CK-503	.52	.27	.154	.109
.1	CK-104	1.20	.62	.359	.265

TYPE DDA DISC CAPACITORS (75 WVDC) TOL. +80, −30%

.05	DDA-503	$0.54	$0.27	$0.156	$0.112
.1	DDA-104	1.25	.65	.373	.274

TYPE DDM DISC CAPACITORS (150 WVDC) TOL. +60, −40%

.005	DDM-502	$0.27	$0.14	$0.076	$0.052
.01	DDM-103	.29	.14	.082	.059
.02	DDM-203	.71	.36	.206	.148

TYPE DC DISC CAPACITORS (100 WVDC) TOLERANCE ±20%; S = ±30%

Cap., μF	CRL No.	Net Each, Lots of 1-99	Pkgs. of 100 100-900	Pkgs. of 1000 1000-9000	Pkgs. of 1000 10,000-24,000
.005	DC-502	$0.24	$0.13	$0.077	$0.051
.01	DC-103	.29	.15	.085	.059
.01	DC-103S	.28	.15	.083	.057
.02	DC-203	.41	.23	.129	.089
.025	DC-253	.45	.25	.139	.093
.03	DC-303	.48	.26	.145	.099
.05	DC-503	.58	.33	.176	.122
.1	DC-104	1.41	.77	.44	.307
.1	DC-104S	1.34	.74	.427	.297

DD CERAMIC DISC CAPACITORS

Ideal for bypass and non-critical coupling in electronic equipment having operating temperatures ranging from −55° C to +85° C where high capacity is required and control stability is secondary. Rated 1000 WVDC except: DD6-103, DD-104, DD-153, DD-203, DD-303, DD-403 and DD-503, which are 600 WVDC. **Tolerance:** ±10% unless otherwise noted.

Cap., pF	CRL Number	Dia., In.	Cap., pF	CRL Number	Dia., In.
3.3*	DD-3R3	.290	470	DD-471	.290
5	DD-050	.290	500	DD-501	.290
6	DD-060	.290	510	DD-511	.290
6.8	DD-6R8	.290	560	DD-561	.290
7.5	DD-7R5	.290	600	DD-601	.290
8	DD-080	.290	680	DD-681	.290
10	DD-100	.290	750	DD-751	.290
12	DD-120	.290	820	DD-821	.290
15	DD-150	.290	910	DD-911	.290
18	DD-180	.290	1000	DD-102	.385
20	DD-200	.290	1000†	DD-102G	.290
22	DD-220	.290	1200	DD-122	.385
24	DD-240	.290	1300	DD-132	.385
25	DD-250	.290	1500	DD-152	.385
27	DD-270	.290	1500†	DD-152G	.290
30	DD-300	.290	1600	DD-162	.385
33	DD-330	.290	1800	DD-182	.385
39	DD-390	.290	2000†	DD-202	.385
47	DD-470	.290	2200†	DD-222	.385
50	DD-500	.290	2500†	DD-252	.385
51	DD-510	.290	2700†	DD-272	.385
56	DD-560	.290	3000†	DD-302	.385
68	DD-680	.290	3300†	DD-332	.590
75	DD-750	.290	3900†	DD-392	.590
82	DD-820	.290	4000†	DD-402	.590
91	DD-910	.290	4300†	DD-432	.590
100	DD-101	.290	4700‡	DD-472	.590
120	DD-121	.290	5000‡	DD-502	.590
130	DD-131	.290	5000†	DD-5022	.590
150	DD-151	.290	5600†	DD-562	.590
180	DD-181	.290	6800†	DD-682	.590
200	DD-201	.290	7500†	DD-752	590
220	DD-221	.290	8200†	DD-822	.690
240	DD-241	.290	10,000†	DD-103	.690
250	DD-251	.290	10,000‡	DD-1032	.690
270	DD-271	.290	10,000†	DD6-103	.590
300	DD-301	.290	15,000§	DD-153	.690
330	DD-331	.290	20,000§	DD-203	.690
350	DD-351	.290	30,000§	DD-303	.718
360	DD-361	.290	40,000§	DD-403	.718
390	DD-391	.290	50,000§	DD-503	.875
400	DD-401	.290	100,000§	DD-104	.975

DD INDUSTRIAL NET EACH PRICES

Values, pF	Net Each 1-99	Pkgs. of 100 100-900	Pkgs. of 1000 1000-9000	Pkgs. of 1000 10,000-24,000
3.3 thru 200	$0.20	$0.11	$0.061	$0.045
220 thru 910	.22	.11	.064	.045
1000	.24	.12	.069	.049
1000†	.22	.11	.063	.043
1200 thru 1300	.24	.12	.069	.049
1500	.24	.12	.069	.049
1500†	.22	.11	.063	.043
1600 thru 1800	.24	.12	.069	.049
2000 thru 3300	.24	.12	.072	.05
3900 thru 4700	.30	.15	.086	.063
5000‡	.30	.15	.086	.063
5000†	.37	.20	.103	.074
5600	.30	.15	.086	.063
6800 thru 8200	.37	.20	.106	.076
10,000‡	.54	.27	.156	.112
10,000†	.52	.26	.15	.108
10,000† (600V)	.37	.20	.106	.076
15,000§	.52	.27	.154	.109
20,000§	.54	.27	.163	.12
30,000§	1.32	.68	.396	.291
40,000§	1.39	.71	.409	.301
50,000§	1.45	.74	.436	.321
100,000§	1.96	1.01	.586	.43

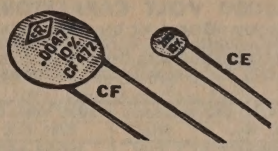
Tolerance: *±0.5 pF. †GMV. ‡±20%. §+80, −20%.

PRICES LISTED ARE FOR GUIDANCE ONLY

Ceramic Capacitors

850, 858

853, 854, 855



CERAMIC TRANSMITTING CAPACITORS

Designed for use in high voltage, high frequency circuits such as in transmitters, induction heaters, electronic welders, X-ray and diathermy equipment. Power factor extremely low. Stable retrace characteristics. "Double cup" design affords long leakage paths and mechanical ruggedness. **Note:** RF load figures shown are based on 30 MHz RF load and are typical characteristics, not specific ratings.

TYPE 850 AND 858—5 AND 7.5 kV

Stud type has ⅛" long hex studs 6-32 thread. Size: 1 3/16" dia. x ⅝". Tolerance: ±10% 850 type; ±20% 858 type.

Cap., pF	CRL No.	kV DCW	Temp. Coeff.	RF Load at 30 MHz
25	850S-25Z	7.5	NPO	7 amps
50	850S-50Z	7.5	NPO	10 amps
50	850S-50N	7.5	N750	8.8 amps
75	850S-75N	7.5	N750	10 amps
100	850S-100N	5	N750	9.8 amps
500	858S-500	5	Hi-K	.....
1K	858S-1000	5	Hi-K	.....

TYPE 853, 854, 855—5 kV

Lead type has 1½" axial leads. Tap type has axial screw terminals tapped 2-56. Size: 853, ½" dia. x ⅛". 854, ⅜" dia. x ¾". 855, ¼" dia. x 11/16"; A Series: Add ⅛" to dia., ¼" to lg. Tol.: ±10%.

Cap., pF	CRL No. Lead Type	CRL No. Tap Type	kV DCW	Temp. Coeff.	RF Load at 30 MHz
3	855-3Z	855A-3Z	5	NPO	1.8 amps
5	855-5Z	855A-5Z	5	NPO	1.8 amps
10	854-10Z	854A-10Z	5	NPO	1.8 amps
10	855-10N	.....	5	N750	3.2 amps
20	853-20Z	.....	5	NPO	2.8 amps
20	.....	854A-20N	5	N750	3.2 amps
40	853-40N	853A-40N	5	N750	5.6 amps

TYPE 857—7.5 AND 15 kV

Axial screw terminals at both ends; ¼" deep, 10-32 NF-2 thread. Size: 1 1/16" dia. x 1 17/64". Tolerance: ±10%.

Cap., pF	CRL No.	Temp. Coeff.	RF Load at 30 MHz	kV DCW
25	857-25Z	NPO	12 amps	15
50	857-50Z	NPO	12 amps	15
100	857-100N	N750	14.4 amps	15
200	857-200N	N750	18.2 amps	7.5

TYPE 859—15 AND 20 kV

Terminals ⅛" deep both ends, tapped 10-32. Size: 2" dia. x 2⅛" overall. Tolerance: ±10%.

50	859S-50Z	NPO	30 amps	20
100	859S-100Z	NPO	30 amps	20
250	859S-250N	N750	30 amps	20
500	859S-500N	N3300	30 amps	15

TRANSMITTING CAPACITOR INDUSTRIAL NET EACH PRICES

CRL Type All Values	Pkg. of 1 1-99	Pkg. of 100 100 Up
850 w/suffix Z	$10.47	$ 7.99
850 w/suffix N	9.27	7.08
853	9.12	6.98
853A	10.34	7.02
854	8.62	6.58
854A	9.99	7.65
855	8.08	6.21
855A	9.00	6.88
857 w/suffix Z	35.00	26.80
857 w/suffix N	30.38	23.25
858	10.02	7.68
859	197.16	150.89

TYPES CE TEMPERATURE STABLE AND CF SEMI-STABLE DISC CAPACITORS

Offer exceptional stability through an extended temperature range; for applications requiring low capacity change between −55° C and +85° C temperatures. Rated 500 WVDC. Life test, 1000 hours at 1000 VDC at +85° C. Leakage resistance, 10,000 megs, min. initial; 1000 megs, after humidity. Phenolic insulation vacuum impregnated with high temperature wax. Power factor, 2% max. at 1 kHz. Leads #22 tinned copper, 1½" lg. minimum. Tolerance, ±10%. Only .156" thick. **Dia.:** 150–470 pF, .290"; 500–800 pF, .390"; 1000 pF, .590"; 1200–1800 pF, .390"; 2000–3900 pF, .590"; 4700–6200 pF, .690"; 8200 and 10K pF, .920".

Temperature Stable "K"						Temp. Semi-Stable "K"					
Cap. pF	No. CE-	Cap. pF	No. CE-	Cap. pF	No. CE-	Cap. pF	No. CF-	Cap. pF	No. CF-	Cap. pF	No. CF-
150	151	500	501	800	801	1200	122	2200	222	5000	502
220	221	560	561	1000	102	1500	152	3300	332	6200	622
330	331	680	681			1800	182	3900	392	8200	822
470	471	750	751			2000	202	4700	472	10K	103

CE INDUSTRIAL NET EACH PRICES

Values pF	Net Each 1-99	Pkgs. of 100 100-900	Pkgs. of 1000 1000-9000	Pkgs. of 1000 10,000-24,000
150 thru 1000	$0.22	$0.13	$0.072	$0.049

CF INDUSTRIAL NET EACH PRICES

1200 thru 2200	$0.24	$0.13	$0.08	$0.053
3300 thru 3900	.31	.16	.096	.064
4700 thru 5000	.38	.21	.13	.087
6200	.53	.31	.177	.119
8200 thru 10K	.62	.42	.251	.167

CENTRALAB CAPACITOR KIT

- **Wide Assortment**
- **Popular Sizes**
- **Ready To Use**

KIT-60D contains an assortment of the most widely used general purpose ceramic disc capacitors. 600 and 1000 VDCW ratings in 40 different values from 5pf to .05μf. Housed in rugged steel frame cabinet with 15 high impact plastic drawers. Capacitors functionally arranged in clearly labeled drawers by voltage and value. Shipped set up and ready to use.

Cap.	Qty.	Type	Cap.	Qty.	Type
5pf	5	DD-050	390pf	5	DD-391
10	5	DD-100	470	5	DD-471
15	5	DD-150	500	5	DD-501
20	5	DD-200	680	5	DD-681
22	5	DD-220	820	5	DD-821
25	5	DD-250	.001μf	15	DD-102
33	5	DD-330	.001	10	DD-102G
47	5	DD-470	.0015	5	DD-152
50	5	DD-500	.002	10	DD-202
68	5	DD-680	.0022	5	DD-222
100	10	DD-101	.003	5	DD-302
120	5	DD-121	.0047	5	DD-472
150	5	DD-151	.005	5	DD-502
180	5	DD-181	.005	10	DD-5022
200	10	DD-201	.0068	5	DD-682
220	5	DD-221	.01	5	DD-103
250	5	DD-251	.01	15	DD-1032
270	5	DD-271	.01	5	DD6-103
300	5	DD-301	.02	5	DD-203
330	5	DD-331	.05	5	DD-503

Centralab KIT-60D—Net Each..... **$66.05**

3000-6000 VOLT CAPACITORS

All these units are highly efficient for bypass-coupling in high frequency circuits under conditions of extreme humidity or temperature. Special phenolic insulation with triple, high temperature wax impregnation. Maintain high capacity and performance at 85° C. Tolerance: ±20%.

Capacity, pF	3000 Volt, DC Working CRL No.	Dia.	6000 Volt, DC Working CRL No.	Dia.
4.7	DD30-4R7	.320″	DD60-4R7	.650″
10	DD30-100	.320″	DD60-100	.650″
15	DD30-150	.320″	DD60-150	.650″
22	DD30-220	.320″	.....	.....
25	DD30-250	.320″	.....	.....
30	DD30-300	.330″	DD60-300	.650″
33	DD30-330	.330″	DD60-330	.650″
39	DD30-390	.330″	DD60-390	.650″
47	DD30-470	.330″	DD60-470	.650″
50	DD30-500	.330″	DD60-500	.650″
56	DD30-560	.330″	DD60-560	.650″
68	DD30-680	.330″	DD60-680	.660″
75	DD30-750	.330″	DD60-750	.660″
82	DD30-820	.330″	DD60-820	.660″
100	DD30-101	.330″	DD60-101	.660″
120	DD30-121	.330″	DD60-121	.660″
130	.....	.....	DD60-131	.660″
150	DD30-151	.330″	DD60-151	.660″
180	DD30-181	.330″	DD60-181	.660″
200	DD30-201	.330″	DD60-201	.660″
220	DD30-221	.330″	DD60-221	.660″
250	DD30-251	.330″	DD60-251	.660″
270	DD30-271	.330″	DD60-271	.660″
300	DD30-301	.330″	DD60-301	.660″
330	DD30-331	.330″	DD60-331	.660″
390	DD30-391	.330″	DD60-391	.660″
400	DD30-401	.330″	.....	.....
470	DD30-471	.330″	DD60-471	.660″
500	DD30-501	.330″	DD60-501	.660″
560	DD30-561	.330″	DD60-561	.660″
680	DD30-681	.330″	DD60-681	.660″
750	DD30-751	.330″	DD60-751	.660″
820	DD30-821	.430″	DD60-821	.660″
1000	DD30-102	.430″	DD60-102	.660″
1200	DD30-122	.430″	DD60-122	.660″
1500	DD30-152	.630″	DD60-152	.660″
2000	DD30-202	.630″	DD60-202	.760″
2200	DD30-222	.630″	DD60-222	.760″
2500	DD30-252	.630″	.....	.....
2700	DD30-272	.630″	.....	.....
3000	DD30-302	.630″	.....	.....
3300	DD30-332	.630″	.....	.....
3900	DD30-392	.730″	.....	.....
4700	DD30-472	.730″	.....	.....
5000	DD30-502	.800″	.....	.....

INDUSTRIAL NET EACH PRICES

Values, pF	Net Ea. 1-99	Pkg./ 100 100-900	Pkg./ 1000 1000-9000	Pkg./ 1000 10,000 Up
TYPE DD30 (3000 WVDC)				
4.7 thru 750	$0.60	$0.33	$0.185	$0.129
820 thru 1200	.64	.36	.199	.139
1500 thru 3300	.83	.46	.256	.179
3900 thru 4700	.95	.52	.293	.206
5000	1.03	.57	.322	.226
TYPE DD60 (6000 WVDC)				
4.7 thru 1500	$1.03	$0.57	$0.322	$0.226
2000 thru 2200	1.44	.79	.447	.312

TYPE DD16 BUFFERS

Compact, easy to install. Long life, low cost. Able to withstand high heat, moisture, and vibration. Thickness, 11/64″. Tolerance: GMV. Rated 1600 WVDC.

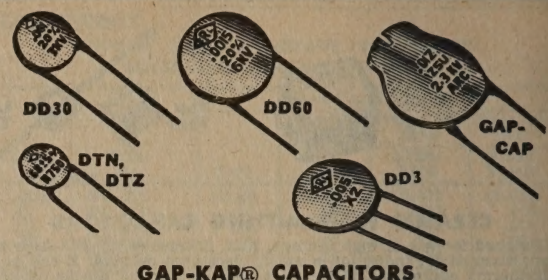
Cap., μF	CRL No.	Dia.	Net Ea. 1-99	Pkg./ 100 100-900	Pkg./ 1000 1000-9000	Pkg./ 1000 10,000-Up
.003	DD16-302	.605″	$0.43	$0.25	$0.136	$0.094
.004	DD16-402	.605″	.43	.25	.136	.094
.005	DD16-502	.605″	.43	.25	.136	.094
.006	DD16-602	.705″	.58	.33	.179	.124
.007	DD16-702	.705″	.58	.33	.179	.124
.0075	DD16-752	.835″	.72	.39	.225	.156
.008	DD16-802	.835″	.72	.39	.225	.156
.01	DD16-103	.835″	.72	.39	.225	.156
.015	DD16-153*	.935″	1.15	.64	.36	.252

*Tolerance, −20, +80%.

TYPE DD3 DUAL CAPACITORS

Three leads—two capacitors in the space formerly needed for one. Shielded to minimize stray capacities between discs. Rated 600 VDC, working; 1200 VDC, test. **Tolerance:** GMV. **Diameter:** DD3-102, DD3-152, .391″; DD3-202, DD3-502, .593″; DD3-103, .719″.

Values, μF	CRL No.	Net Each 1-99	Pkgs. of 100 100-900	Pkgs. of 1000 1000-9000	Pkgs. of 1000 10,000-Up
2 x .001	DD3-102	$0.86	$0.48	$0.271	$0.189
2 x .0015	DD3-152	.86	.48	.271	.189
2 x .002	DD3-202	1.26	.67	.39	.272
2 x .005	DD3-502	1.26	.67	.39	.272
2 x .01	DD3-103	1.53	.85	.476	.332



GAP-KAP® CAPACITORS

Parallel capacitor-spark gap combination is useful in applications requiring by-pass of transient overvoltages. In color TV usage, a minimum capacitance Gap-Kap inserted between the grid lead and chassis ground provides a low impedance path to ground for transients of 1500 V and above. Leads are #20 tinned copper.

CRL No.	Cap.	Tolerance	Max. Dia.	Max. Ht.	Max. Thk.	Voltage Working	Voltage Arc
GAP-R75	.75 pF	Maximum	.440″	.620″	.250″	1 kV	1–2 kV
GAP-102	.001 μF	±20%	.420″	.545″	.195″	1 kV	2–3 kV
GAP-103	.01 μF	±200%	.705″	.855″	.195″	1.5 kV	2–3 kV
GAP-203	.02 μF	±20%	.935″	1.060″	.216″	1 kV	2–3 kV
GAP-402	.004 μF	±10%	.960″	1.110″	.216″	3 kV	4–6 kV

INDUSTRIAL PRICES

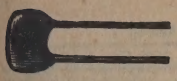
CRL No.	Net Ea. 1-99	Pkg./ 100 100-900	Pkg./ 1000 1000-9000	Pkg./ 1000 10,000-Up
GAP-R75	$0.28	$0.15	$0.082	$0.056
GAP-102	.40	.23	.123	.086
GAP-103	.72	.39	.219	.153
GAP-203	1.31	.72	.403	.282
GAP-402	1.31	.72	.403	.282

TEMPERATURE COMPENSATING DISCS

Replaces mica types in all applications. High stability, small size, using TC ceramic dielectric material. Type DTZ is NPO or zero TC disc type. Type DTN is N750TC type. Tol.: ±5% except (*), ±0.5 pF.

Cap., pF	CRL No.	Dia.	Thickness	Net Ea. 1-99	Pkg./ 100 100-900	Pkg./ 1000 1000-9000	Pkg./ 1000 10,000-24,000
TYPE DTN (N750)							
5	DTN-5*	.320″	.180″	$0.20	$0.11	$0.063	$0.046
10	DTN-10*	.290″	.156″	.20	.11	.063	.046
15	DTN-15	.290″	.156″	.20	.11	.063	.046
20	DTN-20	.290″	.156″	.20	.11	.063	.046
22	DTN-22	.290″	.156″	.20	.11	.063	.046
25	DTN-25	.290″	.156″	.20	.11	.063	.046
33	DTN-33	.290″	.156″	.20	.11	.063	.046
47	DTN-47	.290″	.156″	.20	.11	.063	.046
68	DTN-68	.390″	.156″	.24	.12	.074	.055
75	DTN-75	.390″	.156″	.24	.12	.074	.055
100	DTN-100	.390″	.156″	.24	.12	.074	.055
150	DTN-150	.590″	.156″	.32	.18	.097	.073
200	DTN-200	.590″	.156″	.41	.21	.12	.088
220	DTN-220	.590″	.156″	.41	.21	.12	.088
330	DTN-330	.690″	.156″	.61	.32	.179	.133
TYPE DTZ (NPO)							
1.5	DTZ-1R5*	.320″	.180″	$0.22	$0.11	$0.066	$0.048
2.2	DTZ-2R2*	.290″	.156″	.22	.11	.066	.048
3.3	DTZ-3R3*	.290″	.156″	.22	.11	.066	.048
4.7	DTZ-4R7*	.290″	.156″	.22	.11	.066	.048
6.8	DTZ-6R8*	.290″	.156″	.22	.11	.066	.048
10	DTZ-10	.290″	.156″	.22	.11	.066	.048
15	DTZ-15	.290″	.156″	.22	.11	.066	.048
20	DTZ-20	.290″	.156″	.22	.11	.066	.048
22	DTZ-22	.390″	.156″	.22	.11	.066	.048
25	DTZ-25	.390″	.156″	.24	.12	.07	.052
33	DTZ-33	.390″	.156″	.24	.12	.07	.052
47	DTZ-47	.590″	.156″	.30	.15	.093	.067
50	DTZ-50	.590″	.156″	.30	.15	.093	.067
68	DTZ-68	.590″	.156″	.30	.15	.093	.067
75	DTZ-75	.590″	.156″	.37	.20	.109	.08
82	DTZ-82	.590″	.156″	.37	.20	.109	.08
100	DTZ-100	.590″	.156″	.37	.20	.109	.08
120	DTZ-120	.690″	.156″	.54	.27	.166	.122
150	DTZ-150	.760″	.156″	.54	.27	.166	.122
180	DTZ-180	.760″	.156″	.61	.32	.179	.133
200	DTZ-200	.820″	.156″	.64	.33	.196	.144
220	DTZ-220	.920″	.156″	.91	.47	.272	.20
270	DTZ-270	.920″	.156″	.91	.47	.272	.20
TYPE DTX (N1500)							
100	DTX-101	.390″	.156″	$0.24	$0.12	$0.07	$0.052
120	DTX-121	.390″	.156″	.24	.12	.07	.052
150	DTX-151	.485″	.156″	.32	.15	.096	.071
180	DTX-181	.485″	.156″	.32	.15	.096	.071
200	DTX-201	.590″	.156″	.39	.21	.117	.087
220	DTX-221	.590″	.156″	.39	.21	.117	.087
330	DTX-331	.690″	.156″	.59	.32	.177	.132
390	DTX-391	.690″	.156″	.59	.32	.177	.132
470	DTX-471	.760″	.156″	.64	.33	.194	.141
500	DTX-501	.760″	.156″	.64	.33	.194	.141
560	DTX-561	.820″	.156″	.71	.36	.21	.154
620	DTX-621	.920″	.156″	.91	.47	.272	.20

CD5—CD42 DIPPED SILVERED MICAS



Range: −55° C to +125° C. **Temp. Characteristic:** Indicated by 3rd letter in number (e.g., CD10CD050D): C, ±200 ppm/° C (drift, ±0.5%); E, −20 to +100 ppm/° C drift, ±sum of 0.1% and .1 pF); F, 0 to +70 ppm/° C (drift, ±sum of 0.05% and .1 pF). **Tolerance:** ±5% unless otherwise noted (many values available in ±20%, ±2%, ±1%). **Voltage:** 500 WVDC unless otherwise noted. For applications that need high stability, high Q, reliability, small size, protection against moisture and temperature extremes. **Note:** CD5, CD6 and CD7 types not available in MIL version.

TYPE CD5

CDE No.* CD5-	Cap., pF	Net Ea., Lots of 1-24	25-99	100-499
CC010C§	1‡	$0.383	$0.254	$0.191
CC020C§	2‡	.383	.254	.191
CC030C§	3‡	.383	.254	.191
CC040C§	4‡	.383	.254	.191
CC050C§	5‡	.383	.254	.191
CC060C§	6‡	.383	.254	.191
CC070C§	7‡	.383	.254	.191
CC080C§	8‡	.383	.254	.191
CC090C§	9‡	.383	.254	.191
CC100J§	10	.645	.429	.323
CC110J§	11	.645	.429	.323
CC120J§	12	.645	.429	.323
CC150J§	15	.645	.429	.323
CC180J§	18	.645	.429	.323
CC200J§	20	.438	.291	.219
CC220J§	22	.438	.291	.219
EC240J§	24	.438	.291	.219
EC270J§	27	.474	.314	.236
EC300J§	30	.474	.314	.236
EC330J§	33	.474	.314	.236
EC360J§	36	.504	.336	.251
EC390J§	39	.518	.346	.261
EC430J§	43	.518	.346	.261
EC470J§	47	.534	.355	.266
EC510J§	51	.534	.355	.266
EC560J§	56	.553	.369	.276
EC620J§	62	.553	.369	.276
EC680J§	68	.573	.383	.286
EC750J§	75	.578	.385	.289
EC820J§	82	.603	.403	.303
FC910J§	91	.633	.393	.316
FC101J§	100	.676	.451	.34
FA111J•	110	.706	.471	.353
FA121J•	120	.736	.491	.369
FA131J•	130	.77	.514	.385
FA151J•	150	.844	.563	.424
FA161J•	160	.895	.595	.448
FA181J•	180	.954	.635	.478
FA201J•	200	1.063	.709	.533
FY221J▪	220	1.138	.758	.569
FY241J▪	240	1.209	.806	.606
FY251J▪	250	1.318	.879	.66
FY271J▪	270	1.318	.879	.66
FY301J▪	300	1.46	.975	.731
FY331J▪	330	1.57	1.046	.785
FY361J▪	360	1.675	1.116	.838
FY391J▪	390	1.814	1.208	.906

TYPE CD6

CDE No.* CD6-	Cap., pF	Net Each, Lots of 1-24	25-99	100-999
CA010C•	1‡	$0.348	$0.232	$0.174
CA020C•	2‡	.348	.232	.174
CA030C•	3‡	.348	.232	.174
CA040C•	4‡	.348	.232	.174
CA050C•	5‡	.348	.232	.174
CA060C•	6‡	.348	.232	.174
CA070C•	7‡	.348	.232	.174
CA080C•	8‡	.348	.232	.174
CA090C•	9‡	.348	.232	.174
CA100D•	10♯	.571	.381	.286
CA110C•	11‡	.40	.267	.20
CA120J•	12	.40	.267	.20
CA150J•	15	.408	.272	.205
CA180J•	18	.408	.272	.205
CA200J•	20	.408	.272	.205
CA220J•	22	.417	.276	.209
EA240J•	24	.417	.276	.209
EA270J•	27	.417	.276	.209
EA300J•	30	.42	.282	.211
EA330J•	33	.42	.282	.211
EA360J•	36	.425	.284	.213
EA390J•	39	.425	.284	.213
EA430J•	43	.441	.293	.22
EA470J•	47	.441	.293	.22
EA500J•	50	.457	.305	.23
EA510J•	51	.457	.305	.23
EA560J•	56	.457	.305	.23
EA620J•	62	.469	.312	.234
EA680J•	68	.482	.321	.241
EA750J•	75	.508	.34	.254
EA820J•	82	.538	.359	.27
EA910J•	91	.565	.377	.284
FA101J•	100	.565	.377	.284
FA111J•	110	.631	.42	.316
FA121J•	120	.631	.42	.316
CD010C	1‡	.457	.305	.23
CD020C	2‡	.457	.305	.23
CD030C	3‡	.457	.305	.23
CD040C	4‡	.457	.305	.23
CD050C	5‡	.457	.305	.23
CD060C	6‡	.457	.305	.23

TYPE CD6 (Cont'd)

CDE No.* CD6-	Cap., pF	Net Each, Lots of 1-24	25-99	100-999
CD070C	7‡	$0.457	$0.305	$0.23
CD080C	8‡	.457	.305	.23
CD090C	9‡	.457	.305	.23
CD100D	10♯	.759	.506	.381
CD110C	11‡	.518	.345	.257
CD120J	12	.749	.499	.374
CD150J	15	.749	.499	.374
CD180J	18	.749	.499	.374
CD200J	20	.518	.345	.257
CD220J	22	.545	.364	.273
ED240J	24	.545	.364	.273
ED270J	27	.545	.364	.273
ED300J	30	.545	.364	.273
ED330J	33	.565	.377	.284
ED360J	36	.565	.377	.284
ED390J	39	.565	.377	.284
ED430J	43	.565	.377	.284
ED470J	47	.565	.377	.284
ED500J	50	.607	.404	.304
ED510J	51	.607	.404	.304
ED560J	56	.607	.404	.304
ED620J	62	.607	.404	.304
ED680J	68	.659	.439	.33
ED750J	75	.659	.439	.33
EC820J§	82	.747	.499	.374
EC910J§	91	.747	.499	.374
FC101J§	100	.747	.499	.374
FC111J§	110	.77	.512	.385
FC121J§	120	.77	.512	.385

TYPE CD7

CDE No.* CD7-	Cap., pF	Net Each, Lots of 1-24	25-99	100-999
FD131J	130	$0.778	$0.52	$0.389
FD151J	150	.778	.52	.389
FD161J	160	.802	.535	.40
FD181J	180	.813	.542	.407
FC201J§	200	.859	.572	.43
FC221J§	220	.903	.601	.452
FC241J§	240	.934	.623	.468
FC251J§	250	.97	.648	.485
FC271J§	270	.992	.661	.497
FC301J§	300	1.023	.612	.51
FA331J•	330	1.112	.741	.556
FA361J•	360	1.169	.779	.586
FA391J•	390	1.169	.779	.586
FA431J•	430	1.169	.779	.586
FA471J•	470	1.223	.816	.612
FA501J•	500	1.279	.854	.64
FA511J•	510	1.279	.854	.64
FA561J•	560	1.333	.668	.556
FA621J•	620	1.393	.928	.696
FA681J•	680	1.668	1.112	.834
FA751J•	750	1.779	1.187	.889
FA821J•	820	1.837	1.224	.919
FA911J•	910	1.948	1.298	.974
FA102J•	1000	2.17	1.445	1.084
FA112J•	1100	2.224	1.482	1.112
FA122J•	1200	2.283	1.522	1.141
FA132J•	1300	2.558	1.705	1.278
FA152J•	1500	2.838	1.891	1.418

TYPE CD10

CDE No.* CD10-	Cap., pF	Net Ea., Lots of 1-24	25-99	100-999
CD010C†	1‡	$0.298	$0.198	$0.149
CD020C	2‡	.298	.198	.149
CD030C	3‡	.298	.198	.149
CD050C†	5‡	.298	.198	.149
CD060C†	6‡	.328	.219	.164
CD070C†	7‡	.328	.219	.164
CD080C†	8‡	.328	.219	.164
CD100J†	10	.596	.399	.298
CD120J†	12	.417	.276	.210
CD150J†	15	.417	.276	.210
CD180J†	18	.417	.276	.210
ED200J†	20	.417	.276	.210
ED220J†	22	.417	.276	.210
ED240J†	24	.425	.286	.214
ED270J†	27	.425	286	.214
ED300J†	30	.425	.286	.214
ED330J†	33	.425	.286	.214
ED360J†	36	.434	.288	.216
ED390J†	39	.434	.288	.216
ED430J†	43	.434	.288	.216
ED470J†	47	.442	.295	.222

TYPE CD10 (Cont'd)

CDE No.* CD10-	Cap., pF	Net Ea., Lots of 1-24	25-99	100-999
ED500J	50	$0.442	$0.295	$0.222
ED510J†	51	.442	.295	.222
ED560J†	56	.462	.310	.230
ED620J†	62	.462	.310	.230
ED680J†	68	.466	.313	.235
ED750J†	75	.466	.313	.235
ED820J†	82	.474	.315	.237
FD910J†	91	.494	.330	.246
FD101J†	100	.497	.333	.251
FD111J†	110	.497	.333	.251
FD121J†	120	.519	.347	.260
FD131J†	130	.557	.370	.276
FD151J†	150	.612	.408	.308
FD161J†	160	.633	.420	.316
FD181J†	180	.701	.465	.349
FD201J†	200	.750	.498	.374
FD221J†	220	.781	.522	.390
FD241J†	240	.836	.559	.419
FD251J	250	.863	.578	.434
FC271J§†	270	.806	.540	.404
FC301J§†	300	.888	.593	.446
FA331J•†	330	.836	.559	.419
FA361J•†	360	.888	.593	.446
FA391J•†	390	.946	.631	.474

TYPE CD15

CDE No.* CD15-	Cap., pF	Net Ea., Lots of 1-24	25-99	100-999
CD010D†	1♯	$0.427	$0.285	$0.214
CD020D	2♯	.427	.285	.214
CD030D	3♯	.427	.285	.214
CD040D	4♯	.427	.285	.214
CD050D†	5♯	.427	.285	.214
CD060D†	6♯	.427	.285	.214
CD070D†	7♯	.427	.285	.214
CD080D†	8♯	.427	.285	.214
CD100J†	10	.431	.288	.216
CD120J†	12	.431	.288	.216
CD150J†	15	.431	.288	.216
CD180J†	18	.431	.288	.216
ED200J†	20	.350	.233	.175
ED220J†	22	.350	.233	.175
ED240J†	24	.350	.233	.175
ED270J†	27	.350	.233	.175
ED300J†	30	.350	.233	.175
ED330J†	33	.350	.233	.175
ED360J†	36	.350	.233	.175
ED390J†	39	.350	.233	.175
ED430J†	43	.350	.233	.175
ED470J†	47	.350	.233	.175
ED500J	50	.350	.233	.175
ED510J†	51	.350	.233	.175
ED560J†	56	.350	.233	.175
ED620J†	62	.350	.233	.175
ED680J†	68	.350	.233	.175
ED750J†	75	.350	.233	.175
ED820J†	82	.350	.233	.175
FD910J†	91	.350	.233	.175
FD101J†	100	.356	.237	.177
FD111J†	110	.356	.237	.177
FD121J†	120	.384	.255	.192
FD131J†	130	.384	.255	.192
FD151J†	150	.407	.273	.206
FD161J†	160	.407	.273	.206
FD181J†	180	.441	.296	.222
FD201J†	200	.475	.316	.239
FD221J†	220	.475	.316	.239
FD241J†	240	.508	.338	.254
FD251J	250	.543	.360	.273
FD271J†	270	.543	.360	.273
FD301J†	300	.603	.404	.301
FD331J†	330	.671	.448	.336
FD361J†	360	.706	.471	.354
FD391J†	390	.735	.488	.369
FD431J	430	.793	.528	.395
FD471J	470	.826	.550	.413
FD501J	500	.888	.592	.445
FD511J	510	.888	.592	.445
FC561J§	560	.888	.592	.445
FC621J§	620	.956	.636	.480
FC681J§	680	1.047	.696	.523
FC751J§	750	1.115	.741	.557
FC821J§	820	1.211	.806	.603
FA911J•	910	1.04	.696	.523
FA102J•	1000	1.146	.763	.575
FA112J•	1100	1.243	.828	.622
FA122J•	1200	1.340	.893	.670

*Add final suffix **03** when ordering (e.g., CD10CD050D**03**). Where indicated in listing, MIL version is available. †MIL version available; replace prefix **CD10** with **CM04**; **CD15** with **CM05**; **CD19** with **CM06**; **CD30** with **CM07**; **CD42** with **CM08**. ‡Tol., ±1.0 pF. ♯Tol., ±0.5 pF. §300 WVDC. •100 WVDC. ▪50 WVDC.

CD5—CD42 DIPPED SILVERED MICAS (CONT'D)

TYPE CD19

CDE No.* CD19-	Cap., pF	Net Ea., Lots of 1-24	25-99	100-999
FD271J	270	$0.436	$0.289	$0.218
FD301J	300	.436	.289	.218
FD331J	330	.436	.289	.218
FD361J	360	.515	.343	.257
FD391J	390	.515	.343	.257
FD431J†	430	.515	.343	.257
FD471J†	470	.564	.375	.283
FD501J	500	.564	.375	.283
FD511J†	510	.564	.375	.283
FD561J†	560	.564	.375	.283
FD621J†	620	.623	.415	.31
FD681J†	680	.623	.415	.31
FD751J†	750	.674	.451	.337
FD821J†	820	.674	.451	.337
FD911J†	910	.734	.488	.367
FD102J†	1000	.734	.488	.367
FD112J†	1100	.747	.499	.375
FD122J†	1200	.747	.499	.375
FD132J†	1300	.793	.53	.397
FD152J†	1500	.889	.593	.444
FD162J†	1600	.93	.622	.466
FD182J†	1800	1.019	.679	.508
FD202J†	2000	1.092	.727	.546
FD222J†	2200	1.144	.763	.573
FD242J†	2400	1.258	.838	.628
FD252J	2500	1.322	.881	.659
FD272J†	2700	1.389	.927	.695
FD302J†	3000	1.487	.992	.744
FD332J†	3300	1.62	1.079	.811
FD362J†	3600	1.785	1.191	.894
FD392J†	3900	1.981	1.322	.992
FD432J†	4300	2.187	1.459	1.095
FD472J†	4700	2.448	1.63	1.224
FD502J	5000	2.466	1.645	1.232
FD512J	5100	2.51	1.674	1.256
FC562J§	5600	2.411	1.609	1.208
FC622J§	6200	2.677	1.784	1.339
FC682J§	6800	2.922	1.949	1.462
FA752J§	7500	3.126	2.083	1.564
FA822J§	8200	3.392	2.261	1.696

TYPE CD30

CDE No.* CD30-	Cap., pF	Net Ea., Lots of 1-24	25-99	100-999
FD202J	2000	$1.071	$0.535	$0.482
FD222J	2200	1.176	.589	.53
FD242J	2400	1.222	.613	.551
FD252J	2500	1.273	.638	.571
FD272J	2700	1.323	.663	.595
FD302J	3000	1.447	.725	.651
FD332J	3300	1.536	.772	.693
FD362J	3600	1.628	.814	.73
FD392J	3900	1.717	.859	.773
FD432J	4300	1.814	.908	.816
FD472J	4700	1.972	.986	.888
FD502J	5000	2.085	1.043	.938
FD512J†	5100	2.085	1.043	.938
FD562J†	5600	2.27	1.134	1.021
FD622J†	6200	2.455	1.228	1.104
FD682J†	6800	2.73	1.367	1.229
FD752J†	7500	2.949	1.476	1.327
FD822J†	8200	3.198	1.599	1.441
FD912J†	9100	3.412	1.707	1.535
FD103J†	10000	3.858	1.931	1.736
FD113J†	11000	4.533	2.268	2.041
FD123J†	12000	4.533	2.268	2.041
FD133J†	13000	4.928	2.465	2.218
FD153J†	15000	5.506	2.754	2.477
FD163J†	16000	5.85	2.926	2.633
FD183J†	18000	6.476	3.238	2.915
FD203J†	20000	7.15	3.576	3.219
FC223J§	22000	6.74	3.37	3.033
FC243J§	24000	7.303	3.652	3.288
FC253J§	25000	7.744	3.871	3.484
FC273J§	27000	8.463	4.234	3.807
FC303J§	30000	10.861	5.432	4.887
FA333J•	33000	9.061	4.532	4.077
FA363J•	36000	10.861	5.432	4.887

TYPE CD42

CDE No.* CD42-	Cap., pF	Net Ea., Lots of 1-24	25-99	100-999
FD203J	20000	$8.48	$4.976	$3.585
FD223J	22000	8.48	4.976	3.585
FD243J	24000	8.48	4.976	3.585
FD253J	25000	8.48	4.976	3.585
FD273J	27000	8.962	5.258	3.788
FD303J	30000	9.808	5.755	4.146
FD333J	33000	10.464	6.140	4.423
FD363J	36000	11.276	6.616	4.766
FD393J	39000	12.094	7.096	5.112
FD433J	43000	13.235	7.766	5.595
FD473J	47000	14.113	8.281	5.966
FD503J	50000	14.623	8.580	6.181
FD513J	51000	15.181	8.908	6.417
FC563J§	56000	13.317	7.814	5.629
FC623J§	62000	14.842	8.709	6.274
FC683J§	68000	16.868	9.897	7.130
FA753J•	75000	13.897	8.154	5.875
FA823J•	82000	15.520	9.107	6.561

*Add final suffix **03** when ordering (e.g., CD10CD050D**03**). Where indicated in listing, MIL version is available. †MIL version available; replace prefix **CD10** with **CM04**; **CD15** with **CM05**; **CD19** with **CM06**; **CD30** with **CM07**; **CD42** with **CM08**. ‡Tol., ±1.0 pF. §Tol., ±0.5 pF. $300 WVDC. •100 WVDC. ▪50 WVDC.

TYPE DPMS DIPPED PAPER-MYLAR* TUBULAR CAPACITORS

Radial lead capacitors ideal for color TV and other demanding applications; also suitable for point-to-point assembly. Multiple dipped unit has dielectric of high-strength kraft paper and Mylar. Dykanol-Y® impregnant. **Operating Temperature:** −55° to +125° C at full rated voltage. **Tolerance:** ±10%.

*DuPont trademark.

CDE No. DPMS-	Cap., µF	WV DC	Size, In. Dia. x Lg.	Net Each, Lots of 1-24	25-99	100-Up
2S2	.020	200	.350 x .855	$0.491	$0.314	$0.191
2S22	.022	200	.370 x .855	.491	.314	.191
2S47	.047	200	.450 x .855	.491	.314	.191
2P1	.1	200	.470 x 1.180	.519	.382	.226
2P2	.2	200	.565 x 1.300	.822	.526	.320
2P15	.15	200	.540 x 1.180	.710	.478	.300
2P22	.22	200	.590 x 1.300	.912	.584	.355
2P25	.25	200	.620 x 1.300	1.186	.760	.462
2P33	.33	200	.605 x 1.600	1.186	.760	.462
2P47	.47	200	.730 x 1.600	1.460	.935	.568
2P5	.5	200	.730 x 1.600	1.460	.935	.568
4S1	.010	400	.390 x .660	.450	.273	.171
4S22	.022	400	.400 x .855	.548	.351	.213
4S33	.033	400	.440 x .855	.548	.351	.213
4S47	.047	400	.415 x 1.150	.548	.351	.213
4S5	.050	400	.415 x 1.150	.574	.368	.224
4S68	.068	400	.440 x 1.180	.574	.368	.224
4P1	.1	400	.520 x 1.180	.737	.505	.308
4P15	.15	400	.560 x 1.300	.901	.628	.376
4P22	.22	400	.620 x 1.560	1.188	.860	.526
4P25	.25	400	.650 x 1.560	1.515	1.147	.696
4P47	.47	400	.850 x 1.600	1.570	1.188	.723
4P5	.5	400	.850 x 1.600	1.570	1.188	.723
6D1	.001	600	.340 x .660	.437	.246	.164
6D12	.0012	600	.340 x .660	.437	.246	.164
6D15	.0015	600	.340 x .660	.437	.246	.164
6D2	.0020	600	.340 x .660	.437	.246	.164
6D22	.0022	600	.340 x .660	.437	.246	.164
6D25	.0025	600	.340 x .660	.437	.246	.164
6D27	.0027	600	.370 x .660	.437	.246	.164
6D3	.0030	600	.370 x .660	.437	.246	.164
6D33	.0033	600	.370 x .660	.437	.246	.164
6D39	.0039	600	.370 x .660	.437	.246	.164
6D4	.0040	600	.370 x .660	.450	.273	.164
6D47	.0047	600	.400 x .690	.450	.273	.164
6D5	.0050	600	.400 x .690	.450	.273	.164
6D56	.0056	600	.415 x .690	.450	.273	.164
6D68	.0068	600	.430 x .690	.450	.273	.164
6D82	.0082	600	.370 x .870	.464	.300	.191
6S1	.010	600	.390 x .870	.491	.314	.191
6S12	.012	600	.400 x .870	.491	.314	.191
6S15	.015	600	.415 x .870	.491	.314	.191
6S2	.020	600	.445 x .870	.491	.314	.191

CDE No. DPMS-	Cap., µF	WV DC	Size, In. Dia. x Lg.	Net Each, Lots of 1-24	25-99	100-Up
6S22	.022	600	.470 x .870	$0.491	$0.328	$0.205
6S25	.025	600	.500 x .870	.546	.382	.246
6S27	.027	600	.415 x 1.150	.546	.382	.246
6S3	.030	600	.415 x 1.150	.546	.382	.246
6S33	.033	600	.430 x 1.150	.546	.382	.246
6S39	.039	600	.470 x 1.150	.628	.437	.273
6S4	.040	600	.470 x 1.150	.628	.437	.273
6S47	.047	600	.499 x 1.150	.628	.437	.273
6S5	.050	600	.490 x 1.150	.710	.491	.300
6S56	.056	600	.520 x 1.180	.710	.491	.300
6S68	.068	600	.540 x 1.300	.710	.491	.300
6S75	.075	600	.575 x 1.300	.737	.560	.324
6S82	.082	600	.590 x 1.300	.737	.560	.324
6P1	.1	600	.640 x 1.300	.778	.560	.324
6P2	.2	600	.730 x 1.560	1.433	1.106	.655
6P15	.15	600	.650 x 1.560	.983	.710	.423
6P22	.22	600	.750 x 1.560	1.447	1.133	.655
6P25	.25	600	.830 x 1.560	1.515	1.256	.792
6P33	.33	600	.890 x 1.560	1.520	1.283	.819
16D1	.001	1600	.350 x .870	.819	.546	.300
16D15	.0015	1600	.375 x .870	.819	.546	.300
16D18	.0018	1600	.400 x .870	.819	.546	.300
16D2	.0020	1600	.405 x .870	.819	.546	.300
16D22	.0022	1600	.420 x .870	.819	.546	.300
16D3	.0030	1600	.475 x .870	.819	.546	.300
16D33	.0033	1600	.480 x .870	.819	.546	.300
16D4	.0040	1600	.520 x .870	.819	.546	.300
16D47	.0047	1600	.540 x .870	.819	.546	.300
16D5	.0050	1600	.565 x .870	.928	.614	.355
16D6	.0060	1600	.460 x 1.180	.928	.614	.355
16D68	.0068	1600	.485 x 1.180	.928	.614	.355
16D7	.0070	1600	.485 x 1.180	1.010	.669	.369
16D8	.0080	1600	.510 x 1.180	1.010	.669	.369
16S1	.010	1600	.525 x 1.180	1.010	.669	.369
16S15	.015	1600	.560 x 1.300	1.229	.860	.478
16S2	.020	1600	.570 x 1.600	1.447	1.024	.573
16S22	.022	1600	.585 x 1.600	1.447	1.024	.573
16S3	.030	1600	.665 x 1.600	1.502	1.065	.601
16S33	.033	1600	.695 x 1.600	1.529	1.174	.628
16S4	.040	1600	.735 x 1.600	1.529	1.174	.628
16S47	.047	1600	.785 x 1.600	1.529	1.174	.628
16S5	.050	1600	.815 x 1.600	1.529	1.174	.628
20D1	.001	2000	.360 x .875	.819	.546	.300
20D15	.0015	2000	.400 x .875	.819	.546	.300
20D39	.0039	2000	.465 x 1.187	.901	.628	.360
20D47	.0047	2000	.495 x 1.187	.901	.628	.360
20D56	.0056	2000	.560 x 1.187	1.037	.710	.415
20D82	.0082	2000	.520 x 1.250	1.092	.764	.437
20S12	.012	2000	.600 x 1.250	1.229	.860	.491
20S22	.022	2000	.585 x 1.750	1.433	1.024	.628
20S47	.047	2000	.785 x 1.750	1.720	1.392	.846
20S5	.050	2000	.800 x 1.750	1.911	1.529	.983

PRICES LISTED ARE FOR GUIDANCE ONLY

CDE CORNELL-DUBILIER Electrolytic Capacitors

TYPE NLW SUBMINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

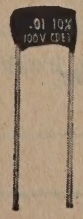
Smallest subminiature electrolytic capacitors. Welded construction, hermetically sealed in an aluminum case and provided with plastic insulating sleeve. **Operating Range:** −40° to +105°C. **Tolerance:** −10%, +75%.

CDE No.†	Cap. μF	Size*, In. D. x L.	Net Each, Lots of* 1-24	25-99	100-249	250-499	500-999
NLW 25-3	25	¼ x ½	$.800	$0.546	$0.340	$0.278	$0.254
NLW 100-3	100	5/16 x 5/8	.903	.616	.383	.314	.287
NLW 125-3	125	5/16 x 5/8	.903	.616	.383	.314	.287
NLW 150-3	150	5/16 x 5/8	1.135	.774	.482	.395	.362
NLW 200-3	200	5/16 x ¾	1.135	.774	.482	.395	.362
NLW 250-3	250	3/8 x ¼	1.188	.811	.504	.414	.378
NLW 300-3	300	3/8 x ¾	1.188	.811	.504	.414	.378
NLW 350-3	350	3/8 x 7/8	1.238	.844	.525	.431	.394
NLW 400-3	400	3/8 x 7/8	1.238	.844	.525	.431	.394
NLW 450-3	450	3/8 x 7/8	1.291	.880	.548	.449	.410
NLW 500-3	500	3/8 x 1	1.291	.880	.548	.449	.410
NLW 1000-3	1000	3/8 x 1½	1.474	1.005	.625	.515	.470
NLW 10-6	10	¼ x ½	.800	.546	.340	.278	.254
NLW 30-6	30	¼ x ½	.800	.546	.340	.278	.254
NLW 40-6	40	¼ x ½	.800	.546	.340	.278	.254
NLW 50-6	50	¼ x 5/8	.903	.616	.383	.314	.287
NLW 100-6	100	5/16 x 5/8	1.135	.774	.482	.395	.362
NLW 150-6	150	5/16 x ¾	1.188	.811	.504	.414	.378
NLW 175-6	175	5/16 x ¾	1.188	.811	.504	.414	.378
NLW 200-6	200	3/8 x ¾	1.188	.811	.504	.414	.378
NLW 250-6	250	3/8 x 7/8	1.238	.844	.525	.431	.394
NLW 300-6	300	3/8 x 7/8	1.238	.844	.525	.431	.394
NLW 350-6	350	3/8 x 7/8	1.291	.880	.548	.449	.410
NLW 500-6	500	3/8 x 1¼	1.340	.913	.568	.466	.427
NLW 800-6	800	3/8 x 1½	1.474	1.005	.625	.515	.470
NLW 8-10	8	¼ x ½	.800	.546	.340	.278	.254
NLW 50-10	50	5/16 x 5/8	.903	.616	.383	.314	.287
NLW 125-10	125	5/16 x ¾	1.188	.811	.504	.414	.378
NLW 225-10	225	3/8 x 7/8	1.291	.880	.548	.449	.410
NLW 450-10	450	3/8 x 1¼	1.372	.935	.582	.479	.437
NLW 15-12	15	¼ x ½	.800	.546	.340	.278	.254
NLW 25-12	25	¼ x ½	.800	.546	.340	.278	.254
NLW 30-12	30	¼ x ½	.800	.546	.340	.278	.254
NLW 35-12	35	¼ x 5/8	.800	.546	.340	.278	.254
NLW 40-12	40	¼ x 5/8	.903	.616	.383	.314	.287
NLW 75-12	75	5/16 x 5/8	1.135	.774	.482	.395	.362
NLW 100-12	100	5/16 x ¾	1.188	.811	.504	.414	.378
NLW 125-12	125	3/8 x 5/8	1.188	.811	.504	.414	.378
NLW 200-12	200	3/8 x 7/8	1.291	.880	.548	.449	.410
NLW 250-12	250	3/8 x 7/8	1.291	.880	.548	.449	.410
NLW 300-12	300	3/8 x 1	1.291	.880	.548	.449	.410
NLW 400-12	400	3/8 x 1¼	1.372	.935	.582	.479	.437
NLW 500-12	500	3/8 x 1½	1.474	1.005	.625	.515	.470
NLW 4-16	4	¼ x ½	.800	.546	.340	.278	.254
NLW 5-16	5	¼ x ½	.800	.546	.340	.278	.254
NLW 10-16	10	¼ x ½	.800	.546	.340	.278	.254
NLW 15-16	15	¼ x ½	.800	.546	.340	.278	.254
NLW 20-16	20	¼ x ½	.800	.546	.340	.278	.254
NLW 25-16	25	¼ x 5/8	.800	.546	.340	.278	.254
NLW 30-16	30	¼ x 5/8	.903	.616	.383	.314	.287
NLW 40-16	40	5/16 x 5/8	.903	.616	.383	.314	.287
NLW 50-16	50	5/16 x 5/8	.903	.616	.383	.314	.287
NLW 75-16	75	5/16 x ¾	1.135	.774	.482	.395	.362
NLW 100-16	100	5/16 x ¾	1.188	.811	.504	.414	.378
NLW 125-16	125	3/8 x ¾	1.188	$0.811	$0.504	$0.414	$0.378
NLW 150-16	150	3/8 x ¾	1.238	.844	.525	.431	.394
NLW 175-16	175	3/8 x 7/8	1.238	.844	.525	.431	.394
NLW 200-16	200	3/8 x 7/8	1.291	.880	.548	.449	.410
NLW 250-16	250	3/8 x 1	1.291	.880	.548	.449	.410
NLW 300-16	300	3/8 x 1¼	1.340	.913	.568	.446	.427
NLW 350-16	350	3/8 x 1¼	1.340	.913	.568	.446	.427
NLW 400-16	400	3/8 x 1½	1.474	1.005	.625	.515	.470
NLW 450-16	450	3/8 x 1½	1.474	1.005	.625	.515	.470
NLW 600-16	600	3/8 x 1½	1.474	1.005	.625	.515	.470
NLW 1-25	1	¼ x ½	.800	.546	.340	.278	.254
NLW 2-25	2	¼ x ½	.800	.546	.340	.278	.254
NLW 3-25	3	¼ x ½	.800	.546	.340	.278	.254
NLW 5-25	5	¼ x ½	.800	.546	.340	.278	.254
NLW 6-25	6	¼ x ½	.800	.546	.340	.278	.254
NLW 8-25	8	¼ x ½	.800	.546	.340	.278	.254
NLW 10-25	10	¼ x ½	.800	.546	.340	.278	.254
NLW 15-25	15	¼ x ½	.800	.546	.340	.278	.254
NLW 20-25	20	¼ x 5/8	.903	.616	.383	.314	.287
NLW 25-25	25	5/16 x 5/8	.903	.616	.383	.314	.287
NLW 30-25	30	5/16 x 5/8	.903	.616	.383	.314	.287
NLW 35-25	35	5/16 x 5/8	.903	.616	.383	.314	.287
NLW 40-25	40	5/16 x 5/8	1.135	.774	.482	.395	.362
NLW 50-25	50	5/16 x ¾	1.135	.774	.482	.395	.362
NLW 75-25	75	3/8 x ¾	1.188	.811	.504	.414	.378
NLW 100-25	100	3/8 x ¾	1.238	.844	.525	.431	.394
NLW 125-25	125	3/8 x 7/8	1.238	.844	.525	.431	.394
NLW 150-25	150	3/8 x 1	1.291	.880	.548	.449	.410
NLW 175-25	175	3/8 x 1¼	1.372	.935	.582	.479	.437
NLW 200-25	200	3/8 x 1¼	1.372	.935	.582	.479	.437
NLW 250-25	250	3/8 x 1½	1.474	1.005	.625	.515	.470
NLW 300-25	300	3/8 x 1½	1.474	1.005	.625	.515	.470
NLW 1-50	1	¼ x ½	.800	.546	.340	.278	.254
NLW 2-50	2	¼ x ½	.800	.546	.340	.278	.254
NLW 3-50	3	¼ x ½	.800	.546	.340	.278	.254
NLW 4-50	4	¼ x ½	.800	.546	.340	.278	.254
NLW 5-50	5	¼ x ½	.800	.546	.340	.278	.254
NLW 6-50	6	¼ x ½	.800	.546	.340	.278	.254
NLW 8-50	8	¼ x 5/8	.800	.546	.340	.278	.254
NLW 10-50	10	¼ x 5/8	.903	.616	.383	.314	.287
NLW 15-50	15	5/16 x 5/8	.903	.616	.383	.314	.287
NLW 20-50	20	5/16 x 5/8	1.135	.774	.482	.395	.362
NLW 25-50	25	5/16 x ¾	1.135	.774	.482	.395	.362
NLW 30-50	30	3/8 x 5/8	1.188	.811	.504	.414	.378
NLW 35-50	35	3/8 x ¾	1.188	.811	.504	.414	.378
NLW 40-50	40	3/8 x ¾	1.238	.844	.525	.431	.394
NLW 50-50	50	3/8 x 7/8	1.238	.844	.525	.431	.394
NLW 75-50	75	3/8 x 1	1.291	.880	.548	.449	.410
NLW 100-50	100	3/8 x 1¼	1.340	.913	.568	.466	.427
NLW 125-50	125	3/8 x 1½	1.474	1.005	.625	.515	.470
NLW 2-100	2	¼ x ½	.903	.616	.383	.314	.287
NLW 4-100	4	5/16 x 5/8	1.010	.690	.428	.352	.321
NLW 5-100	5	5/16 x 5/8	1.135	.774	.482	.395	.362
NLW 6-100	6	5/16 x 5/8	1.135	.774	.482	.395	.362
NLW 8-100	8	3/8 x 5/8	1.188	.811	.504	.414	.378
NLW 10-100	10	3/8 x ¾	1.188	.811	.504	.414	.378
NLW 15-100	15	3/8 x 7/8	1.238	.844	.525	.431	.394
NLW 20-100	20	3/8 x 1	1.291	.880	.548	.449	.410
NLW 25-100	25	3/8 x 1	1.340	.913	.568	.466	.427
NLW 30-100	30	3/8 x 1¼	1.372	.935	.582	.479	.437
NLW 40-100	40	3/8 x 1½	1.474	1.005	.625	.515	.470
NLW 1-150	1	¼ x ½	.903	.616	.383	.314	.287
NLW 2-150	2	¼ x 5/8	.903	.616	.383	.314	.287
NLW 3-150	3	5/16 x 5/8	1.010	.690	.428	.352	.321
NLW 4-150	4	5/16 x ¾	1.135	.774	.482	.395	.362
NLW 5-150	5	5/16 x ¾	1.135	.774	.482	.395	.362
NLW 6-150	6	3/8 x ¾	1.188	.811	.504	.414	.378
NLW 8-150	8	3/8 x ¾	1.188	.811	.504	.414	.378
NLW 10-150	10	3/8 x 7/8	1.238	.844	.525	.431	.394
NLW 12-150	12	3/8 x 1	1.291	.880	.548	.449	.410
NLW 15-150	15	3/8 x 1¼	1.291	.880	.548	.449	.410
NLW 18-150	18	3/8 x 1¼	1.340	.913	.568	.466	.427
NLW 20-150	20	3/8 x 1½	1.372	.935	.582	.479	.437
NLW 25-150	25	3/8 x 1½	1.474	1.005	.625	.515	.470

*Add ½" x 1/16" for overall size. †Final digit(s) denote voltage rating.

★LARGER QUANTITIES AVAILABLE ON REQUEST

TYPE DMT DIPPED POLYESTER CAPACITORS



Film dielectric capacitors feature small size, excellent moisture resistance, high insulation resistance and low dissipation factor. **Voltage Rating:** 100 volts DC at 125° C. **Tolerance:** ±10%. **Temperature Range:** −55° C to +125° C.

CDE No.	Cap., μF	Size, Inches H x L x Th.	Net Ea., Lots of 1-24	25-99	100-499
DMT1D1	.001	.330 x .437 x .190	$0.260	$0.165	$0.116
DMT1D15	.0015	.330 x .437 x .200	.270	.171	.119
DMT1D22	.0022	.330 x .437 x .210	.278	.176	.123
DMT1D33	.0033	.330 x .437 x .210	.283	.179	.125
DMT1D47	.0047	.330 x .437 x .210	.293	.185	.130
DMT1D68	.0068	.330 x .437 x .210	.297	.188	.132
DMT1S1	.01	.310 x .437 x .220	.283	.179	.125
DMT1S15	.015	.370 x .437 x .220	.303	.191	.134
DMT1S22	.022	.390 x .437 x .255	.307	.195	.136
DMT1S33	.033	.350 x .560 x .250	.311	.198	.138
DMT1S47	.047	.420 x .560 x .260	.316	.200	.140
DMT1S68	.068	.460 x .560 x .275	.330	.209	.146
DMT1P1	.1	.445 x .682 x .290	.340	.216	.151
DMT1P15	.15	.490 x .682 x .350	.406	.257	.179
DMT1P22	.22	.520 x .820 x .360	.472	.299	.209
DMT1P33	.33	.560 x .942 x .390	.534	.338	.237
DMT1P47	.47	.600 x 1.08 x .420	.623	.395	.276

TYPE WBR WIDE-RANGE TUBULAR ELECTROLYTICS

Aluminum electrolytic capacitors feature welded termination; hermetically sealed, with highly etched cathode and anode foil. With flexible plastic sleeve. **Operating Temperature:** −40° C to +85° C, up to 450 V; to +65° C, up to 700 V.

CDE No. WBR-	Cap., μF	WV DC	Size, In.* Dia. x L.	Net Each, Lots of ★ 1-24	25-99	100-249	250-499
1000-6	1000	6	5/8 x 1 7/16	$3.066	$2.349	$1.281	$1.068
2000-6	2000	6	3/4 x 1 7/16	3.314	2.538	1.385	1.154
3000-10	3000	10	3/4 x 1 11/16	4.254	3.259	1.778	1.481
4000-10	4000	10	7/8 x 1 11/16	4.444	3.405	1.857	1.548
5000-10	5000	10	7/8 x 2	4.872	3.732	2.036	1.696
10000-10	10,000	10	1 x 2 11/16	5.593	4.285	2.337	1.948
100-16	100	16	5/16 x 3/4	1.537	1.177	.642	.535
250-16	250	16	3/8 x 1	1.601	1.227	.669	.558
500-16	500	16	1/2 x 1 7/16	1.684	1.290	.704	.586
1000-16	1000	16	5/8 x 1 11/16	2.197	1.679	.920	.771
2000-16	2000	16	3/4 x 2	2.703	2.071	1.130	.941
3000-16	3000	16	3/4 x 2 1/2	3.443	2.637	1.439	1.199
4000-16	4000	16	7/8 x 2 1/2	4.660	3.570	1.947	1.623
5000-16	5000	16	1 x 2 3/16	5.450	4.175	2.277	1.898
10000-16	10,000	16	1 1/8 x 3 9/16	8.006	6.133	3.345	2.788
10-25	10	25	1/4 x 1/2	.962	.737	.402	.335
25-25	25	25	5/16 x 5/8	1.077	.825	.450	.375
50-25	50	25	5/16 x 3/4	1.357	1.040	.567	.473
100-25	100	25	3/8 x 3/4	1.483	1.136	.620	.516
250-25	250	25	1/2 x 1 7/16	1.749	1.341	.730	.611
500-25	500	25	5/8 x 1 7/16	2.277	1.740	.949	.791
1000-25	1000	25	3/4 x 1 11/16	3.763	2.933	1.569	1.306
2000-25	2000	25	3/4 x 2 1/2	4.632	3.539	1.931	1.609
100-35	100	35	3/8 x 1	1.483	1.136	.620	.516
150-35	150	35	1/2 x 1 1/16	1.590	1.218	.665	.554
300-35	300	35	5/8 x 1 1/16	1.827	1.400	.762	.638
500-35	500	35	5/8 x 1 7/16	2.277	1.809	.949	.791
1000-35	1000	35	3/4 x 1 11/16	3.763	2.933	1.569	1.306
2000-35	2000	35	7/8 x 2 1/2	4.632	3.539	1.931	1.609
3000-35	3000	35	1 x 2 1/2	5.338	4.089	2.231	1.859
5500-35	5500	35	1 1/8 x 3 9/16	8.853	6.782	3.700	3.083
1-50	1	50	1/4 x 1/2	.959	.734	.401	.339
2-50	2	50	1/4 x 1/2	.959	.734	.401	.339
5-50	5	50	1/4 x 1/2	.959	.734	.401	.339
10-50	10	50	3/8 x 5/8	1.077	.825	.450	.375
25-50	25	50	3/8 x 5/8	1.357	1.040	.567	.473
35-50	35	50	3/8 x 3/4	1.415	1.084	.591	.493
50-50	50	50	3/8 x 7/8	1.483	1.136	.620	.516
100-50	100	50	1/2 x 1 7/16	1.623	1.243	.678	.565
125-50	125	50	1/2 x 1 7/16	1.781	1.364	.744	.620
150-50	150	50	5/8 x 1 1/16	1.827	1.400	.764	.636
250-50	250	50	5/8 x 1 7/16	1.967	1.507	.822	.685
500-50	500	50	3/4 x 1 11/16	2.416	1.851	1.010	.841
1000-50	1000	50	7/8 x 2	3.971	3.042	1.659	1.383
1500-50	1500	50	1 x 2 3/16	5.256	4.026	2.196	1.830
2000-50	2000	50	1 x 2 11/16	6.186	4.738	2.585	2.154
3000-50	3000	50	1 x 4 1/16	8.727	6.685	3.647	3.039
5000-50	5000	50	1 3/8 x 3 5/8	11.818	9.053	4.938	4.115
150-75	150	75	5/8 x 1 7/16	2.143	1.642	.896	.746
275-75	275	75	3/4 x 1 11/16	2.664	2.041	1.113	.928
500-75	500	75	7/8 x 2	3.784	2.899	1.581	1.318
1000-75	1000	75	1 x 2 1/2	5.676	4.348	2.372	1.976
2000-75	2000	75	1 3/8 x 2 9/16	9.406	7.205	3.930	3.275
400-100	400	100	7/8 x 2 1/2	5.209	3.990	2.177	1.814
600-100	600	100	1 x 2 11/16	6.354	4.868	2.655	2.213
1000-100	1000	100	1 x 4 1/16	9.065	6.944	3.788	3.156
1500-100	1500	100	1 3/8 x 3 5/8	11.563	8.858	4.832	4.026
2000-100	2000	100	1 3/8 x 4 1/8	14.023	10.742	5.859	4.883
4-150	4	150	5/16 x 3/4	1.357	1.040	.567	.473
5-150	5	150	3/8 x 5/8	1.357	1.040	.567	.473
8-150	8	150	3/8 x 3/4	1.414	1.084	.591	.493
10-150	10	150	3/8 x 7/8	1.483	1.136	.620	.516
16-150	16	150	3/8 x 1	1.594	1.221	.666	.555
20-150	20	150	3/8 x 1 1/4	1.633	1.251	.683	.569
30-150	30	150	3/8 x 1 1/2	1.781	1.364	.744	.620
40-150	40	150	5/8 x 1 7/16	1.921	1.471	.803	.669
50-150	50	150	5/8 x 1 7/16	$1.944	$1.489	$0.811	$0.679
60-150	60	150	5/8 x 1 7/16	2.060	1.579	.859	.719
80-150	80	150	3/4 x 1 7/16	2.177	1.668	.909	.760
100-150	100	150	3/4 x 1 11/16	2.391	1.832	.999	.833
150-150	150	150	7/8 x 1 11/16	2.825	2.164	1.181	.984
160-150	160	150	7/8 x 1 11/16	3.052	2.338	1.275	1.063
200-150	200	150	7/8 x 2	3.177	2.434	1.328	1.106
250-150	250	150	1 x 1 11/16	3.744	2.868	1.565	1.304
300-150	300	150	1 x 2 3/16	4.392	3.366	1.832	1.533
350-150	350	150	1 x 2 3/16	5.252	4.023	2.195	1.829
500-150	500	150	1 1/8 x 2 1/2	6.397	4.901	2.673	2.228
125-180	125	180	3/4 x 2 1/2	3.805	2.915	1.590	1.325
225-180	225	180	7/8 x 2 1/2	4.660	3.570	1.947	1.623
260-180	260	180	1 x 2 3/16	5.507	4.219	2.301	1.918
400-180	400	180	1 1/8 x 2 1/2	6.480	4.964	2.708	2.256
4-250	4	250	1/2 x 1 1/16	1.547	1.185	.647	.539
8-250	8	250	1/2 x 1 7/16	1.651	1.265	.690	.575
12-250	12	250	1/2 x 1 7/16	1.702	1.304	.711	.593
16-250	16	250	5/8 x 1 1/16	1.820	1.394	.761	.634
20-250	20	250	3/4 x 1 1/16	1.944	1.489	.811	.679
30-250	30	250	3/4 x 1 7/16	2.373	1.818	.992	.826
40-250	40	250	5/8 x 1 11/16	2.402	1.840	1.004	.836
50-250	50	250	3/4 x 1 11/16	2.570	1.969	1.074	.895
60-250	60	250	3/4 x 2	2.997	2.142	1.169	.974
80-250	80	250	7/8 x 1 11/16	2.915	2.233	1.218	1.015
100-250	100	250	7/8 x 2	3.156	2.417	1.319	1.099
160-250	160	250	1 x 2 3/16	4.448	3.407	1.859	1.549
225-250	225	250	1 x 2 11/16	5.550	4.252	2.319	1.933
300-250	300	250	1 x 3 9/16	6.738	5.162	2.816	2.346
450-250	450	250	1 3/8 x 3 1/16	9.363	7.172	3.912	3.260
4-350	4	350	1/2 x 1 1/16	2.703	2.071	1.130	.941
8-350	8	350	5/8 x 1 1/16	2.919	2.236	1.220	1.016
20-350	20	350	3/4 x 1 7/16	3.195	2.448	1.335	1.113
40-350	40	350	3/4 x 1 11/16	3.680	2.819	1.538	1.281
60-350	60	350	3/4 x 2 1/2	4.042	3.097	1.689	1.408
100-350	100	350	1 x 2	5.252	4.023	2.195	1.829
160-350	160	350	1 1/8 x 2 1/2	6.735	5.159	2.814	2.345
200-350	200	350	1 x 4 1/16	7.076	5.420	2.957	2.464
250-350	250	350	1 1/8 x 3 9/16	8.641	6.619	3.611	3.009
1-450	1	450	5/8 x 1 1/16	2.800	2.145	1.170	.975
2-450	2	450	5/8 x 1 1/16	2.815	2.156	1.176	.980
4-450	4	450	5/8 x 1 1/16	2.872	2.200	1.200	1.000
5-450	5	450	5/8 x 1 1/16	2.894	2.217	1.209	1.008
8-450	8	450	3/4 x 1 1/16	3.091	2.368	1.292	1.076
10-450	10	450	3/4 x 1 1/16	3.163	2.423	1.322	1.101
12-450	12	450	3/4 x 1 1/16	3.163	2.423	1.322	1.101
16-450	16	450	3/4 x 1 7/16	3.267	2.503	1.365	1.138
20-450	20	450	3/4 x 1 11/16	3.454	2.646	1.443	1.203
30-450	30	450	7/8 x 1 11/16	4.067	3.116	1.700	1.416
40-450	40	450	7/8 x 2	4.182	3.204	1.748	1.456
50-450	50	450	7/8 x 2 1/2	4.746	3.636	1.983	1.653
60-450	60	450	1 x 2 3/16	4.746	3.636	1.983	1.653
80-450	80	450	1 x 2 11/16	5.209	3.990	2.177	1.814
100-450	100	450	1 x 3 9/16	6.017	4.609	2.514	2.095
120-450	120	450	1 1/8 x 3	6.864	5.258	2.868	2.390
160-450	160	450	1 1/8 x 4 1/16	7.837	6.003	3.275	2.729
225-450	225	450	1 3/8 x 3 5/8	9.912	7.593	4.142	3.451
1-500	1	500	1/2 x 1 1/16	2.886	2.211	1.206	1.005
3-500	3	500	1/2 x 1 7/16	2.944	2.255	1.230	1.025
5-500	5	500	5/8 x 1 1/16	3.052	2.338	1.275	1.063
8-500	8	500	3/4 x 1 1/16	3.156	2.417	1.319	1.099
10-500	10	500	5/8 x 1 11/16	3.206	2.456	1.340	1.116
16-500	16	500	3/4 x 1 11/16	3.393	2.599	1.418	1.181
20-500	20	500	3/4 x 2	3.525	2.701	1.473	1.228
30-500	30	500	7/8 x 1 11/16	4.279	3.278	1.788	1.490
40-500	40	500	7/8 x 2 1/2	4.362	3.341	1.823	1.519
60-500	60	500	1 x 2 1/2	5.040	3.861	2.106	1.755
4-600	4	600	1 1/16 x 2 7/16†	6.017	4.609	2.514	2.095
8-600	8	600	1 3/16 x 2 7/16†	6.48	4.964	2.708	2.256
10-600	10	600	1 3/16 x 3 3/16†	7.202	5.517	3.009	2.508
16-600	16	600	1 5/16 x 3 3/16†	7.245	5.550	3.027	2.523
20-600	20	600	1 5/16 x 3 11/16†	7.288	5.583	3.045	2.538
10-700	10	700	1 5/16 x 3 3/16†	7.413	5.679	3.098	2.581
16-700	16	700	1 5/16 x 4 5/16†	7.500	5.745	3.134	2.611

*Uninsulated case size; add 1/16" to dia. and 3/16" to lgth. for size including insulating sleeve. †Overall size, including sleeve.

★LARGER QUANTITY PRICES ON REQUEST.

WRITE US FOR INFORMATION AND PRICING ON ALL NEW OR UNLISTED ITEMS. NO SPECIAL ORDER NUMBERS NECESSARY, JUST USE THE MANUFACTURER'S MODEL NUMBERS.

TYPE WMF POLYESTER DIELECTRIC FILM-ENCASED CAPACITORS

Ultra-compact polyester dielectric in film wrap; thermosetting epoxy end seals. High resistance to humidity. Excellent stability.

Temp: −55° C to +85° C at full voltage: derate 10% at 100° C; 50% at 125° C. **Tol.:** ±10%. Other tolerances also available; prices on request.

CDE No. WMF	Cap., µF	WV DC	Size, In. Dia. x Lg.	Net Each, Lots of 1-24	25-99	100-499	500-999	1000-Up
05P1	.1	50	.250 x .812	$0.745	$0.447	$0.283	$0.239	$0.186
05P12	.12	50	.275 x .812	.759	.455	.289	.243	.191
05P15	.15	50	.285 x .812	.773	.463	.294	.247	.193
05P18	.18	50	.315 x .812	.787	.472	.299	.251	.198
05P22	.22	50	.330 x .812	.814	.489	.309	.261	.205
05P27	.27	50	.390 x .812	.925	.554	.352	.296	.232
05P33	.33	50	.400 x .812	1.063	.637	.405	.339	.267
05P39	.39	50	.375 x 1.062	1.221	.733	.463	.391	.305
05P47	.47	50	.375 x 1.062	1.415	.849	.538	.453	.353
05P5	.50	50	.395 x 1.062	1.463	.877	.557	.468	.366
05P56	.56	50	.450 x 1.062	1.642	.986	.623	.526	.412
05P68	.68	50	.490 x 1.062	1.708	1.025	.649	.546	.428
05P82	.82	50	.505 x 1.062	1.794	1.076	.682	.574	.449
05W1	1.0	50	.500 x 1.375	2.041	1.225	.776	.653	.511
05W2	2.0	50	.600 x 1.625	3.37	2.022	1.280	1.079	.842
05W3	3.0	50	.730 x 1.625	4.468	2.681	1.697	1.429	1.117
05W4	4.0	50	.760 x 1.875	5.560	3.336	2.113	1.779	1.390
05W5	5.0	50	.850 x 1.875	6.929	4.157	2.634	2.217	1.732
1D1	.001	100	.156 x .50	.600	.360	.228	.192	.151
1D12	.0012	100	.156 x .50	.600	.360	.228	.192	.151
1D15	.0015	100	.156 x .50	.600	.360	.228	.192	.151
1D18	.0018	100	.156 x .50	.600	.360	.228	.192	.151
1D22	.0022	100	.156 x .50	.600	.360	.228	.192	.151
1D27	.0027	100	.156 x .50	.600	.360	.228	.192	.151
1D33	.0033	100	.156 x .50	.600	.360	.228	.192	.151
1D39	.0039	100	.156 x .50	.600	.360	.228	.192	.151
1D47	.0047	100	.156 x .50	.600	.360	.228	.192	.151
1D50	.0050	100	.156 x .50	.600	.360	.228	.192	.151
1D56	.0056	100	.156 x .50	.600	.360	.228	.192	.151
1D68	.0068	100	.175 x .50	.600	.360	.228	.192	.151
1D82	.0082	100	.175 x .50	.600	.360	.228	.192	.151
1S1	.01	100	.200 x .50	.600	.360	.228	.192	.151
1S12	.012	100	.215 x .50	.600	.360	.228	.192	.151
1S15	.015	100	.235 x .50	.600	.360	.228	.192	.151
1S18	.018	100	.255 x .50	.600	.360	.228	.192	.151
1S22	.022	100	.275 x .625	.600	.360	.228	.192	.151
1S27	.027	100	.300 x .625	.600	.360	.228	.192	.151
1S33	.033	100	.300 x .625	.600	.360	.228	.192	.151
1S39	.039	100	.245 x .75	.600	.360	.228	.192	.151
1S47	.047	100	.265 x .75	.614	.368	.233	.196	.153
1S50	.050	100	.270 x .75	.621	.373	.236	.199	.156
1S56	.056	100	.270 x .75	.635	.381	.242	.202	.159
1S68	.068	100	.280 x .75	.649	.389	.247	.207	.163
1S82	.082	100	.270 x .875	.662	.398	.251	.213	.166
1P1	.1	100	.290 x .875	.676	.406	.256	.216	.170
1P12	.12	100	.315 x .875	.690	.414	.262	.221	.173
1P15	.15	100	.335 x .875	.704	.422	.268	.225	.177
1P18	.18	100	.350 x 1.0	.718	.430	.274	.229	.179
1P22	.22	100	.385 x 1.0	.738	.443	.281	.236	.185
1P27	.27	100	.380 x 1.125	.842	.505	.320	.269	.212
1P33	.33	100	.415 x 1.125	.966	.580	.367	.309	.242
1P39	.39	100	.460 x 1.125	1.111	.667	.422	.357	.277
1P47	.47	100	.475 x 1.125	1.283	.771	.488	.412	.322
1P5	.50	100	.495 x 1.25	1.352	.812	.513	.434	.338
1P56	.56	100	.520 x 1.25	1.490	.895	.566	.477	.373
1P68	.68	100	.570 x 1.25	1.691	1.014	.643	.541	.422
1P82	.82	100	.585 x 1.375	1.794	1.076	.682	.574	.449
1W1	1.0	100	.625 x 1.50	1.857	1.114	.706	.595	.465
1W1P25	1.25	100	.690 x 1.50	2.151	1.290	.818	.688	.538
1W1P5	1.5	100	.715 x 1.625	2.927	1.756	1.112	.936	.731
1W2	2.0	100	.800 x 1.625	3.255	1.953	1.236	1.042	.814
1W3	3.0	100	1.100 x 2.312	4.060	2.436	1.542	1.300	1.015
1W4	4.0	100	1.250 x 2.50	5.054	3.033	1.921	1.617	1.264
2D1	.001	200	.156 x .50	.600	.360	.228	.192	.151
2D15	.0015	200	.156 x .50	.600	.360	.228	.192	.151
2D22	.0022	200	.156 x .50	$0.600	$0.360	$0.228	$0.192	$0.151
2D33	.0033	200	.160 x .50	.600	.360	.228	.192	.151
2D47	.0047	200	.170 x .50	.600	.360	.228	.192	.151
2D68	.0068	200	.200 x .50	.600	.360	.228	.192	.151
2S1	.01	200	.230 x .50	.600	.360	.228	.192	.151
2S15	.015	200	.290 x .50	.600	.360	.228	.192	.151
2S22	.022	200	.275 x .625	.600	.360	.228	.192	.151
2S33	.033	200	.270 x .75	.635	.381	.242	.202	.159
2S47	.047	200	.320 x .75	.662	.398	.251	.213	.166
2S68	.068	200	.350 x .75	.690	.414	.262	.221	.173
2P1	.1	200	.410 x .875	.794	.476	.302	.254	.199
2P15	.15	200	.500 x .875	.897	.538	.340	.288	.225
2P22	.22	200	.500 x 1.125	1.118	.670	.426	.358	.281
2P33	.33	200	.550 x 1.125	1.394	.836	.530	.446	.350
2P47	.47	200	.600 x 1.25	1.691	1.014	.643	.541	.422
2P68	.68	200	.650 x 1.625	2.415	1.449	.918	.773	.604
2W1	1.0	200	.750 x 1.75	3.059	1.835	1.163	.979	.765
2W1P25	1.25	200	.825 x 1.75	3.255	1.953	1.236	1.042	.814
2W1P5	1.5	200	.900 x 1.75	3.611	2.167	1.372	1.156	.903
2W2	2.0	200	.980 x 1.875	4.146	2.487	1.576	1.327	1.036
4D1	.001	400	.156 x .625	.669	.401	.254	.214	.167
4D15	.0015	400	.156 x .625	.669	.401	.254	.214	.167
4D22	.0022	400	.156 x .625	.669	.401	.254	.214	.167
4D33	.0033	400	.190 x .625	.669	.401	.254	.214	.167
4D47	.0047	400	.200 x .625	.669	.401	.254	.214	.167
4D68	.0068	400	.250 x .625	.669	.401	.254	.214	.167
4S1	.01	400	.300 x .625	.669	.401	.254	.214	.167
4S15	.015	400	.360 x .625	.669	.401	.254	.214	.167
4S22	.022	400	.320 x .75	.676	.406	.256	.216	.170
4S33	.033	400	.350 x .875	.704	.422	.268	.225	.177
4S47	.047	400	.400 x .875	.780	.468	.297	.250	.194
4S68	.068	400	.390 x 1.0	.863	.518	.329	.276	.215
4P1	.1	400	.465 x 1.0	1.152	.691	.437	.368	.289
4P15	.15	400	.515 x 1.25	1.449	.869	.551	.463	.363
4P22	.22	400	.565 x 1.375	1.616	.969	.614	.518	.404
4P33	.33	400	.600 x 1.625	1.978	1.187	.752	.633	.495
4P47	.47	400	.700 x 1.625	2.300	1.380	.874	.736	.575
4P68	.68	400	.790 x 1.75	2.921	1.753	1.110	.935	.730
4W1	1.0	400	.875 x 2.0	3.703	2.222	1.408	1.185	.926
4W1P25	1.25	400	.950 x 2.0	3.933	2.360	1.495	1.258	.983
4W1P5	1.5	400	.975 x 2.25	4.175	2.505	1.586	1.336	1.044
4W2	2.0	400	1.250 x 2.25	6.624	3.974	2.517	2.119	1.656
6D1	.001	600	.170 x .75	.766	.460	.291	.246	.192
6D15	.0015	600	.170 x .75	.766	.460	.291	.246	.192
6D22	.0022	600	.187 x .75	.766	.460	.291	.246	.192
6D33	.0033	600	.203 x .75	.766	.460	.291	.246	.192
6D47	.0047	600	.234 x .75	.766	.460	.291	.246	.192
6D68	.0068	600	.265 x .75	.766	.460	.291	.246	.192
6S1	.01	600	.290 x .75	.814	.489	.309	.261	.205
6S15	.015	600	.312 x .875	.973	.584	.370	.312	.243
6S22	.022	600	.335 x .875	1.235	.741	.469	.394	.309
6S33	.033	600	.350 x 1.0	1.497	.898	.568	.478	.374
6S47	.047	600	.415 x 1.0	1.616	.969	.614	.518	.404
6S68	.068	600	.500 x 1.0	1.696	1.018	.645	.543	.424
6P1	.1	600	.520 x 1.375	1.915	1.149	.728	.613	.478
6P15	.15	600	.625 x 1.375	2.151	1.290	.818	.688	.538
6P22	.22	600	.660 x 1.625	2.415	1.449	.918	.773	.604
6P33	.33	600	.687 x 2.0	2.714	1.628	1.032	.868	.679
6P47	.47	600	.855 x 2.0	3.678	2.207	1.398	1.178	.919
6P68	.68	600	.970 x 2.0	4.595	2.758	1.746	1.471	1.150
6W1	1.0	600	1.165 x 2.50	6.893	3.307	2.095	1.764	1.379
6W1P25	1.5	600	1.275 x 3.0	5.948	3.568	2.261	1.903	1.488
6W2	2.0	600	1.460 x 3.0	9.011	5.407	3.424	2.884	2.254

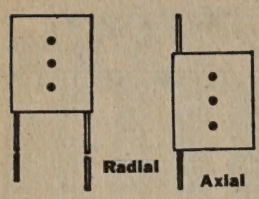
*Larger Quantity Prices on Request

OUR STOCKS ARE FULLY UP TO DATE WITH ALL THE LATEST PRODUCTS.

ASK ABOUT NEW OR UNLISTED ITEMS.

CORNING® Tantalum Capacitors

MINITAN® MODULAR MM SERIES MICROMINIATURE SOLID TANTALUM CAPACITORS



Precision subminiature polar capacitors suitable for general filtering, coupling, bypassing and non-critical RC timing applications. Very favorable capacitance-to-volume ratio makes units ideal for use in high-density applications such as found in avionics systems, subminiature communications equipment and thick-film circuitry. **Temperature Range:** −55° C to +85° C without derating; to +125° C if WVDC derated to ⅔. **ORDERING INFORMATION:** Price table below is keyed to case size. **Lead Configuration:** Add suffix **A** for axial leads; add suffix **R** for radial leads. **Tolerance:** Add suffix **-40** for +40% −20%; add suffix **-20** for ±20%; suffix **-10** for ±10%; suffix **-05** for ±5%. Only standard tolerance capacitors are stock items, others are special order only; 10% decade values are available in ±5% and ±10% tolerances. **Example:** Part No. **MMF-035-104-A-10** indicates a 35 V, 0.1 μF axial capacitor, case F, ±10% tolerance; complete Part No. must include Basic Part No. and both Lead and Tolerance suffixes. Capacitance and dissipation factor (DF) measured at 25° C, 120 Hz; DC leakage measured at 25° C. Leads are pure nickel with solder coating. Values below .01 μF not available in 5% or 10% tolerances.

W CASE

Standard tolerance, +40% −20%; max. DC leakage, 0.5 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MMW-020-472*	.0047	20	10
MMW-020-682*	.0068	20	10
MMW-020-103	.010	20	10
MMW-020-153	.015	20	10
MMW-020-223	.022	20	10
MMW-020-333	.033	20	10
MMW-020-473	.047	20	10
MMW-020-683	.068	20	10
MMW-015-104	.10	15	10
MMW-010-154	.15	10	10
MMW-006-224	.22	6	10
MMW-004-334	.33	4	10
MMW-002-474	.47	2	10

*Not available in ±10% or ±5% tolerances.

U CASE

Standard tolerance, +40% −20%; max. DC leakage, 0.5 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MMU-020-102	.0010	20	6
MMU-020-152	.0015	20	6
MMU-020-222	.0022	20	6
MMU-020-332	.0033	20	6
MMU-020-472	.0047	20	6
MMU-020-682	.0068	20	6
MMU-020-103	.010	20	6
MMU-020-153	.015	20	6
MMU-020-223	.022	20	6
MMU-020-333	.033	20	6
MMU-020-473	.047	20	6
MMU-020-683	.068	20	6
MMU-020-104	.10	20	6
MMU-020-154	.15	20	6
MMU-020-224	.22	20	6
MMU-015-334	.33	15	6
MMU-010-474	.47	10	6
MMU-006-684	.68	6	6
MMU-004-105	1.0	4	8
MMU-003-155	1.5	3	10
MMU-002-225	2.2	2	10

F CASE

Standard tolerance, ±20%; max. DC leakage, 0.5 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MMF-035-472	.0047	35	6
MMF-035-682	.0068	35	6
MMF-035-103	.010	35	6
MMF-035-153	.015	35	6
MMF-035-223	.022	35	6
MMF-035-333	.033	35	6
MMF-035-473	.047	35	6
MMF-035-683	.068	35	6
MMF-035-104	.10	35	6
MMF-035-154	.15	35	6
MMF-035-224	.22	35	6
MMF-035-334	.33	35	6
MMF-035-474	.47	35	6
MMF-025-684	.68	25	6
MMF-020-105	1.0	20	6
MMF-015-155	1.5	15	6
MMF-010-225	2.2	10	6
MMF-006-335	3.3	6	6
MMF-004-475	4.7	4	8
MMF-003-685	6.8	3	10
MMF-002-106	10	2	10

M CASE

Standard tolerance, ±20%; max. DC leakage, 1.0 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MMM-035-684	.68	35	6
MMM-035-105	1.0	35	6
MMM-035-155	1.5	35	6
MMM-025-225	2.2	25	6
MMM-020-335	3.3	20	6
MMM-020-475	4.7	20	6
MMM-010-685	6.8	10	6
MMM-006-106	10	6	6
MMM-004-156	15	4	8
MMM-003-226	22	3	10

L CASE

Standard tolerance, ±20%; max. DC leakage, 2.0 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MML-035-225	2.2	35	6
MML-035-335	3.3	35	6
MML-035-475	4.7	35	6

L CASE (CONT'D)

Basic Part No.	Cap., μF	WV DC	Max. DF
MML-025-685	6.8	25	6
MML-020-106	10	20	6
MML-015-156	15	15	6
MML-010-226	22	10	6
MML-006-336	33	6	6
MML-004-476	47	4	8

S CASE

Standard tolerance, ±20%; max. DC leakage, 3.0 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MMS-035-685	6.8	35	6
MMS-025-106	10	25	6
MMS-020-156	15	20	6
MMS-015-226	22	15	6
MMS-010-336	33	10	6
MMS-006-476	47	6	6
MMS-004-686	68	4	8

J CASE

Standard tolerance, ±20%; max. DC leakage, 9.0 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MMJ-035-106	10	35	6
MMJ-035-156	15	35	6
MMJ-035-226	22	35	6
MMJ-025-336	33	25	6
MMJ-020-476	47	20	8
MMJ-015-686	68	15	8
MMJ-010-107	100	10	8
MMJ-006-157	150	6	10
MMJ-003-227	220	3	15

CASE SIZES

Case	Size, Inches W. x D. x H.	Lead Diam., Ins.
W	.050 x .040 x .100	.007
U	.070 x .040 x .125	.010
F	.120 x .070 x .165	.010
M	.185 x .075 x .225	.010
L	.220 x .110 x .290	.016
S	.230 x .130 x .310	.016
J	.375 x .150 x .475	.016

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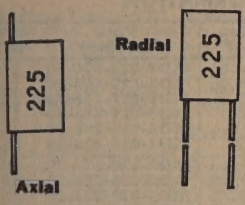
CORNING® Tantalum Capacitors

MINITAN® MN SERIES SUBMINIATURE NONPOLAR SOLID TANTALUM CAPACITORS



Precision subminiature nonpolar capacitors suitable for general filtering, coupling, bypassing and noncritical RC timing applications. Specifically intended for those circuits where occasional or continuous voltage reversals occur. Very favorable capacitance-to-volume ratio makes them ideal for use in high-density applications such as found in avionics systems, subminiature communications equipment and thick-film circuitry. **Temperature Range:** −55° C to +85° C without derating; to +125° C if WVDC derated to ⅔. **ORDERING INFORMATION:** Price table below is keyed to case size. **Lead Configuration:** Add suffix **A** for axial leads; add suffix **R** for radial leads. **Tolerance:** Add suffix **-20** for ±20%; suffix **-10** for ±10%; suffix **-05** for ±5%. Only standard tolerance capacitors are stock items; others are special order only; 10% decade values available in ±5% and ±10% tolerances. **Example:** Part No. **MNF-105-A-10** indicates a 1.0 μF axial capacitor, case F, ±10% tolerance; complete Part No. must include Basic Part No. and both Lead and Tolerance suffixes. Capacitance and dissipation factor (DF) measured at 25° C, 120 Hz; DC leakage measured at 25° C. Values below 0.1 μF not available in 5% or 10% tolerances.

Y CASE

Standard tolerance, ±20%; max. DC leakage, 0.5 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MNY-020-102	.0010	20	6
MNY-020-152	.0015	20	6
MNY-020-222	.0022	20	6
MNY-020-332	.0033	20	6
MNY-020-472	.0047	20	6
MNY-020-682	.0068	20	6
MNY-020-103	.010	20	6
MNY-020-153	.015	20	6
MNY-020-223	.022	20	6
MNY-020-333	.033	20	6
MNY-020-473	.047	20	6
MNY-020-683	.068	20	6
MNY-020-104	.10	20	6
MNY-015-154	.15	15	6
MNY-010-224	.22	10	6
MNY-006-334	.33	6	6
MNY-004-474	.47	4	8
MNY-003-684	.68	3	10
MNY-002-105	1.0	2	10

P CASE

Standard tolerance, ±20%; max. DC leakage, 0.5 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MNP-050-102	.0010	50	6
MNP-050-152	.0015	50	6
MNP-050-222	.0022	50	6
MNP-050-332	.0033	50	6
MNP-050-472	.0047	50	6
MNP-035-682	.0068	35	6
MNP-035-103	.010	35	6
MNP-035-153	.015	35	6
MNP-035-223	.022	35	6
MNP-035-333	.033	35	6
MNP-035-473	.047	35	6
MNP-035-683	.068	35	6
MNP-035-104	.10	35	6
MNP-020-154	.15	20	6
MNP-020-224	.22	20	6
MNP-015-334	.33	15	6
MNP-010-474	.47	10	6
MNP-006-684	.68	6	6
MNP-004-105	1.0	4	8
MNP-003-155	1.5	3	10
MNP-002-225	2.2	2	10

B CASE

Standard tolerance, ±20%; max. DC leakage, 0.5 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MNB-035-154	.15	35	6
MNB-035-224	.22	35	6
MNB-020-334	.33	20	6
MNB-020-474	.47	20	6
MNB-015-684	.68	15	6
MNB-010-105	1.0	10	6
MNB-006-155	1.5	6	6
MNB-004-225	2.2	4	8
MNB-003-335	3.3	3	10
MNB-002-475	4.7	2	10

A CASE

Standard tolerance, ±20%; max. DC leakage, 1.0 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MNA-035-334	.33	35	6
MNA-035-474	.47	35	6
MNA-020-684	.68	20	6
MNA-020-105	1.0	20	6
MNA-015-155	1.5	15	6
MNA-010-225	2.2	10	6
MNA-006-335	3.3	6	6
MNA-004-475	4.7	4	8
MNA-003-685	6.8	3	10
MNA-002-106	10	2	10

G CASE

Standard tolerance, ±20%; max. DC leakage, 1.5 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MNG-035-684	.68	35	6
MNG-035-105	1.0	35	6
MNG-020-155	1.5	20	6
MNG-020-225	2.2	20	6
MNG-020-335	3.3	20	6
MNG-015-475	4.7	15	6
MNG-010-685	6.8	10	6
MNG-006-106	10	6	6
MNG-004-156	15	4	8
MNG-003-226	22	3	10

F CASE

Standard tolerance, ±20%; max. DC leakage, 0.5 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MNF-035-104	.1	35	6
MNF-035-154	.15	35	6
MNF-035-224	.22	35	6
MNF-025-334	.33	25	6
MNF-020-474	.47	20	6
MNF-015-684	.68	15	6
MNF-010-105	1.0	10	6
MNF-006-155	1.5	6	6
MNF-004-225	2.2	4	8
MNF-003-335	3.3	3	10
MNF-002-475	4.7	2	10

M CASE

Standard tolerance, ±20%; max. DC leakage, 1.0 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MNM-035-334	.33	35	6
MNM-035-474	.47	35	6
MNM-035-684	.68	35	6
MNM-025-105	1.0	25	6
MNM-020-155	1.5	20	6
MNM-020-225	2.2	20	6
MNM-010-335	3.3	10	6
MNM-006-475	4.7	6	6
MNM-004-685	6.8	4	8
MNM-003-106	10	3	10

L CASE

Standard tolerance, ±20%; max. DC leakage, 2.0 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MNL-035-105	1.0	35	6
MNL-035-155	1.5	35	6
MNL-035-225	2.2	35	6
MNL-025-335	3.3	25	6
MNL-020-475	4.7	20	6
MNL-015-685	6.8	15	6
MNL-010-106	10	10	6
MNL-006-156	15	6	6
MNL-004-226	22	4	8

S CASE

Standard tolerance, ±20%; max. DC leakage, 3.0 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MNS-035-335	3.3	35	6
MNS-025-475	4.7	25	6
MNS-020-685	6.8	20	6
MNS-015-106	10	15	6
MNS-010-156	15	10	6
MNS-006-226	22	6	6
MNS-004-336	33	4	8

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CORNING® Tantalum Capacitors

MD SERIES SOLID TANTALUM CAPACITORS

Subminiature Minidip® solid tantalum capacitors for general filtering, coupling, by-passing and non-critical RC timing applications to +85° C without voltage derating. Capacitance measured at +25° C, 120 Hz on a polarized capacitance bridge with a max. polarizing voltage of 2.2 VDC and a max. AC signal of 1 volt rms. **Tolerance:** ±20% standard; ±10% available. **Temperature Range:** −55° C to +85° C. **Surge Voltage:** At +85° C and at 60 second intervals, capacitors withstand 1000 30-second applications of 130% rated WVDC. Solder coated high-purity nickel wire leads; suitable for soldering or welding.

DIMENSIONS

Case Size	Dimensions (In.) H Max.	D Max.	S	Lead (In.) Anode	Length ±0.125 Cathode	Lead Dia. (In.) ±0.002
MD2	0.175	0.095	0.050	1.625	1.375	0.010
MD3	0.210	0.110	0.050	1.625	1.375	0.010
MD4	0.260	0.125	0.050	1.625	1.375	0.010
MD5	0.260	0.150	0.100	1.625	1.375	0.010
MD6	0.280	0.175	0.125	1.625	1.375	0.016
MD7	0.300	0.225	0.150	1.625	1.375	0.016

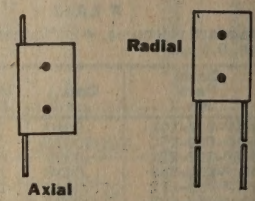
ORDERING INFORMATION

Cap. μF	Part Number*	WV DC	Cap. μF	Part Number*	WV DC
2.2	MD2-002-225-20	2	0.33	MD2-015-334-20	15
4.7	MD3-002-475-20	2	0.68	MD3-015-684-20	15
10	MD4-002-106-20	2	1.5	MD4-015-155-20	15
22	MD5-002-226-20	2	3.3	MD5-015-335-20	15
68	MD6-002-686-20	2	10	MD6-015-106-20	15
100	MD7-002-107-20	2	22	MD7-015-226-20	15
1.5	MD2-003-155-20	3	0.15	MD2-020-154-20	20
3.3	MD3-003-335-20	3	0.22	MD2-020-224-20	20
6.8	MD4-003-685-20	3	0.33	MD3-020-334-20	20
15	MD5-003-156-20	3	0.47	MD3-020-474-20	20
47	MD6-003-476-20	3	0.68	MD4-020-684-20	20
1	MD2-004-105-20	4	1	MD4-020-105-20	20
2.2	MD3-004-225-20	4	1.5	MD5-020-155-20	20
4.7	MD4-004-475-20	4	2.2	MD5-020-225-20	20
10	MD5-004-106-20	4	6.8	MD6-020-685-20	20
33	MD6-004-336-20	4	15	MD7-020-156-20	20
68	MD7-004-686-20	4	10	MD7-025-106-20	25
0.68	MD2-006-684-20	6	0.1	MD2-035-104-20	35
1.5	MD3-006-155-20	6	0.15	MD3-035-154-20	35
3.3	MD4-006-335-20	6	0.22	MD3-035-224-20	35
6.8	MD5-006-685-20	6	0.33	MD4-035-334-20	35
22	MD6-006-226-20	6	0.47	MD4-035-474-20	35
47	MD7-006-476-20	6	0.68	MD5-035-684-20	35
33	MD7-008-336-20	8	1	MD5-035-105-20	35
0.47	MD2-010-474-20	10	1.5	MD5-035-155-20	35
1	MD3-010-105-20	10	2.2	MD6-035-225-20	35
2.2	MD4-010-225-20	10	3.3	MD6-035-335-20	35
4.7	MD5-010-475-20	10	4.7	MD6-035-475-20	35
15	MD6-010-156-20	10	6.8	MD7-035-685-20	35

*MD prefix in part number indicates case size. e.g., **MD2, MD3,** etc. Suffix **20** indicates ±20% tolerance. For ±10%, substitute **10** for **20.**

MINITAN® CORDWOOD MZ SERIES SUBMINIATURE SOLID TANTALUM CAPACITORS

Precision subminiature polar capacitors suitable for general filtering, coupling, bypassing and non-critical RC timing applications. Very favorable capacitance-to-volume ratio makes units especially well suited to high-density applications such as found in avionics systems, subminiature communications equipment and thick-film circuitry. **Temperature Range:** −55° C to +85° C without derating; derate WVDC linearly to ⅔ at +125° C. **ORDERING INFORMATION:** Price table below is keyed to case size; also see Part Number Breakdown Chart. **Lead Configuration:** Add suffix **A** for axial leads; add suffix **R** for radial leads. **Tolerance:** Add suffix **-40** for +40% −20%; add suffix **-20** for ±20%; suffix **-10** for ±10%; suffix **-05** for ±5%. Only standard tolerance capacitors are stock items, others are special order only; 10% decade values available in ±5% and ±10% tolerances. **Example:** Part No. **MZA-010-475-A-10** indicates a 10 V, 4.7 μF axial capacitor, case A, ±10% tolerance; complete Part No. must include Basic Part No. and both Lead and Tolerance suffixes. Capacitance and dissipation factor (DF) measured at 25° C, 120 Hz; DC leakage measured at 25° C. Values below .01 μF not available in 5% or 10% tolerances.



Y CASE

Standard tolerance, +40% −20%; max. DC leakage, 0.5 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MZY-020-102	.0010	20	6
MZY-020-152	.0015	20	6
MZY-020-222	.0022	20	6
MZY-020-332	.0033	20	6
MZY-020-472	.0047	20	6
MZY-020-682	.0068	20	6
MZY-020-103	.010	20	6
MZY-020-153	.015	20	6
MZY-020-223	.022	20	6
MZY-020-333	.033	20	6
MZY-020-473	.047	20	6
MZY-020-683	.068	20	6
MZY-020-104	.10	20	6
MZY-020-154	.15	20	6
MZY-020-224	.22	20	6
MZY-015-334	.33	15	6
MZY-010-474	.47	10	6
MZY-006-684	.68	6	6
MZY-004-105	1.0	4	8
MZY-003-155	1.5	3	10
MZY-002-225	2.2	2	10

P CASE

Standard tolerance, +40% −20%; max. DC leakage, 0.5 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MZP-050-102	.0010	50	6
MZP-050-152	.0015	50	6
MZP-050-222	.0022	50	6
MZP-050-332	.0033	50	6
MZP-050-472	.0047	50	6
MZP-050-682	.0068	50	6

P CASE (CONT'D)

Basic Part No.	Cap., μF	WV DC	Max. DF
MZP-050-103	.010	50	6
MZP-035-153	.015	35	6
MZP-035-223	.022	35	6
MZP-035-333	.033	35	6
MZP-035-473	.047	35	6
MZP-035-683	.068	35	6
MZP-035-104	.10	35	6
MZP-035-154	.15	35	6
MZP-035-224	.22	35	6
MZP-020-334	.33	20	6
MZP-020-474	.47	20	6
MZP-015-684	.68	15	6
MZP-010-105	1.0	10	6
MZP-006-155	1.5	6	6
MZP-004-225	2.2	4	8
MZP-003-335	3.3	3	10
MZP-002-475	4.7	2	10

B CASE

Standard tolerance, ±20%; max. DC leakage, 0.5 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MZB-035-334	.33	35	6
MZB-035-474	.47	35	6
MZB-020-684	.68	20	6
MZB-020-105	1.0	20	6
MZB-015-155	1.5	15	6
MZB-010-225	2.2	10	6
MZB-006-335	3.3	6	6
MZB-004-475	4.7	4	8
MZB-003-685	6.8	3	10
MZB-002-106	10	2	10

A CASE

Standard tolerance, ±20%; max. DC leakage, 1.0 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MZA-035-684	.68	35	6
MZA-035-105	1.0	35	6
MZA-020-155	1.5	20	6
MZA-020-225	2.2	20	6
MZA-015-335	3.3	15	6
MZA-010-475	4.7	10	6
MZA-006-685	6.8	6	6
MZA-004-106	10	4	8
MZA-003-156	15	3	10
MZA-002-226	22	2	10

G CASE

Standard tolerance, ±20%; max. DC leakage, 1.5 μA.

Basic Part No.	Cap., μF	WV DC	Max. DF
MZG-035-155	1.5	35	6
MZG-035-225	2.2	35	6
MZG-020-335	3.3	20	6
MZG-020-475	4.7	20	6
MZG-020-685	6.8	20	6
MZG-015-106	10	15	6
MZG-010-156	15	10	6
MZG-006-226	22	6	6
MZG-004-336	33	4	8
MZG-003-476	47	3	10

CASE SIZES

Case	Max. Size, Inches Length x Diameter	Lead Diam., Ins.
Y	.125 x .070	.010
P	.160 x .070	.010
B	.200 x .080	.010
A	.225 x .100	.010
G	.250 x .150	.016

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CORNING® Ceramic Capacitors

TYPE CAC CERAMIC CAPACITORS
TYPE CAC__X7R

Miniature, axial-lead, monolithic ceramic capacitors designed for commercial and industrial applications where space and weight are at a premium. Ideally suited for automatic insertion. **Temp. Coef.:** ±15% from −55° C to +125° C. **Capacity Tolerance:** K = ±10%, M = ±20%. **Dissipation Factor:** 2.5% max. **Ins. Res.:** 100,000 megs or 1000 megohm-microfarads, whichever is less. **WVDC:** 50 and 100 volts.

TYPE CAC02X7R

Size: .100" dia. x .170" lg.

Cap., pF	CAC02-X7R-	Cap., pF	CAC02-X7R-	Cap., pF	CAC02-X7R-	Cap., pF	CAC02-X7R-
10	100	82	820	680	681	5600	562
12	120	100	101	820	821	5600	562
15	150	120	121	1000	102	6800	682
18	180	150	151	1200	122	6800	682
22	220	180	181	1500	152	8200*	822
27	270	220	221	1800	182	10,000*	103
33	330	270	271	2200	222	12,000*	123
39	390	330	331	2700	272	15,000*	153
47	470	390	391	3300	332	18,000*	183
56	560	470	471	3900	392	22,000*	223
68	680	560	561	4700	472		

*50 VDC; all others 100 VDC.

TYPE CAC03X7R

Size: .100" dia. x .260" lg.

Cap., pF	CAC03-X7R-	WV DC	Cap., pF	CAC03-X7R-	WV DC	Cap., pF	CAC03-X7R-	WV DC
5600	562	100	12,000	123	100	27,000	273	50
6800	682	100	15,000	153	100	33,000	333	50
8200	822	100	18,000	183	50	39,000	393	50
10,000	103	100	22,000	223	50	47,000	473	50

TYPE CAC04X7R

Size: .150" dia. x .270" lg.

Cap., pF	CAC04-X7R-	WV DC	Cap., pF	CAC04-X7R-	WV DC	Cap., pF	CAC04-X7R-	WV DC
10,000	103	100	27,000	273	100	56,000	563	50
12,000	123	100	33,000	333	100	68,000	683	50
15,000	153	100	39,000	393	100	82,000	823	50
18,000	183	100	47,000	473	100	100,000	104	50
22,000	223	100	47,000	473	50			

TYPE CAC05X7R

Size: .150" dia. x .400" lg.

Cap., pF	CAC05-X7R-	WV DC	Cap., pF	CAC05-X7R-	WV DC	Cap., pF	CAC05-X7R-	WV DC
10,000	103	100	33,000	333	100	100,000	104	100
12,000	123	100	39,000	393	100	120,000	124	50
15,000	153	100	47,000	473	100	150,000	154	50
18,000	183	100	56,000	563	100	180,000	184	50
22,000	223	100	68,000	683	100	220,000	224	50
27,000	273	100	82,000	823	100	270,000	274	50

TYPE CAC__Z5U

Same as the preceding X7R type, but intended for general purpose use. **Temp. Coef.:** +22%, −56% from +10° C to +85° C. **Capacity Tolerance:** M = ±20%; Z = +80%, −20%. **Dissipation Factor:** 3% max. **Ins. Res.:** 10,000 megs or 100 megohm-microfarads, whichever is less. **WVDC:** 50 and 100 volts.

TYPE CAC02Z5U

Size: .100" dia. x .170" lg.

Cap., pF	CAC02-Z5U-	WV DC	Cap., pF	CAC02-Z5U-	WV DC	Cap., pF	CAC02-Z5U-	WV DC
1000	102	100	4700	472	100	15,000	153	100
1200	122	100	5600	562	100	18,000	183	100
1500	152	100	6800	682	100	22,000	223	100
1800	182	100	8200	822	100	27,000	273	50
2200	222	100	10,000	103	100	33,000	333	50
2700	272	100	10,000	103	50	39,000	393	50
3300	332	100	12,000	123	50	47,000	473	50
3900	392	100	12,000	123	100			

TYPE CAC03Z5U

Size: .100" dia. x .260" lg.

Cap., pF	CAC03-Z5U-	WV DC	Cap., pF	CAC03-Z5U-	WV DC	Cap., pF	CAC03-Z5U-	WV DC
18,000	183	100	39,000	393	100	68,000	683	50
22,000	223	100	47,000	473	100	82,000	823	50
27,000	273	100	56,000	563	100	100,000	104	50
33,000	333	100	56,000	563	50	120,000	124	50

TYPE CAC04Z5U

Size: .150" dia. x .270" lg.

Cap., pF	CAC04-Z5U-	WV DC	Cap., pF	CAC04-Z5U-	WV DC	Cap., pF	CAC04-Z5U-	WV DC
56,000	563	100	100,000	104	50	180,000	184	50
68,000	683	100	120,000	124	100	220,000	224	50
82,000	823	100	120,000	124	50	270,000	274	50
100,000	104	100	150,000	154	50			

TYPE CAC05Z5U

Size: .150" dia. x .400" lg.

Cap. pF	CAC 05-Z5U-	WV DC	Cap. pF	CAC 05-Z5U-	WV DC	Cap. pF	CAC 05-Z5U-	WV DC
100,000	104	100	220,000	224	100	330,000	334	50
120,000	124	100	220,000	224	50	390,000	394	50
150,000	154	100	270,000	274	100	470,000	474	50
180,000	184	100	270,000	274	50			

TYPE CAC__C0G

Miniature, conformally coated, axial lead, ceramic capacitors, designed for high volume commercial and industrial applications requiring ultra stable performance. Especially suited for automatic insertion. **Capacity Tolerance:** J, ±5%; K, ±10%; M, ±20%. **Temp. Characteristic:** C0G—±30 ppm/° C from −55° C to +125° C. **Dissipation Factor:** 0.1% max. at 1 kHz. **Insulation Resistance:** 100,000 megohms. **Dielectric Strength:** 2.5 x rated voltage for 1 to 5 seconds. **WVDC:** 50 or 100 volts, depending on capacity value.

TYPE CAC02C0G

Size: .100" dia. x .170" L.

Cap. pF	CAC02-C0G-	Cap. pF	CAC02-C0G-	Cap. pF	CAC02-C0G-	Cap. pF	CAC02-C0G-
24	240	62	620	150	151	360	361
27	270	68	680	160	161	390	391
30	300	75	750	180	181	430	431
33	330	82	820	200	201	470	471
36	360	91	910	220	221	510	511
39	390	100	101	240	241	560	561
43	430	110	111	270	271	620	621
47	470	120	121	300	301	680	681
51	510	130	131	330	331	750	741
56	560						

TYPE CAC03C0G

Size: .100" dia. x .260" L.

Cap. pF	CAC03-C0G-	Cap. pF	CAC03-C0G-	Cap. pF	CAC03-C0G-	Cap. pF	CAC03-C0G-
330	331	560	561	910	911	1500	152
360	361	620	621	1000	102	1600	162
390	391	680	681	1100	112	1800	182
430	431	750	751	1200	122	2000	202
470	471	820	821	1300	132	2200	222
510	511						

TYPE CAC04C0G

Size: .150" dia. x .270" L.

Cap. pF	CAC04-C0G-	Cap. pF	CAC04-C0G-	Cap. pF	CAC04-C0G-	Cap. pF	CAC04-C0G-
820	821	1300	132	2200	222	3600	362
910	911	1500	152	2400	242	3900	392
1000	102	1600	162	2700	272	4300	432
1100	112	1800	182	3000	302	4700	472
1200	122	2000	202	3300	332		

TYPE CAC05C0G

Size: .150" dia. x .400" L.

Cap. pF	CAC05-C0G-	Cap. pF	CAC05-C0G-	Cap. pF	CAC05-C0G-	Cap. pF	CAC05-C0G-
1000	102	2000	202	3600	362	6200	622
1100	112	2200	222	3900	392	6800	682
1200	122	2400	242	4300	432	7500	752
1300	132	2700	272	4700	472	8200	822
1500	152	3000	302	5100	512	9100	912
1600	162	3300	332	5600	562	10,000	103
1800	182						

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CORNING® Ceramic Capacitors

TYPE CKR CERAMIC CAPACITORS

Miniature, multilayer, ceramic capacitors meet MIL-C-39014/5 requirements. Dielectric is fused into a monolithic structure, then molded into a tough, flameproof case. Sized for automatic insertion. Excellent frequency characteristics, superior voltage coefficients and high volumetric efficiency. **Tolerance:** ±10% and ±20%. **Stability Characteristics:** BX—TC (±15%), TVC (+15, −25%); BR—TC (±15%), TVC (+15, −40%). **Dissipation Factor:** 2.5% max. **Insulation Resistance:** 100,000 megohms or 1,000 megohm/microfarads at 25°C; 10,000 megohms or 100 megohm/microfarads at 125° C. **Operating Temp. Range:** − 55° C to +125° C.

STYLE CKR11 BX

Size: .090" dia. x .160" lg.

Cap. pF	Tol. ±%	M39014-05-	WV DC	Cap. pF	Tol. ±%	M39014-05-	WV DC
10	10	2X01	100	330	20	2X29	100
10	20	2X02	100	390	10	2X30	100
12	10	2X03	100	470	10	2X31	100
15	10	2X04	100	470	20	2X32	100
15	20	2X05	100	560	10	2X33	100
18	10	2X06	100	680	10	2X34	100
22	10	2X07	100	680	20	2X35	100
22	20	2X08	100	820	10	2X36	100
27	10	2X09	100	1,000	10	2X37	100
33	10	2X10	100	1,000	20	2X38	100
33	20	2X11	100	1,200	10	2X39	100
39	10	2X12	100	1,500	10	2X40	100
47	10	2X13	100	1,500	20	2X41	100
47	20	2X14	100	1,800	10	2X42	100
56	10	2X15	100	2,200	10	2X43	100
68	10	2X16	100	2,200	20	2X44	100
68	20	2X17	100	2,700	10	2X45	100
82	10	2X18	100	3,300	10	2X46	100
100	10	2X19	100	3,300	20	2X47	100
100	20	2X20	100	3,900	10	2X48	100
120	10	2X21	100	4,700	10	2X49	100
150	10	2X22	100	4,700	20	2X50	100
150	20	2X23	100	5,600	10	2X51	50
180	10	2X24	100	6,800	10	2X52	50
220	10	2X25	100	6,800	20	2X53	50
220	20	2X26	100	8,200	10	2X54	50
270	10	2X27	100	10,000	10	2X55	50
330	10	2X28	100	10,000	20	2X56	50

STYLE CKR12 BX

Size: .140" dia. x .390" lg.

Cap. pF	Tol. ±%	M39014-05-	WV DC	Cap. pF	Tol. ±%	M39014-05-	WV DC
12,000	10	2X75	100	39,000	10	2X84	100
15,000	10	2X76	100	47,000	10	2X85	100
15,000	20	2X77	100	47,000	20	2X86	100
18,000	10	2X78	100	56,000	10	2X87	50
22,000	10	2X79	100	68,000	10	2X88	50
22,000	20	2X80	100	68,000	20	2X89	50
27,000	10	2X81	100	82,000	10	2X90	50
33,000	10	2X82	100	100,000	10	2X91	50
33,000	20	2X83	100	100,000	20	2X92	50

STYLE CKR14 BX

Size: .090" dia. x .250" lg.

Cap. pF	Tol. ±%	M39014-05-	WV DC	Cap. pF	Tol. ±%	M39014-05-	WV DC
5,600	10	2X57	100	18,000	10	2X66	50
6,800	10	2X58	100	22,000	10	2X67	50
6,800	20	2X59	100	22,000	20	2X68	50
8,200	10	2X60	100	27,000	10	2X69	50
10,000	10	2X61	100	33,000	10	2X70	50
10,000	20	2X62	100	33,000	20	2X71	50
12,000	10	2X63	50	39,000	10	2X72	50
15,000	10	2X64	50	47,000	10	2X73	50
15,000	20	2X65	50	47,000	20	2X74	50

STYLE CKR14 BR

Size: .140" dia. x .390" lg.

Cap. pF	Tol. ±%	M39014-05-	WV DC	Cap. pF	Tol. ±%	M39014-05-	WV DC
56,000	10	2X93	100	150,000	10	2X00	50
68,000	10	2X94	100	150,000	20	2X01	50
68,000	20	2X95	100	180,000	10	2X02	50
82,000	10	2X96	100	220,000	10	2X03	50
100,000	10	2X97	100	220,000	20	2X04	50
100,000	20	2X98	100	270,000	10	2X05	50
120,000	10	2X99	50				

NOTE: To specify failure rate level, substitute appropriate number for **X** in part number suffix: **6**—M; **8**—P; **0**—R.

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CORNING® Glass Capacitors

TYPE CYR GLASS CAPACITORS

Fused monolithic construction provides excellent electrical performance, environmental immunity, stability and retraceability. Meets MIL-C-23269 requirements. **WVDC:** 300 V and 500 V standard; **Types CYR10** thru **CYR30** also available in 100 WVDC rating with S failure rate level. **Temp. Range:** −55° C to +125° C.

Temp. Coefficient: +140, ±25 ppm/°C; max. deviation, 5 ppm. **Failure Rate Level:** L, 2/%1000 hrs.; M, 1%/1000 hrs.; S, .001%/1000 hrs. (available only in 100 WVDC rating). To specify failure rate level, add appropriate code number before value/tolerance suffix in part number; 2—L, 3—M, 7—S. eg.., CYR10-2001.

TYPE CYR10

Axial lead—.078″ th. x .172″ w. x .344″ lg.

Cap., pF	Part No. Suffixes			Cap., pF	Part No. Suffixes		
	±.25pF	±.5pF	±5%		±1%	±2%	±5%
0.5	-001			22		-045	-046
1.0	-002			24		-047	-048
1.5	-003			27	-049	-050	-051
2.2	-004	-005		30	-052	-053	-054
2.7	-006			33	-055	-056	-057
3.0	-007	-008		36	-058	-059	-060
3.3	-009			39	-061	-062	-063
3.6	-010	-011		43	-064	-065	-066
3.9	-012			47	-067	-068	-069
4.3	-013	-014		51	-070	-071	-072
4.7	-015			56	-073	-074	-075
5.1	-016			62	-076	-077	-078
5.6	-017		-018	68	-079	-080	-081
6.2	-019		-020	75	-082	-083	-084
6.8	-021		-022	82	-085	-086	-087
7.5	-023		-024	91	-088	-089	-090
8.2	-025		-026	100	-091	-092	-093
9.1	-027		-028	110	-094	-095	-096
10	-029		-030	120	-097	-098	-099
11	-031		-032	130	-100	-101	-102
12	-033		-034	150	-103	-104	-105
	±1%	±2%	±5%	160	-106	-107	-108
				180	-109	-110	-111
13		-035	-036	200	-112	-113	-114
15		-037	-038	220*	-115	-116	-117
16		-039	-040	240*	-118	-119	-120
18		-041	-042	270*	-121	-122	-123
20		-043	-044	300*	-124	-125	-126

TYPE CYR15

Axial lead—.109″ th. x .266″ w. x .469″ lg.

Cap., pF	Part No. Suffixes			Cap., pF	Part No. Suffixes		
	±1%	±2%	±5%		±1%	±2%	±5%
220	-001	-002	-003	560*	-031	-032	-033
240	-004	-005	-006	620*	-034	-035	-036
270	-007	-008	-009	680*	-037	-038	-039
300	-010	-011	-012	750*	-040	-041	-042
330	-013	-014	-015	820*	-043	-044	-045
360	-016	-017	-018	910*	-046	-047	-048
390	-019	-020	-021	1000*	-049	-050	-051
430	-022	-023	-024	1100*	-052	-053	-054
470	-025	-026	-027	1200*	-055	-056	-057
510	-028	-029	-030				

TYPE CYR20

Axial lead—.141″ th. x .422″ w. x .734″ lg.

Cap., pF	Part No. Suffixes			Cap., pF	Part No. Suffixes		
	±1%	±2%	±5%		±1%	±2%	±5%
560	-001	-002	-003	1800	-037	-038	-039
620	-004	-005	-006	2000	-040	-041	-042
680	-007	-008	-009	2200	-043	-044	-045
750	-010	-011	-012	2400	-046	-047	-048
820	-013	-014	-015	2700	-049	-050	-051
910	-016	-017	-018	3000	-052	-053	-054
1000	-019	-020	-021	3300	-055	-056	-057
1100	-022	-023	-024	3600*	-058	-059	-060
1200	-025	-026	-027	3900*	-061	-062	-063
1300	-028	-029	-030	4300*	-064	-065	-066
1500	-031	-032	-033	4700*	-067	-068	-069
1600	-034	-035	-036	5100*	-070	-071	-072

*300 V; all others 500 VDC.

TYPE CYR30

Axial lead—.141″ th. x .750″ w. x .766″ lg.

Cap., pF	Part No. Suffixes			Cap., pF	Part No. Suffixes		
	±1%	±2%	±5%		±1%	±2%	±5%
3600	-001	-002	-003	6200	-019	-020	-021
3900	-004	-005	-006	6800*	-022	-023	-024
4300	-007	-008	-009	7500*	-025	-026	-027
4700	-010	-011	-012	8200*	-028	-029	-030
5100	-013	-014	-015	9100*	-031	-032	-033
5600	-016	-017	-018	10,000*	-034	-035	-036

*300 V; all others 500 VDC.

TYPE CYR51

Radial lead—.115″ th. x .200″ w. x .300″ lg. WVDC: 300 volts.

Cap., pF	Part No. Suffixes			Cap., pF	Part No. Suffixes		
	±.25pF	±.5pF	±5%		±1%	±2%	±5%
1.0	-001			33	-058	-059	-060
1.5	-002			36	-061	-062	-063
2.2	-003			39	-064	-065	-066
2.7	-004			43	-067	-068	-069
3.0	-005			47	-070	-071	-072
3.3	-006			51	-073	-074	-075
3.6	-007			56	-076	-077	-078
3.9	-008			62	-079	-080	-081
4.3	-009			68	-082	-083	-084
4.7	-010			75	-085	-086	-087
5.1	-011		-012	82	-088	-089	-090
5.6	-013		-014	91	-091	-092	-093
6.2	-015		-016	100	-094	-095	-096
6.8	-017		-018	110	-097	-098	-099
7.5	-019		-020	120	-100	-101	-102
8.2	-021		-022	130	-103	-104	-105
9.1	-023		-024	150	-106	-107	-108
10	-025		-026	160	-109	-110	-111
11	-027		-028	180	-112	-113	-114
12	-029		-030	200	-115	-116	-117
13	-031	-032	-033	220	-118	-119	-120
15	-034	-035	-036	240	-121	-122	-123
16	-037	-038	-039	270	-124	-125	-126
18	-040	-041	-042	300	-127	-128	-129
20	-043	-044	-045	330	-130	-131	-132
22	-046	-047	-048	360	-133	-134	-135
24	-049	-050	-051	390	-136	-137	-138
	±1%	±2%	±5%	430	-139	-140	-141
				470	-142	-143	-144
27	-052	-053	-054	510	-145	-146	-147
30	-055	-056	-057	560	-148	-149	-150

TYPE CYR52

Radial lead—.115″ th. x .300″ w. x .300″ lg. WVDC: 300 volts.

Cap., pF	Part No. Suffixes			Cap., pF	Part No. Suffixes		
	±1%	±2%	±5%		±1%	±2%	±5%
620	-201	-202	-203	820	-210	-211	-212
680	-204	-205	-206	910	-213	-214	-215
750	-207	-208	-209	1000	-216	-217	-218

TYPE CYR53

Radial lead—.115″ th. x .300″ w. x .500″ lg. WVDC: 300 volts.

Cap., pF	Part No. Suffixes			Cap., pF	Part No. Suffixes		
	±1%	±2%	±5%		±1%	±2%	±5%
1100	-301	-302	-303	1800	-316	-317	-318
1200	-304	-305	-306	2000	-319	-320	-321
1300	-307	-308	-309	2200	-322	-323	-324
1500	-310	-311	-312	2400	-325	-326	-327
1600	-313	-314	-315				

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CORNING® Glass-K™ Ceramic Capacitors

MINIATURE GLASS-K™ CERAMIC CAPACITORS

Smaller capacitance values suitable for more critical circuit functions. **Temp. Range:** −55° C to +125° C. **Ins. Res.:** 100,000 megs or 1,000 megs-μF, whichever is less. **Dissipation Factor:** Stability characteristic T less than 1%; U less than 1.5%; V less than 3%. **WVDC:** 50 V. **Size:** CKR31, 0.090″ ±.010″ dia. x 0.240″ ±.010″ lg.; CKR32, 0.130″ ±.010″ dia. x 0.240″ ±.010″ lg.

TYPE CKR31

Corning No. CKR31-	Cap., pF	Tolerance*	Stability Char.	Corning No. CKR31-	Cap., pF	Tolerance*	Stability Char.
BT271	270	J	T	BT222	2200	J	T
		K	T			K	T
		M†	T			M†	T
BT301	300	J	T	BT272	2700	J	T
		K	T			K	T
		M†	T			M†	T
BT331	330	J	T	BT332	3300	J	T
		K	T			K	T
		M†	T			M†	T
BT361	360	J†	T	BT392	3900	J	T
		K†	T			K	T
		M†	T			M†	T
BT391	390	J	T	BT472	4700	J	T
		K	T			K	T
		M†	T			M†	T
BT471	470	J	T	BT562	5600	J	T
		K	T			K	T
		M†	T			M†	T
BT511	510	J†	T	BT682	6800	J	T
		K†	T			K	T
		M†	T			M†	T
BT561	560	J	T	BT822	8200	J	T
		K	T			K	T
		M†	T			M†	T
BT621	620	J†	T	BT103	10,000	J	T
		K†	T			K	T
		M†	T			M†	T
BT681	680	J	T	BU123	12,000	K	U
		K	T			M	U
		M†	T	BU153	15,000	K	U
BT751	750	J†	T			M	U
		K†	T	BU183	18,000	K	U
		M†	T			M	U
BT821	820	J	T	BU203	20,000	K	U
		K	T			M	U
		M†	T	BV223	22,000	K	V
BT102	1000	J	T			M	V
		K	T	BV273	27,000	K	V
		M†	T			M	V
BT122	1200	J	T	BV333	33,000	K	V
		K	T			M	V
		M†	T	BV393	39,000	K	V
BT152	1500	J	T			M	V
		K	T	BV473	47,000	K	V
		M†	T			M	V
BT182	1800	J	T	BV513	51,000	K	V
		K	T			M	V
		M†	T				

*For desired tolerance, add **J** (±5%), **K** (±10%), or **M** (±20%) to Part No. †Not normally stocked; available on special order.

TYPE CKR32

Corning No. CKR32-	Cap., pF	Tolerence*	Stability Char.	Corning No. CKR32-	Cap., pF	Tolerence*	Stability Char.
BT123	12,000	J†	T	BU273	27,000	K	U
		K	T			M	U
		M	T	BU333	33,000	K	U
BT153	15,000	J†	T			M	U
		K	T	BU393	39,000	K	U
		M	T			M	U
BT183	18,000	J†	T	BV563	56,000	K	V
		K	T			M	V
		M	T	BV683	68,000	K	V
BT203	20,000	J†	T			M	V
		K	T	BV823	82,000	K	V
		M	T			M	V
BU223	22,000	K	U	BV104	100,000	K	V
		M	U			M	V

*For desired tolerance, add **J** (±5%), **K** (±10%), or **M** (±20%) to Part No. †Not normally stocked; available on special order.

MINIATURE BX CAPACITORS

Performance characteristics in accordance with MIL-C-11015. Exclusive glass-ceramic dielectric and unique manufacturing process assure true monolithic structure. Used in bypass, filter and coupling circuits, R-C networks; point of use filtering; suited for automatic insertion. **Temperature Range:** −55° C to +125° C. **Insulation Resistance:** 100,000 megohms or 1,000 megohm-microfarads, whichever is greater. **Dissipation Factor:** 2.5% max. **WVDC:** 50 and 100V. **Size:** CK12, .160″ lg. x .090″ dia.; CK13, .250″ lg. x .090″ dia.; CK14, .390″ lg. x .140″ dia. **Tolerance:** Suffix K, ±10%; M, ±20%.

TYPE CK12

Cap., pF	CK12 BX-	Cap., pF	CK12 BX-	Cap., pF	CK12 BX-	Cap., pF	CK12 BX-
10	100K,M	68	680K,M	470	471K,M	3300	332K,M
12	120K	82	820K	560	561K	3900	392K
15	150K,M	100	101K,M	680	681K,M	4700	472K,M
18	180K	120	121K	820	821K	5600*	562K
22	220K,M	150	151K,M	1000	102K,M	6800*	682K,M
27	270K	180	181K	1200	122K	8200*	822K
33	330K,M	220	221K,M	1500	152K,M	10000*	103K,M
39	390K	270	271K	1800	182K		
47	470K,M	330	331K,M	2200	222K,M		
56	560K	390	391K	2700	272K		

*50 VDC; all others 100 VDC.

TYPE CK13

Cap., pF	CK13 BX-	Cap., pF	CK13 BX-	Cap., pF	CK13 BX-	Cap., pF	CK13 BR-
5600*	562	10,000*	103	18,000	183	27,000	273
6800*	682	12,000	123	22,000	223	33,000	333
8200*	882	15,000	153			39,000	393
						47,000	473

*100 VDC; all others 50 VDC.

TYPE CK14

Cap., pF	CK14 BX-	Cap., pF	CK14 BX-	Cap., pF	CK14 BR-	Cap., pF	CK14 BR-
12,000	123	27,000	273	56,000	563	120,000*	124
15,000	153	33,000	333	68,000	683	150,000*	154
18,000	183	39,000	393	82,000	823	180,000*	184
22,000	223	47,000	473	100,000	104	220,000*	224
						270,000*	274

*50 VDC: all others 100 VDC.

TYPE CK31, CK32 GLASS-K® CAPACITORS

Miniature, multilayer, ceramic capacitors meet or exceed all requirements of MIL-C-11015/25. High volumetric efficiency and reliable performance result from the special Glass-K dielectric, which is fused into a compact monolithic structure, sized for automatic insertion. Available in three different stability characteristics, these capacitors are suitable for both military and commercial applications in miniature circuitry. **Tolerance:** ±20% and ±10% in characteristics "U" and "V"; ±10% and ±5% in characteristic "T". **Stability Characteristics:** BT-TC, +2–10%; BU-TC, +2–15%; BV-TC, +20–45%. **Dissipation Factor:** BT, less than 1%; BU, less thsn 1.5%; BV, less than 3%. **Voltage Rating:** 50 WVDC. **Operating Temperature Range:** −55° C to +125° C.

TYPE CK31—CHARACTERISTIC BT

Cap., pF	CK31 BT-	Cap., pF	CK31 BT-	Cap., pF	CK31 BT-	Cap., pF	CK31 BT-
270	271J, K	680	681J, K	1800	182J, K	4700	472J, K
330	331J, K	820	821J, K	2200	222J, K	5600	562J, K
390	391J, K	1000	102J, K	2700	272J, K	6800	682J, K
470	471J, K	1200	122J, K	3300	332J, K	8200	822J, K
560	561J, K	1500	152J, K	3900	392J, K	10000	103J, K

TYPE CK31—CHARACTERISTIC BU

Cap., pF	CK31 BU-	Cap., pF	CK31 BU-	Cap., pF	CK31 BU-	Cap., pF	CK31 BU-
12000	123K,M	15000	153K,M	18000	183K,M	20000	203K,M

TYPE CK31—CHARACTERISTIC BV

Cap., pF	CK31 BV-	Cap., pF	CK31 BV-	Cap. pF	CK31 BV-	Cap. pF	CK31 BV-
22000	223K,M	33000	333K,M	47000	473K,M	51000	513K,M
27000	273K,M	39000	393K,M				

TYPE CK32—CHARACTERISTIC BT

Cap., pF	CK32 BT-	Cap., pF	CK32 BT-	Cap., pF	CK32 BT-	Cap., pF	CK32 BT-
12000	123J, K	15000	153J, K	18000	183J, K	20000	203J, K

TYPE CK32—CHARACTERISTIC BU

Cap., pF	CK32 BU-	Cap., pF	CK32 BU-	Cap., pF	CK32 BU-	Cap., pF	CK32 BU-
22000	223K,M	27000	273K,M	33000	333K,M	39000	393K,M

TYPE CK32—CHARACTERISTIC BV

Cap., pF	CK32 BV-	Cap., pF	CK32 BV-	Cap., pF	CK32 BV-	Cap., pF	CK32 BV-
56000	563K,M	68000	683K,M	82000	823K,M	100000	104K,M
62000	623K,M	75000	753K,M	91000	913K,M		

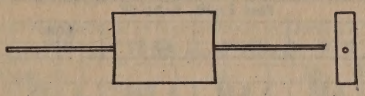
PRICES AVAILABLE ON REQUEST

SOLD IN STANDARD PACKAGES ONLY

CORNING® Glass Capacitors

CY AND CYFM GLASS CAPACITORS

Fusion-sealed, environment-proof capacitors have glass-to-metal seals at leads. Foil and glass element is frozen inside glass. Meet or exceed requirements of MIL-C-11272. **WVDC:** 300 and 500 V, −55° C to +125° C. **Temperature Coefficient:** +140 ±25 ppm/° C at 100 kHz. Will track and retrace to within ±5 ppm. Capacitance drift is less than 0.1% or 0.1 pF, whichever is greater. **Voltage Coefficient:** Zero. **Losses:** Extremely low, and remain relatively low at elevated temperatures. Dissipation factor is no more than 0.001 at 1.0 kHz and 25° C. **Life:** After 2000 hours at 125° C with 125% of rated voltage applied, capacitance change is less than 0.5% or 0.5 pF, whichever is greater. **Insulation Resistance:** Greater than 100,000 megohms at 25° C; greater than 10,000 megohms at 125° C. **Moisture Resistance:** Meets or exceeds all requirements of MIL-C-11272 and MIL-STD-202, Method 106. **Tolerance:** Add appropriate letter as final suffix after capacitance code; **C** = ±0.25%; **D** = ±0.5%; **F** = ±1%; **G** = ±2%; **J** = ±5%; **K** = ±10%; **M** = ±20%.



TYPES CY10C AND CYFM10C

Size: .344″ ±.047″ lg. x .172″ ±.031″ w. x .078″ ±.031″ thick.

MIL Type CY10C-	Corning No. CYFM10C-	Cap., pF	Available Tolerances
0R5	0R5	0.5	C
010	010	1.0	C, D
1R5	1R5	1.5	C, D
2R2	2R2	2.2	C, D
2R7	2R7	2.7	C, D
030	030	3.0	C, D
3R3	3R3	3.3	C, D
3R6	3R6	3.6	C, D
3R9	3R9	3.9	C, D
4R3	4R3	4.3	C, D
4R7	4R7	4.7	C, K
5R1	5R1	5.1	C, J, K
5R6	5R6	5.6	C, J, K
6R2	6R2	6.2	C, J, K
6R8	6R8	6.8	C, J, K
7R5	7R5	7.5	C, J, K
8R2	8R2	8.2	C, J, K
9R1	9R1	9.1	C, J, K
100	100	10	C, J, K, M
110	110	11	C, J, K, M
120	120	12	C, J, K, M
130	130	13	C, G, J, K, M
150	150	15	C, G, J, K, M
160	160	16	C, G, J, K, M
180	180	18	C, G, J, K, M
200	200	20	C, G, J, K, M
220	220	22	C, G, J, K, M
240	240	24	C, G, J, K, M
270	270	27	F, G, J, K, M
300	300	30	F, G, J, K, M
330	330	33	F, G, J, K, M

TYPES CY10C AND CYFM10C (CONT'D)

MIL Type CY10C-	Corning No. CYFM10C-	Cap., pF	Available Tolerances
510	510	51	F, G, J, K, M
560	560	56	F, G, J, K, M
620	620	62	F, G, J, K, M
680	680	68	F, G, J, K, M
750	750	75	F, G, J, K, M
820	820	82	F, G, J, K, M
910	910	91	F, G, J, K, M
101	101	100	F, G, J, K, M
111	111	110	F, G, J, K, M
121	121	120	F, G, J, K, M
131	131	130	F, G, J, K, M
151	151	150	F, G, J, K, M
161	161	160	F, G, J, K, M
181	181	180	F, G, J, K, M
201	201	200	F, G, J, K, M
221	221	220	F, G, J, K, M
241	241	240	F, G, J, K, M
271	271	270	F, G, J, K, M
301	301	300	F, G, J, K, M

TYPES CY15C AND CYFM15C

Size: .469″ ±.047″ lg. x .266″ ±.031″ w. x .109″ ±.047″ thick.

MIL Type CY15C-	Corning No. CYFM15C-	Cap., pF	Available Tolerances
221	221	220	F, G, J, K, M
241	241	240	F, G, J, K, M
271	271	270	F, G, J, K, M
301	301	300	F, G, J, K, M
331	331	330	F, G, J, K, M
361	361	360	F, G, J, K, M
391	391	390	F, G, J, K, M
431	431	430	F, G, J, K, M

TYPES CY15C AND CYFM15C (CONT'D)

MIL Type CY15C-	Corning No. CYFM15C-	Cap., pF	Available Tolerances
681*	681*	680	F, G, J, K, M
751*	751*	750	F, G, J, K, M
821*	821*	820	F, G, J, K, M
911*	911*	910	F, G, J, K, M
102*	102*	1000	F, G, J, K, M
112*	112*	1100	F, G, J, K, M
122*	122*	1200	F, G, J, K, M

TYPES CY20C AND CYFM20C

Size: .734″ ±.062″ lg. x .422″ ±.047″ w. x .141″ ±.047″ thick.

MIL Type CY20C-	Corning No. CYFM20C-	Cap., pF	Available Tolerances
561	561	560	F, G, J, K, M
621	621	620	F, G, J, K, M
681	681	680	F, G, J, K, M
751	751	750	F, G, J, K, M
821	821	820	F, G, J, K, M
911	911	910	F, G, J, K, M
102	102	1000	F, G, J, K, M
112	112	1100	F, G, J, K, M
122	122	1200	F, G, J, K, M
132	132	1300	F, G, J, K, M
152	152	1500	F, G, J, K, M
162	162	1600	F, G, J, K, M
182	182	1800	F, G, J, K, M
202	202	2000	F, G, J, K, M
222	222	2200	F, G, J, K, M
242	242	2400	F, G, J, K, M
272	272	2700	F, G, J, K, M
302	302	3000	F, G, J, K, M
332*	332*	3300	F, G, J, K, M
362*	362*	3600	F, G, J, K, M
392*	392*	3900	F, G, J, K, M
432*	432*	4300	F, G, J, K, M
472*	472*	4700	F, G, J, K, M
512*	512*	5100	F, G, J, K, M

TYPES CY30C AND CYFM30C

Size: .766″ ±.062″ lg. x .750″ ±.078″ w. x .141″ ±.047″ thick.

MIL Type CY30C-	Corning No. CYFM30C-	Cap., pF	Available Tolerances
362	362	3600	F, G, J, K, M
432	432	4300	F, G, J, K, M
472	472	4700	F, G, J, K, M
512	512	5100	F, G, J, K, M
562	562	5600	F, G, J, K, M
622	622	6200	F, G, J, K, M
682*	682*	6800	F, G, J, K, M
432	432	4300	F, G, J, K, M
472	472	4700	F, G, J, K, M
512	512	5100	F, G, J, K, M
562	562	5600	F, G, J, K, M
622	622	6200	F, G, J, K, M
682*	682*	6800	F, G, J, K, M
752*	752*	7500	F, G, J, K, M

*300 WVDC; all others, 500 WVDC.

TYPES CY AND TY GLASS CAPACITORS

Precision glass capacitors meet or exceed all requirements of MIL-C-11272. Constructed of a fused monolithic capacitive element in a rectangular case with gold-plated Dumet leads. **WVDC:** 300 VDC. **Temperature Coefficient:** +140 ±25 ppm/° C at 100 kHz. TC will track and retrace to within ±5 ppm. **Losses:** Extremely low and remain low at elevated temperatures. Dissipation factor at 1 kHz and 25° C is less than 0.001 for values greater than 100 pF and less than 0.002 for values of 100 pF and below. **Operating Temperature Range:** −55° C to +125° C.

TYPES CY06 AND TY06

Size: .300″ ±.005″ lg. x .200″ ±.010″ w. x .115″ ±.005″ thick.

MIL Type CY06C-	Corning No. TY06C-	Cap., pF	Available Tolerances
1R0	1R0	1.0	C, D
1R5	1R5	1.5	C, D
2R2	2R2	2.2	C, D
2R7	2R7	2.7	C, D
3R0	3R0	3.0	C, D
3R3	3R3	3.3	C, D
3R6	3R6	3.6	C, D
3R9	3R9	3.9	C, D
4R3	4R3	4.3	C, D
4R7	4R7	4.7	C, K
5R1	5R1	5.1	C, J, K
5R6	5R6	5.6	C, J, K
6R2	6R2	6.2	C, J, K
6R8	6R8	6.8	C, J, K
7R5	7R5	7.5	C, J, K
8R2	8R2	8.2	C, J, K

TYPES CY06 AND TY06 (CONT'D)

MIL Type CY06C-	Corning No. TY06C-	Cap., pF	Available Tolerances
120	120	12	C, J, K, M
130	130	13	C, G, J, K, M
150	150	15	C, G, J, K, M
160	160	16	C, G, J, K, M
180	180	18	C, G, J, K, M
200	200	20	C, G, J, K, M
220	220	22	C, G, J, K, M
240	240	24	C, G, J, K, M
270	270	27	F, G, J, K, M
300	300	30	F, G, J, K, M
330	330	33	F, G, J, K, M
360	360	36	F, G, J, K, M
390	390	39	F, G, J, K, M
430	430	43	F, G, J, K, M
470	470	47	F, G, J, K, M
510	510	51	F, G, J, K, M
560	560	56	F, G, J, K, M
620	620	62	F, G, J, K, M
680	680	68	F, G, J, K, M
750	750	75	F, G, J, K, M
820	820	82	F, G, J, K, M
910	910	91	F, G, J, K, M
101	101	100	F, G, J, K, M
110	110	111	F, G, J, K, M
120	120	121	F, G, J, K, M
131	131	130	F, G, J, K, M
151	151	150	F, G, J, K, M
161	161	160	F, G, J, K, M
181	181	180	F, G, J, K, M
201	201	200	F, G, J, K, M
221	221	220	F, G, J, K, M
241	241	240	F, G, J, K, M

TYPES CY06 AND TY06 (CONT'D)

MIL Type CY06C-	Corning No. TY06C-	Cap., pF	Available Tolerances
361	361	360	F, G, J, K, M
391	391	390	F, G, J, K, M
431	431	430	F, G, J, K, M
471	471	470	F, G, J, K, M
511	511	510	F, G, J, K, M
561	561	560	F, G, J, K, M

TYPES CY07 AND TY07

MIL Type CY07C-	Corning No. TY07C-	Cap., pF	Available Tolerances
621	621	620	F, G, J, K, M
681	681	680	F, G, J, K, M
751	751	750	F, G, J, K, M
821	821	820	F, G, J, K, M
911	911	910	F, G, J, K, M
102	102	1000	F, G, J, K, M

TYPES CY08 AND TY08

MIL Type CY08C-	Corning No. TY08C-	Cap., pF	Available Tolerances
112	112	1100	F, G, J, K, M
122	122	1200	F, G, J, K, M
132	132	1300	F, G, J, K, M
152	152	1500	F, G, J, K, M
182	182	1800	F, G, J, K, M
202	202	2000	F, G, J, K, M
222	222	2200	F, G, J, K, M
242	242	2400	F, G, J, K, M

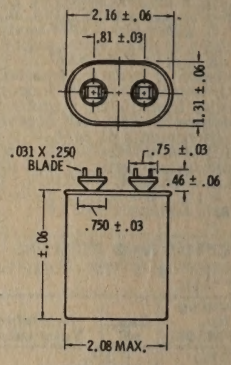
PRICES AVAILABLE ON REQUEST

GENERAL ELECTRIC High Performance AC Capacitors

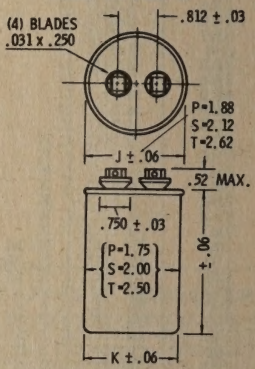
General Electric's line of AC capacitors incorporates the metallized film (GEM-I) system for 370 VAC and 440 VAC and a film/paper system for 660 VAC ratings.
The new GEM-I capacitor features improved performance and substantial reductions in size and weight. The extremely low dielectric losses, the inherent "self-healing" property of metallized capacitors, and the greatly increased capacitance per unit volume allow greater design flexibility and opens itself to new applications.
The GEM-I tolerance is ±10%, while the 660 VAC film/paper tolerance is ±6%. The voltage ratings are for 60 Hz sinusoidal operations. Capacitors may be operated at higher frequencies or with non-sinusoidal voltages, provided they are properly derated.

97F SERIES METALLIZED CAPACITORS

General Electric No.	Cap., μF	Case Style	Case Height C	Net Each, Lots of 1-24	25-49	50-99	100-499
370 VAC							
97F4153	3	A	2.62	$ 8.37	$ 5.34	$ 3.92	$ 2.85
97F4154	4	A	2.62	8.70	5.55	4.07	2.96
97F4155	5	A	2.62	9.31	5.94	4.36	3.17
97F4156	6	A	2.88	9.92	6.33	4.64	3.38
97F4157	7.5	A	3.50	10.86	6.93	5.08	3.70
97F4158	10	A	3.88	13.07	8.34	6.12	4.45
97F4159	12.5	A	4.50	14.90	9.51	6.97	5.07
97F4530	4	P	2.88	11.14	7.11	5.21	3.79
97F4521	5	P	2.88	11.52	7.35	5.39	3.92
97F4531	6	P	2.88	11.94	7.62	5.59	4.06
97F4522	7.5	P	2.88	12.41	7.92	5.81	4.22
97F4523	10	P	2.88	13.96	8.91	6.53	4.75
97F4524	12.5	P	2.88	15.51	9.90	7.26	5.28
97F4525	15	P	3.12	17.39	11.10	8.14	5.92
97F4526	17.5	P	3.50	19.22	12.27	9.00	6.54
97F4527	20	P	3.50	21.10	13.47	9.88	7.18
97F4528	25	P	4.25	24.82	15.84	11.62	8.45
97F3131	30	S	3.88	28.86	18.42	13.51	9.82
97F3136	35	S	4.25	33.84	21.60	15.84	11.52
97F3141	40	S	4.75	43.10	27.51	20.17	14.67
97F3247	45	T	3.88	47.14	30.09	22.07	16.05
97F3251	50	T	3.88	51.18	32.67	23.96	17.42
97F3256	55	T	4.25	55.84	35.64	26.14	19.01
97F3261	60	T	4.50	61.05	38.97	28.58	20.78
440 VAC							
97F4172	2	A	2.62	$10.95	$ 6.99	$ 5.13	$ 3.73
97F4173	3	A	2.62	10.95	6.99	5.13	3.73
97F4174	4	A	2.88	12.27	7.83	5.74	4.18
97F4175	5	A	3.50	12.78	8.16	5.98	4.35
97F4176	6	A	3.88	13.40	8.55	6.27	4.56
97F4177	7.5	A	4.50	13.68	8.73	6.40	4.66
97F4197	8	A	4.50	14.34	9.15	6.71	4.88
97F4581	10	P	3.12	14.99	9.57	7.02	5.10
97F4582	12.5	P	3.50	20.87	13.32	9.77	7.10
97F4583	15	P	4.25	21.75	13.89	10.19	7.41
97F3119	17.5	S	3.88	22.65	14.46	10.60	7.71
97F3110	20	S	4.25	24.49	15.63	11.46	8.34
97F3123	25	S	4.75	27.73	17.70	12.98	9.44
97F3216	30	T	3.88	36.43	23.25	17.05	12.40
97F3209	35	T	4.25	38.54	24.60	18.04	13.12
97F3207	40	T	4.50	48.36	30.87	22.64	16.46
97F3210	45	T	5.25	52.55	33.54	24.60	17.89



CASE STYLE A

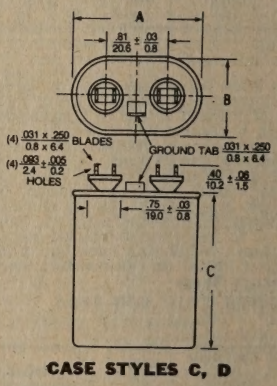


CASE STYLES P, S, T

26F6600 SERIES POLYPROPYLENE/PAPER CAPACITORS

General Electric No.	Cap., μF	Case Style	Case Height C	Net Each, Lots of 1-24	25-49	50-99	100-499
660 VAC							
26F6615FA	.5	A	2.12	$ 9.18	$ 5.95	$ 4.43	$ 3.29
26F6616FA	1.0	A	2.12	10.17	6.58	4.89	3.63
26F6617FA	1.5	A	2.12	10.97	7.09	5.27	3.90
26F6618FA	2.0	A	2.12	11.25	7.27	5.40	3.99
26F6619FA	2.5	A	2.12	12.14	7.84	5.82	4.30
26F6620FA	3.0	A	2.32	14.30	9.22	6.83	5.03
26F6621FA	4.0	A	3.12	14.49	9.34	6.92	5.10
26F6622FA	5.0	A	3.50	16.89	10.87	8.04	5.91
26F6623FA	6.0	A	4.25	20.23	13.00	9.60	7.05
26F6624FA	7.0	A	4.50	21.26	13.66	10.08	7.40
26F6625FA	8.0	A	5.50	24.13	15.49	11.43	8.38
26F6626FA	10.0	C	3.88	28.45	18.25	13.45	9.85
26F6627FA	12.0	C	4.50	35.50	22.75	16.75	12.25
26F6628FA	15.0	C	5.75	44.05	28.21	20.75	15.16
26F6629FA	18.0	C	6.75	54.49	34.87	25.64	18.71
26F6634FA	20.0	D	6.25	59.66	38.17	28.06	20.47
26F6665FA	25.0	D	7.50	68.45	43.78	32.17	23.47
26F6636FA	30.0	D	8.00	75.97	48.58	35.69	26.03

Case Style	Base Dimensions K	J	Case Style	Base Dimensions A	B
A	2.08″	2.16″	T	2.50″	2.62″
P	1.75″	1.88″	C	2.91″	1.91″
S	2.00″	2.12″	D	3.66″	1.97″



CASE STYLES C, D

PRICES LISTED ARE FOR GUIDANCE ONLY

GENERAL ELECTRIC SCR Commutating Capacitors

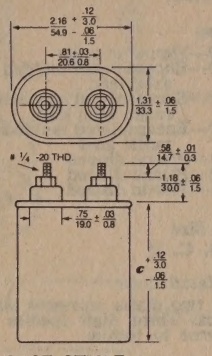
SCR commutation capacitors are used primarily in SCR (Silicon Controlled Rectifier) circuits where the high rms currents require a ruggedly designed capacitor. They may also be used in any circuit where high current handling capability is needed. The current ratings listed below are based on a 50-microsecond half sinusoid current pulsewidth and, to assure correct application, users should consult GE Capacitors For Power Electronics Handbook which is available either from General Electric or your Distributor. The peak voltage rating is the maximum peak voltage (either positive or negative) that the capacitor should experience in the application.

POLYPROPYLENE/PAPER STANDARD LINE

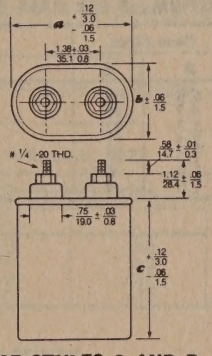
Polypropylene/Paper 26F6700 and 26F6800 series for medium to high current application.

Name Plate Rating				Case	Max. rms	Net Each, Lots of		
Volts Peak	Cap., μF	General Electric No.	Case Style	Ht. C	Amps at 55° C*	1-24	25-49	50-99
500	2	26F6905FC	A	2.62	9	$ 26.19	$ 15.98	$ 10.74
500	3	26F6906FC	A	3.50	12	29.11	17.75	11.92
500	5	26F6907FC	A	4.25	20	32.92	20.06	13.46
500	10	26F6908FC	C	4.25	32	45.56	27.72	18.57
500	20	26F6909FC	C	6.25	59	59.66	36.27	24.27
500	30	26F6910FC	D	7.25	85	77.19	46.90	31.35
500	40	26F6911FC	G	5.88	100	130.96	79.51	53.09
500	50	26F6912FC	G	6.25	121	141.30	85.78	57.27
600	1	26F6913FC	A	2.62	6	27.28	16.64	11.18
600	2	26F6914FC	A	2.62	10	28.45	17.35	11.65
600	5	26F6915FC	A	4.75	21	35.08	21.37	14.33
600	10	26F6916FC	C	4.75	35	47.67	29.01	19.42
600	20	26F6917FC	D	6.25	59	64.88	39.44	26.38
600	30	26F6918FC	G	6.25	92	124.38	75.52	50.43
600	40	26F6919FC	G	7.25	119	143.46	87.09	58.14
600	50	26F6920FC	G	9.00	145	185.20	112.40	75.02
800	1	26F6921FC	A	2.62	7	28.64	17.46	11.73
800	2	26F6922FC	A	3.50	12	30.00	18.29	12.28
800	5	26F6923FC	C	7.25	24	40.76	24.82	16.63
800	10	26F6924FC	C	6.25	43	59.00	35.88	24.00
800	20	26F6925FC	G	7.25	75	125.98	76.49	51.08
800	25	26F6926FC	G	7.25	89	131.76	79.99	53.41
800	30	26F6927FC	G	8.00	106	148.63	90.22	60.23
1000	1	26F6769FC	A	3.50	7	29.91	18.23	12.24
1000	2	26F6732FC	A	4.25	13	31.22	19.03	12.77
1000	5	26F6734FC	C	4.75	25	44.38	27.01	18.09
1000	10	26F6735FC	D	6.25	45	62.10	37.76	25.25
1000	20	26F6770FC	G	7.25	79	123.77	75.15	50.18
1500	.5	26F6771FC	A	3.50	5	23.70	14.47	9.73
1500	1	26F6742FC	A	4.25	9	30.00	18.29	12.28
1500	2	26F6743FC	C	4.25	15	35.27	21.48	14.41
1500	5	26F6745FC	D	7.25	34	57.73	35.11	23.49
1500	10	26F6746FC	G	7.25	58	115.68	70.25	46.91

*Value is for derating purposes only. In no case should the rms current capability of the terminals be exceeded.



CASE STYLE A



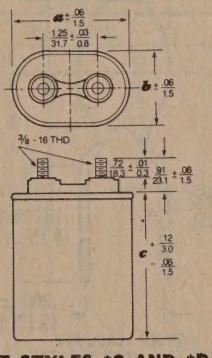
CASE STYLES C AND D

ALL POLYPROPYLENE STANDARD LINE

Polypropylene 97F8500 series for very high current applications.

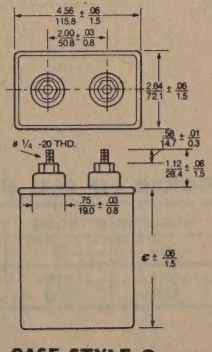
Name Plate Rating				Case	Max. rms	Net Each, Lots of		
Volts Peak	Cap., μF	General Electric No.	Case Style	Ht. C	Amps at 55° C*	1-24	25-49	50-99
350	1	97F8560FC	A	2.88	28	$ 40.53	$ 24.67	$ 16.53
350	2	97F8511FC	A	2.88	47	42.93	26.13	17.50
350	3	97F8561FC	A	3.88	63	45.04	27.41	18.36
350	5	97F8562FC	C	2.62	87	57.12	34.74	23.24
350	10	97F8563FC	C	4.75	149	67.60	41.09	27.48
350	10	97F8540FC	*C	4.75	158	106.94	64.95	43.38
350	15	97F8515FC	C	5.75	214	77.38	47.02	31.43
350	15	97F8541FC	*C	6.25	223	117.84	71.56	47.79
350	20	97F8516FC	D	5.75	271	85.98	52.23	34.91
350	20	97F8568FC	*D	6.25	278	131.00	79.54	53.11
600	1	97F8564FC	A	3.88	34	41.09	25.02	16.76
600	2	97F8518FC	A	4.75	60	45.28	27.55	18.45
600	3	97F8565FC	C	3.88	75	52.28	31.80	21.28
600	5	97F8520FC	C	4.75	112	63.65	38.70	25.88
600	5	97F8543FC	*C	5.25	118	101.96	61.92	41.37
600	10	97F8521FC	D	6.52	198	84.24	51.18	34.20
600	10	97F8544FC	*D	6.75	207	122.69	74.49	49.75
800	1	97F8522FC	A	3.88	38	42.08	25.62	17.16
800	2	97F8566FC	C	3.88	61	54.02	32.85	21.99
800	3	97F8567FC	C	4.50	81	59.66	36.27	24.27
800	5	97F8525FC	C	6.25	129	69.15	42.03	28.10
800	5	97F8545FC	*C	6.75	134	107.13	65.06	43.46
800	10	97F8526FC	G	5.18	218	140.87	85.52	57.10
800	10	97F8569FC	G	6.25	234*	183.36	111.29	74.27

*Value is for derating purposes only. In no case should the rms current capability of the terminals be exceeded.



CASE STYLES *C AND *D

Case Style	Base Dimensions	
	A	B
A	2.16	1.31
B	2.68	1.56
C, *C	2.91	1.91
D, *D	3.66	1.97



CASE STYLE G

KEMET® Tantalum Capacitors

T	XXX	A	105	K	050	A	S	C
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)

(A) Tantalum

(B) Series
T110—Hermetic polar
T310—Encapsulated molded axial lead
T322—Encapsulated extended range axial lead
T330—Encapsulated molded radial lead
T361—Plastic dipped
T362—Plastic dipped
T368—Plastic dipped

(C) Case Size
A, B, C, D

(D) Picofarad Code
First two digits represent significant figures. Third digit species number of zeros to follow.

(E) Capacitance Tolerance
M—±20%
K—±10%
J —±5%
G—±2%
F —±1%
X—Other

(F) Voltage
At 85° C.

(G) Failure Rate
A—Not applicable
M—1%/1000 hours
P —0.1%/1000 hours
R—0.01%/1000 hours
S —0.001%/1000 hours

(H) Lead Material
S —Standard
F—Bare Nickel
G—Gold plated nickel
E —Copperweld
D—Gold dumet
H—Solder coated nickel
I —Alloy 180 (bare)
J —Alloy 180 (solder)

(I) Specification
(when necessary)
C100 —Uninsulated capacitors
C7000—Reeling per EIA Specification RS-296C
C7200—Per specification RS-296D
Other—As applicable

T361 SERIES
MAXIMUM μF PER CASE SIZE

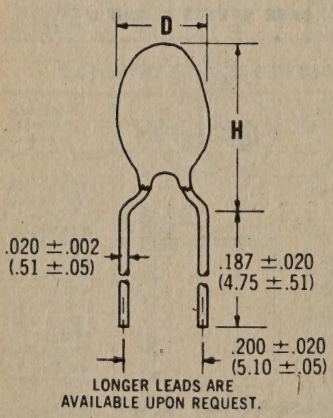
Volts	Case Sizes A	B
6	6.8	68
10	4.7	39
15	3.3	22
20	2.2	15
25	1.5	10
35	1.0	6.8
50	1.0	4.7

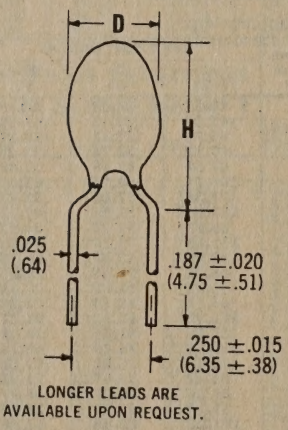
T362 SERIES
MAXIMUM μF PER CASE SIZE

Volts	Case Sizes A	B	C	D
6	6.8	68	150	330
10	4.7	39	100	220
15	3.3	22	68	150
20	2.2	15	47	100
25	1.5	10	33	68
35	1.0	6.8	22	47
50	1.0	4.7	15	22

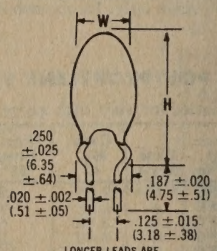
T368 SERIES
MAXIMUM μF PER CASE SIZE

Volts	Case Sizes A	B	C	D
6	6.8	68	150	330
10	4.7	39	100	220
15	3.3	22	68	150
20	2.2	15	47	100
25	1.5	10	33	68
35	1.0	6.8	22	47
50	1.0	4.7	15	22

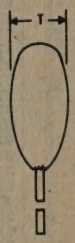




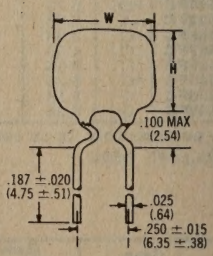
A & B CASES



T368
A, B, C, & D CASES



C & D CASES



DIMENSIONS PER CASE SIZE

Case Size	Dimensions, Inches D	H
A	.175	.350
B	.250	.500

DIMENSIONS PER CASE SIZE

Case Size	Dimensions, Inches D	H
A	.175	.350
B	.250	.500
C	.350	.650
D	.400	.750

DIMENSIONS PER CASE SIZE

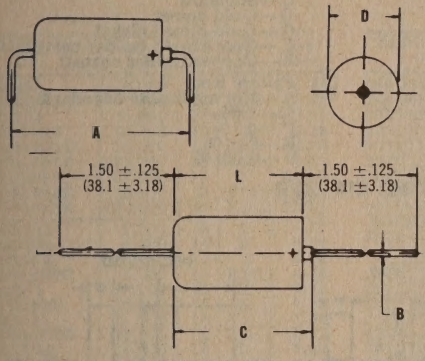
Case Size	Dimensions, Inches T	W	H
A	.175	.175	.350
B	.250	.250	.500
C	.250	.450	.440
D	.275	.600	.660

PRICES LISTED ARE FOR GUIDANCE ONLY

T110 SERIES

MAXIMUM μF PER CASE SIZE

Volts	Case Sizes A	B	C	D
6	6.8	56	180	330
10	4.7	39	120	220
15	3.3	22	68	150
20	2.2	15	47	100
35	1.0	6.8	22	47
50	1.0	4.7	18	22
60	.68	3.9	12	22
75	.68	3.9	10	15
100	.56	2.7	6.8	10
125	.33	2.2	6.8	10



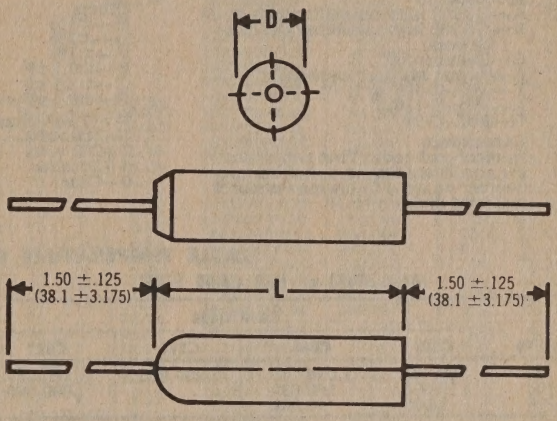
DIMENSIONS PER CASE SIZE

Case Size	Dimensions, Inches A	B	D	L	Max. Wt. Gms.
A	0.5	.02	.135	.286	.57
B	0.7	.02	.185	.474	1.41
C	1.0	.025	.289	.686	5.00
D	1.1	.025	.351	.786	8.50

T310 SERIES

MAXIMUM μF PER CASE SIZE

Volts	Case Sizes A	B	C	D
6	6.8	56	180	330
10	4.7	39	120	220
15	3.3	22	68	150
20	2.2	15	47	100
35	1.0	6.8	22	47
50	1.0	4.7	18	22



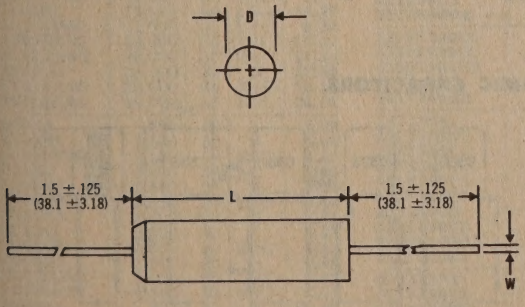
DIMENSIONS PER CASE SIZE

Case Size	Dimensions, Inches A	D	L	B
A	0.6	.138	.390	.025
B	0.8	.190	.562	.025
C	1.0	.300	.710	.025
D	1.1	.365	.875	.025

T322 SERIES

MAXIMUM μF PER CASE SIZE

Volts	Case Sizes A	B	C	D
2	10	33	68	...
4	6.8	22	47	68
6	4.7	15	33	68
10	3.3	10	22	47
15	2.2	6.8	15	33
20	1.5	4.7	10	22
25	1.0	3.3	10	15
35	.47	1.5	4.7	10
50	.27	1.0	2.2	4.7



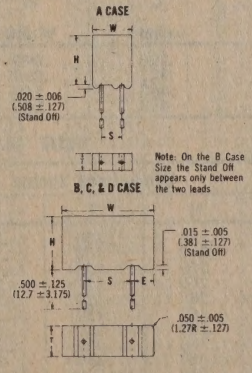
DIMENSIONS PER CASE SIZE

Case Size	Dimension, Inches B	D	L
A	.02	.095	.260
B	.02	.110	.290
C	.02	.180	.345
D	.02	.180	.420

T330 SERIES

MAXIMUM μF PER CASE SIZE

Volts	Case Sizes A	B	C	D
6	22	22	68	220
10	15	15	39	150
15	8.2	8.2	33	82
20	6.8	...	...	...
25	4.7	4.7	15	47
35	2.7	3.3	10	33
50	1.5	2.2	5.6	18



DIMENSIONS PER CASE SIZE

Case Size	Dimensions, Inches H	W	T	S
A	.345	.230	.105	.125
B	.225	.285	.170	.200
C	.325	.325	.170	.200
D	.375	.600	.195	.200

KEMET® Ceramic Capacitors

C	XXX	K	102	K	2	X	5	C	A
Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	Ⓗ	Ⓘ	Ⓙ

Ⓐ Ceramic

Ⓑ Case Size
C052
C062
C512
C522

Ⓒ Specification
A—GR900 high reliability (chips)
B—GR900 high reliability (leaded devices)
C—Commercial
E—Kemet Military equivalent
T—MIL-C-39014/1, /2, /5
K—MIL-C-11015
G—MIL-C-20

Ⓓ Capacitance
In picofarad code: First two digits are significant figures and third is number of zeros following (except 9 indicates division by 10.

Ⓔ Tolerance
Standard
M—±20%
K—±10%
J —±5%
Z —+80%, −20%
P —GMV
X—Other
Others
H—±3%
G—±2%
F —±1%
B —±0.1 pF
C—±.25 pF
D—±0.5 pF

Ⓕ WorkingVoltage
1—100 volts
2—200 volts
5—50 volts
0—Other

Ⓖ Temperature Characteristic
G—C0G
X—X7R
R—X7R
U—Z5U

Ⓗ Internal Construction
1—High temperature solder. For Z5U characteristic only
5—Ultra-high Temperature Solder. For all others.

Ⓘ Lead Material
C—Standard
D—Gold dumet
G—Gold plated nickel
E—Copperweld (solder coated)
R—Copper (solder coated)

Ⓙ Failure Rate
A—Not applicable (standard)
M—1.0%
P—0.1%
R—0.01%
S—0.001%

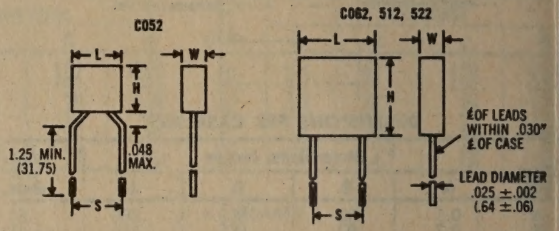
STABLE TEMPERATURE CHARACTERISTIC, EIA X7R

MAXIMUM pF PER CASE SIZE

Volts	Case Sizes C052	C062	C512	C522
50	100,000	1,000,000	2,200,000	3,300,000
100	10,000	100,000	....	1,000,000
200	1,000	10,000	....	....

DIMENSIONS PER CASE SIZE

Case Size	Dimensions, Inches Height	Length	Width	Lead Spacing
C052	.190	.190	.090	.200
C062	.290	.290	.090	.200
C512	.480	.480	.140	.400
C522	.480	.480	.240	.400



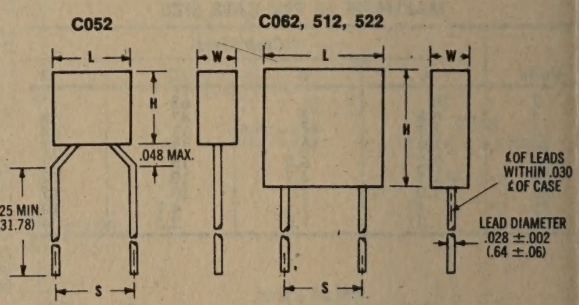
ULTRA-STABLE TEMPERATURE CHARACTERISTIC, EIA COG

MAXIMUM pF PER CASE SIZE

Volts	Case Sizes C052	C062	C512	C522
50	100,000	1,000,000	2,200,000	3,300,000
100	10,000	100,000	....	1,000,000
200	1,000	10,000	....	....

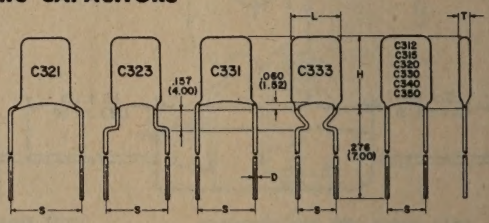
DIMENSIONS PER CASE SIZE

Case Size	Dimensions, Inches H Height	L Length	W Width	S Lead Spacing
C052	.190	.190	.090	.200
C062	.290	.290	.090	.200
C512	.480	.480	.140	.400
C522	.480	.480	.240	.400



BLUE MAX DIPPED CERAMIC CAPACITORS

Case Size	Dimensions, Inches L	H	T	S	D
C312	.120	.160	.100	.100	.016
C315	.150	.210	.100	.100	.016
C320	.200	.260	.125	.100	.020
C321	.200	.260	.125	.250	.050
C323	.200	.260	.125	.200	.020
C330	.300	.360	.150	.200	.020
C331	.300	.360	.150	.250	.020
C333	.300	.360	.150	.200	.020
C340	.400	.460	.150	.200	.020
C350	.500	.560	.200	.400	.025



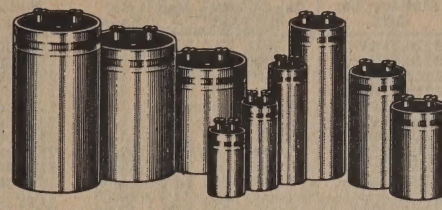
MAXIMUM pF PER CASE SIZE

Volts	Case Sizes C312	C315	C320	C321	C323	C330	C331	C333	C340	C350
50	12,000	22,000	180,000	180,000	180,000	1,500,000	1,500,000	1,500,000	2,700,000	6,800,000
100	2,700	4,700	47,000	47,000	47,000	270,000	270,000	270,000	560,000	1,500,000
200	680	1,200	12,000	12,000	12,000	56,000	56,000	56,000	150,000	330,000

PRICES LISTED ARE FOR GUIDANCE ONLY

MALLORY Computer Grade Capacitors

Operating life should exceed 10 years when used within stated parameters. Derating voltage and/or lowering operating temperature will extend life by a large factor. **Temp. Range:** −40° C to +85° C. **Tolerance:** 0–150 WVDC, −10 +75% (U); 151 WVDC up, −10 +50% (T). For complete specifications, ask for Form 4-304 (CG), 4-303 (CGS). Both classes are supplied with polyester film insulating sleeves and have "High-post" terminals with #10-32 screws. Physical mounting of these capacitors is usually done with Mallory VR clamps. The clamps, however, are not included with the capacitors. Order separately.



Mallory No. CG-	Cap., μF	WV DC	Size *	Net Each
G3U10B1	6,000	10	B	$ 5.25
752U010R2C	7,500	10	R2C	4.31
14U10H1	10,000	10	H	7.01
1352U10K1	13,500	10	K	8.28
143U010R3C	14,000	10	R3C	5.28
213U010R4C	21,000	10	R4C	6.13
4352U10F1	43,500	10	F	18.29
463U010V4C	46,000	10	V4C	9.86
164U010X5L	160,000	10	X5L	22.17
252U15A1	2,500	15	A	4.37
452U15B1	4,500	15	B	5.79
642U15C1	6,400	15	C	5.98
652U015R2C	6,500	15	R2C	4.34
83U15H1	8,000	15	H	6.82
1052U15K1	10,500	15	K	7.49
113U15J1	11,000	15	J	7.80
123U015R3C	12,000	15	R3C	5.22
143U15D1	14,000	15	D	9.89
183U015R4C	18,000	15	R4C	6.13
213U015U3C	21,000	15	U3C	6.49
273U015V3C	27,000	15	V3C	7.83
343U15F1	34,000	15	F	15.83
403U015V4C	40,000	15	V4C	9.71
533U15G1	53,000	15	G	20.69
953U015X4C	95,000	15	X4C	16.80
144U015X5L	140,000	15	X5L	22.41
152U25A1	1,500	25	A	4.00
282U25B1	2,800	25	B	4.70
332U025R2C	3,300	25	R2C	4.49
382U25C1	3,800	25	C	5.79
452U25H1	4,500	25	H	6.16
63U25K1	6,000	25	K	7.22
632U025R3C	6,300	25	R3C	5.25
852U25D1	8,500	25	D	8.71
922U025R4C	9,200	25	R4C	6.22
103U025U3C	10,000	25	U3C	6.76
133U025V3C	13,000	25	V3C	8.28
1352U25E1	13,500	25	E	13.29
24U25F1	20,000	25	F	14.56
203U025V4C	20,000	25	V4C	10.07
323U025W4C	32,000	25	W4C	14.07
483U025X4C	48,000	25	X4C	18.20
112U35A1	1,100	35	A	4.19
212U35B1	2,100	35	B	4.82
232U035R2C	2,300	35	R2C	4.61
362U35H1	3,600	35	H	7.19
432U035R3C	4,300	35	R3C	5.49
472U35K1	4,700	35	K	7.73
532U35J1	5,300	35	J	8.07
692U35D1	6,900	35	D	10.59
952U035V3C	9,500	35	V3C	8.77
113U35E1	11,000	35	E	14.29
113U035U4C	11,000	35	U4C	8.34
143U035V4C	14,000	35	V4C	10.34
223U035W4C	22,000	35	W4C	14.35
243U35G1	24,000	35	G	17.59
333U035X4C	33,000	35	X4C	18.84
493U035X5L	49,000	35	X5L	24.51
82U50A1	800	50	A	4.03
152U50B1	1,500	50	B	5.00
152U050R2C	1,500	50	R2C	4.49
23U50C1	2,000	50	C	5.49
252U50H1	2,500	50	H	5.58
292U050R3C	2,900	50	R3C	5.46
332U50K1	3,300	50	K	7.25
352U50J1	3,500	50	J	7.31
432U050R4C	4,300	50	R4C	6.13
452U50D1	4,500	50	D	7.95
502U050U3C	5,000	50	U3C	7.01
652U050V3C	6,500	50	V3C	8.67
732U50E1	7,300	50	E	11.89
742U050U4C	7,400	50	U4C	8.49
952U050V4C	9,500	50	V4C	10.07
14U50F1	10,000	50	F	14.86
153U050W4C	15,000	50	W4C	14.44
1652U50G1	16,500	50	G	20.44
223U050X4C	22,000	50	X4C	18.41
333U050X5L	33,000	50	X5L	24.42
62U75A1	600	75	A	4.49
801U075R2C	800	75	R2C	4.43
13U75B1	1,000	75	B	5.22

Mallory No. CG-	Cap., μF	WV DC	Size *	Net Each
152U75C1	1,500	75	C	$ 6.34
152U075R3C	1,500	75	R3C	5.43
23U75H1	2,000	75	H	6.89
222U075R4C	2,200	75	R4C	6.13
252U75K1	2,500	75	K	8.22
262U75J1	2,600	75	J	8.37
262U075U3C	2,600	75	U3C	6.82
332U075V3C	3,300	75	V3C	8.46
3451U75D1	3,450	75	D	8.92
382U075U4C	3,800	75	U4C	8.25
492U075V4C	4,900	75	V4C	10.19
552U75E1	5,500	75	E	15.10
792U075W4C	7,900	75	W4C	14.19
822U75F1	8,200	75	F	16.11
1252U75G1	12,500	75	G	20.99
173U075X5L	17,000	75	X5L	24.02
42U100A1	400	100	A	4.73
771U100R3C	770	100	R3C	5.61
13U100C1	1,000	100	C	6.28
112U100R4C	1,100	100	R4C	6.52
132U100H1	1,300	100	H	7.34
172U100J1	1,700	100	J	8.49
2251U100D1	2,250	100	D	10.92
252U100V4C	2,500	100	V4C	11.31
362U100E1	3,600	100	E	15.14
402U100W4C	4,000	100	W4C	16.17
532U100F1	5,300	100	F	19.56
592U100X4C	5,900	100	X4C	20.99
832U100G1	8,300	100	G	26.72
2750U150A1	275	150	A	4.76
52U150B1	500	150	B	5.61
72U150C1	700	150	C	6.43
1151U150J1	1,150	150	J	8.64
1551U150D1	1,550	150	D	10.89
252U150E1	2,500	150	E	15.41
362U150F1	3,600	150	F	19.56
562U150G1	5,600	150	G	26.96
181T200A1	180	200	A	4.52
341T200B1	340	200	B	5.55
451T200C1	450	200	C	6.43
551T200H1	550	200	H	7.07
751T200K1	750	200	K	8.80
13T200D1	1,000	200	D	10.62
1651T200E1	1,650	200	E	14.74
2451T200F1	2,450	200	F	19.78
382T200G1	3,800	200	G	27.27
141T250A1	140	250	A	5.40
2750T250B1	275	250	B	6.13
3750T250C1	375	250	C	6.64
62T250K1	600	250	K	9.46
82T250D1	800	250	D	10.83
33T250G1	3,000	250	G	28.78
2250T300B1	225	300	B	5.95
3250T300C1	325	300	C	6.89
5250T300K1	525	300	K	9.71
72T300D1	700	300	D	11.40
262T300G1	2,600	300	G	30.57
12T350A1	100	350	A	5.43
181T350B1	180	350	B	6.07
251T350C1	250	350	C	6.79
42T350K1	400	350	K	9.46
551T350D1	550	350	D	11.43
132T350F1	1,300	350	F	21.75
23T350G1	2,000	350	G	29.85
151T400C1	150	400	C	6.55
3250T400D1	325	400	D	10.13
531T400E1	530	400	E	15.26
41T450A1	40	450	A	4.43
111T450C1	110	450	C	6.10
141T450H1	140	450	H	7.22
241T450D1	240	450	D	10.07
173U003R1N	17,000	3	R1N	4.52
253U003R2C	25,000	3	R2C	4.97
373U003R2L	37,000	3	R2L	5.46
483U003R3C	48,000	3	R3C	5.79
573U003R3L	57,000	3	R3L	6.43
683U003R4C	68,000	3	R4C	6.92
803U003R4L	80,000	3	R4L	8.19
823U003V2L	82,000	3	V2L	9.25
104U003R5L	100,000	3	R5L	9.16

TYPE CGS

Mallory No. CGS-	Cap., μF	WV DC	Size *	Net Each
104U003V3C	100,000	3	V3C	$11.22
124U003V3L	120,000	3	V3L	12.19
174U003V4C	170,000	3	V4C	12.77
184U003W3C	180,000	3	W3C	15.26
214U003W3L	210,000	3	W3L	15.89
284U003W4C	280,000	3	W4C	22.26
294U003W4C	290,000	3	W4C	17.65
384U003W5C	380,000	3	W5C	30.57
394U003W5C	390,000	3	W5C	22.14
404U003X4C	400,000	3	X4C	23.26
544U003X5C	540,000	3	X5C	30.63
654U003X5R	650,000	3	X5R	45.74
123U005R1N	12,000	5	R1N	4.52
183U005R2C	18,000	5	R2C	4.97
263U005R2L	26,000	5	R2L	5.46
353U005R3C	35,000	5	R3C	5.76
403U005R3L	40,000	5	R3L	6.43
503U005R4C	50,000	5	R4C	6.92
583U005V2L	58,000	5	V2L	9.25
653U005R5C	65,000	5	R5C	8.67
753U005V3C	75,000	5	V3C	11.22
903U005V3L	90,000	5	V3L	12.19
124U005V4C	120,000	5	V4C	12.77
154U005W3L	150,000	5	W3L	15.89
164U005V5C	160,000	5	V5C	14.77
204U005W4C	200,000	5	W4C	17.65
264U005W5C	260,000	5	W5C	26.66
284U005X4C	280,000	5	X4C	23.26
384U005X5C	380,000	5	X5C	30.63
454U005X5R	450,000	5	X5R	45.74
504U005X6L	500,000	5	X6L	53.75
722U010BB1	7,200	10	BB1	4.49
123U010R2C	12,000	10	R2C	4.52
133U010BD1	13,000	10	BD1	4.79
203U010BF1	20,000	10	BF1	5.58
203U010R2L	20,000	10	R2L	5.46
263U010R3C	26,000	10	R3C	5.79
303U010DD1	30,000	10	DD1	7.25
333U010R4C	33,000	10	R4C	6.95
433U010R4L	43,000	10	R4L	8.19
443U010DF1	44,000	10	DF1	9.07
553U010R5L	55,000	10	R5L	9.16
583U010V3C	58,000	10	V3C	11.22
763U010V4C	76,000	10	V4C	12.77
943U010V4C	94,000	10	V4C	12.77
114U010W3L	110,000	10	W3L	15.89
144U010V5L	140,000	10	V5L	15.59
154U010X3L	150,000	10	X3L	21.50
154U010W4C	150,000	10	W4C	22.23
164U010FJ1	160,000	10	FJ1	22.26
164U010W4C	160,000	10	W4C	17.65
224U010X4C	220,000	10	X4C	23.26
234U010W5L	230,000	10	W5L	29.63
284U010X5R	280,000	10	X5R	36.97
334U010X5L	330,000	10	X5L	32.91
394U010X6L	390,000	10	X6L	50.23
494U010X8L	490,000	10	X8L	51.83
552U015BB1	5,500	15	BB1	4.16
892U015R2C	8,900	15	R2C	4.52
103U015BD1	10,000	15	BD1	4.88
153U015BF1	15,000	15	BF1	5.67
173U015R3C	17,000	15	R3C	6.13
213U015R3L	21,000	15	R3L	6.34
233U015DD1	23,000	15	DD1	7.25
253U015R4C	25,000	15	R4C	7.25
343U015R5C	34,000	15	R5C	8.58
343U015DF1	34,000	15	DF1	8.71
383U015V3C	38,000	15	V3C	8.95
503U015DI1	50,000	15	DI1	11.04
553U015V3L	55,000	15	V3L	12.10
773U015V4L	77,000	15	V4L	14.29
803U015FF1	80,000	15	FF1	15.17
833U015V5L	83,000	15	V5L	14.74
883U015V5C	88,000	15	V5C	14.77
104U015FH1	100,000	15	FH1	18.87
104U015V5L	100,000	15	V5L	15.59
114U015W4C	110,000	15	W4C	17.65
124U015X3L	120,000	15	X3L	21.50
124U015FJ1	120,000	15	FJ1	22.26
134U015W4L	130,000	15	W4L	19.90
154U015X4C	150,000	15	X4C	23.26
184U015X4L	180,000	15	X4L	30.57
214U015X5R	210,000	15	X5R	34.64
304U015X7L	300,000	15	X7L	50.26
302U025BB1	3,000	25	BB1	4.16
472U025R2C	4,700	25	R2C	4.64
562U025BD1	5,600	25	BD1	5.16
822U025BF1	8,200	25	BF1	5.64
892U025R3C	8,900	25	R3C	5.64
123U025DD1	12,000	25	DD1	6.34
133U025R4C	13,000	25	R4C	6.95
183U025DF1	18,000	25	DF1	9.07
203U025V3C	20,000	25	V3C	8.71
203U025R5C	20,000	25	R5C	8.67
273U025DI1	27,000	25	DI1	10.28
293U025V4C	29,000	25	V4C	11.22
323U025V4C	32,000	25	V4C	12.77
433U025FF1	43,000	25	FF1	15.26
433U025V5L	43,000	25	V5L	14.62
463U025W3L	46,000	25	W3L	15.89
503U025V5L	50,000	25	V5L	15.59
573U025FH1	57,000	25	FH1	19.17

*Case sizes on following page.

Continued on Following Page

MALLORY Computer Grade Capacitors

COMPUTER GRADE (CONT.)

Mallory No. CGS-	Cap., μF	WV DC	Size *	Net Each
653U025W4C	65,000	25	W4C	$17.65
673U025FJ1	67,000	25	FJ1	21.41
703U025X4C	70,000	25	X4C	23.26
763U025X4C	76,000	25	X4C	21.50
853U025W5L	85,000	25	W5L	24.23
923U025X5C	92,000	25	X5C	25.99
114U025X5L	110,000	25	X5L	31.42
114U025X5R	110,000	25	X5R	34.79
114U025X5C	110,000	25	X5C	30.63
194U025X8L	190,000	25	X8L	51.83
452U030R2C	4,500	30	R2C	4.97
802U030R3C	8,000	30	R3C	5.79
123U030R4C	12,000	30	R4C	6.92
153U030R4L	15,000	30	R4L	8.19
183U030R5L	18,000	30	R5L	9.16
303U030V4C	30,000	30	V4C	12.77
453U030V5L	45,000	30	V5L	15.59
553U030W4C	55,000	30	W4C	17.65
703U030W5L	70,000	30	W5L	24.23
703U030X4C	70,000	30	X4C	23.26
973U030X5L	97,000	30	X5L	38.25
104U030X5L	100,000	30	X5L	32.91
164U030X8L	160,000	30	X8L	51.83
222U040BB1	2,200	40	BB1	4.16
272U040R2C	2,700	40	R2C	4.49
352U040R2C	3,500	40	R2C	4.97
422U040BD1	4,200	40	BD1	5.55
512U040R3C	5,100	40	R3C	5.52
602U040R3C	6,000	40	R3C	5.79
622U040BF1	6,200	40	BF1	6.16
752U040R4C	7,500	40	R4C	6.34
902U040R4C	9,000	40	R4C	6.92
932U040DD1	9,300	40	DD1	7.25
113U040V3C	11,000	40	V3C	8.04
133U040DF1	13,000	40	DF1	8.71
133U040R5L	13,000	40	R5L	9.16
173U040V4C	17,000	40	V4C	10.28
203U040DI1	20,000	40	DI1	11.04
233U040V4C	23,000	40	V4C	12.77
323U040FF1	32,000	40	FF1	21.05
353U040V5L	35,000	40	V5L	15.59
403U040X4C	40,000	40	X4C	17.65
403U040W4C	40,000	40	W4C	23.99
433U040FH1	43,000	40	FH1	19.44
503U040FJ1	50,000	40	FJ1	22.26
533U040X5C	53,000	40	X5C	24.02
553U040W5L	55,000	40	W5L	24.23
553U040X4C	55,000	40	X4C	23.26
783U040X6L	78,000	40	X6L	30.57
803U040X5L	80,000	40	X5L	32.91
1253U40X8L	125,000	40	X8L	51.83
162U050BB1	1,600	50	BB1	4.16
222U050R2C	2,200	50	R2C	4.40
292U050BD1	2,900	50	BD1	5.52
302U050R2C	3,000	50	R2C	4.97
412U050R3C	4,100	50	R3C	5.55
432U050BF1	4,300	50	BF1	7.31
492U050R3L	4,900	50	R3L	5.70
502U050R3C	5,000	50	R3C	5.76
612U050R4C	6,100	50	R4C	6.34
652U050DD1	6,500	50	DD1	7.64
752U050R4C	7,500	50	R4C	6.92
962U050DF1	9,600	50	DF1	8.71
123U050R5L	12,000	50	R5L	9.16
133U050V4C	13,000	50	V4C	10.74
143U050DI1	14,000	50	DI1	11.19
153U050V4C	15,000	50	V4C	11.04
203U050V5L	20,000	50	V5L	14.47
203U050V4C	20,000	50	V4C	12.77
223U050FF1	22,000	50	FF1	18.44
253U050W4C	25,000	50	W4C	16.41
253U050V5C	25,000	50	V5C	14.77
303U050FH1	30,000	50	FH1	18.87
303U050V5L	30,000	50	V5L	15.59
313U050W4C	31,000	50	W4C	17.65
333U050X4C	33,000	50	X4C	21.50
353U050FJ1	35,000	50	FJ1	21.81
413U050X4L	41,000	50	X4L	22.26
433U050X5C	43,000	50	X5C	24.02
483U050X4C	48,000	50	X4C	23.26
503U050W5L	50,000	50	W5L	24.23
553U050X4L	55,000	50	X4L	28.57
603U050X5C	60,000	50	X5C	30.63
633U050X6L	63,000	50	X6L	30.57
703U050X5L	70,000	50	X5L	32.91
104U050X8L	100,000	50	X8L	51.80
821U075BB1	820	75	BB1	4.10
112U075R2C	1,100	75	R2C	4.52
152U075BD1	1,500	75	BD1	5.00
152U075R2C	1,500	75	R2C	4.94
212U075R3C	2,100	75	R3C	5.64
232U075BF1	2,300	75	BF1	$ 5.43
292U075R3C	2,900	75	R3C	6.16
312U075R4C	3,100	75	R4C	6.49
342U075DD1	3,400	75	DD1	7.19
422U075R4C	4,200	75	R4C	7.86
482U075V3C	4,800	75	V3C	8.77
502U075DF1	5,000	75	DF1	8.95
632U075R5L	6,300	75	R5L	10.71
712U075V4C	7,100	75	V4C	11.01
752U075DI1	7,500	75	DI1	11.28
103U075V4C	10,000	75	V4C	14.38
123U075FF1	12,000	75	FF1	17.08
153U075V5L	15,000	75	V5L	18.71
173U075X4C	17,000	75	X4C	20.93
173U075W4C	17,000	75	W4C	20.96
253U075W5L	25,000	75	W5L	28.94
253U075X4C	25,000	75	X4C	30.06
263U075X5R	26,000	75	X5R	28.42
373U075X5L	37,000	75	X5L	40.49
553U075X8L	55,000	75	X8L	60.66
851U100R2C	850	100	R2C	4.94
122U100BD1	1,200	100	BD1	6.34
172U100R3C	1,700	100	R3C	6.16
182U100BF1	1,800	100	BF1	6.58
242U100R4C	2,400	100	R4C	7.86
312U100R5C	3,100	100	R5C	6.92
402U100DF1	4,000	100	DF1	11.01
602U100V4C	6,000	100	V4C	14.38
902U100V5L	9,000	100	V5L	18.71
103U100W4C	10,000	100	W4C	20.96
153U100W5L	15,000	100	W5L	28.94
153U100X4C	15,000	100	X4C	30.06
213U100X5L	21,000	100	X5L	40.49
333U100X8L	33,000	100	X8L	60.66
401U150BB1	400	150	BB1	4.73
721U150BD1	720	150	BD1	5.88
112U150BF1	1,100	150	BF1	7.25
132U150R5C	1,300	150	R5C	8.67
172U150V3C	1,700	150	V3C	10.59
242U150V4C	2,400	150	V4C	13.38
282U150V4L	2,800	150	V4L	14.38
332U150V5C	3,300	150	V5C	16.29
352U150DI1	3,500	150	DI1	14.77
412U150W4C	4,100	150	W4C	21.78
482U150W4L	4,800	150	W4L	21.29
552U150W5C	5,500	150	W5C	24.87
572U150X4C	5,700	150	X4C	30.15
622U150W5L	6,200	150	W5L	28.36
672U150X4L	6,700	150	X4L	31.15
742U150FH1	7,400	150	FH1	27.75
772U150X5C	7,700	150	X5C	36.28
862U150X5L	8,600	150	X5L	39.04
872U150FJ1	8,700	150	FJ1	33.52
301T200R2C	300	200	R2C	5.13
591T200R3C	590	200	R3C	6.22
851T200R4C	850	200	R4C	7.76
901T200R4L	900	200	R4L	8.04
102T200R5C	1,000	200	R5C	9.43
122T200R5L	1,200	200	R5L	9.43
142T200V3C	1,400	200	V3C	10.59
202T200V4C	2,000	200	V4C	13.38
302T200V5L	3,000	200	V5L	17.53
342T200W4C	3,400	200	W4C	21.78
502T200W5C	5,000	200	W5C	28.36
742T200X5L	7,400	200	X5L	39.04
201T250BB1	200	250	BB1	4.52
251T250R2C	250	250	R2C	5.13
381T250BD1	380	250	BD1	5.55
501T250R3C	500	250	R3C	6.22
551T250BF1	550	250	BF1	6.58
701T250R4C	700	250	R4C	7.76
851T250DD1	850	250	DD1	8.61
102T250R5L	1,000	250	R5L	8.67
122T250DF1	1,200	250	DF1	10.71
122T250V3C	1,200	250	V3C	10.59
172T250V4C	1,700	250	V4C	13.38
192T250DI1	1,900	250	DI1	14.77
202T250W3L	2,000	250	W3L	18.96
252T250V5L	2,500	250	V5L	17.53
292T250W4C	2,900	250	W4C	21.78
392T250FH1	3,900	250	FH1	27.75
422T250W5L	4,200	250	W5L	28.36
602T250X5L	6,000	250	X5L	39.04
151T300R2C	150	300	R2C	5.13
301T300R3C	300	300	R3C	6.22
401T300R4C	400	300	R4C	7.76
501T300R4L	500	300	R4L	8.04
551T300R5C	550	300	R5C	8.67
801T300V3C	800	300	V3C	10.59
102T300V4C	1,000	300	V4C	13.38
132T300V4L	1,300	300	V4L	$14.38
152T300V5C	1,500	300	V5C	16.29
162T300W4C	1,600	300	W4C	21.78
172T300V5L	1,700	300	V5L	17.53
192T300W4L	1,900	300	W4L	21.29
212T300W5C	2,100	300	W5C	24.87
252T300W5L	2,500	300	W5L	28.36
252T300X4C	2,500	300	X4C	30.15
312T300X5C	3,100	300	X5C	36.28
352T300X5L	3,500	300	X5L	39.04
131T350BB1	130	350	BB1	4.73
251T350BD1	250	350	BD1	6.07
371T350BF1	370	350	BF1	6.79
381T350R4C	380	350	R4C	7.76
431T350R4L	430	350	R4L	8.04
581T350R5L	580	350	R5L	9.43
651T350V3C	650	350	V3C	10.59
801T350DF1	800	350	DF1	12.34
112T350W3C	1,100	350	W3C	16.11
132T350V5L	1,300	350	V5L	17.53
152T350W4C	1,500	350	W4C	21.78
222T350W5L	2,200	350	W5L	28.36
302T350FJ1	3,000	350	FJ1	33.52
332T350X5L	3,300	350	X5L	39.04
750T450BB1	75	450	BB1	4.73
101T450R2C	100	450	R2C	5.13
141T450BD1	140	450	BD1	5.64
211T450BF1	210	450	BF1	7.98
321T450DD1	320	450	DD1	9.71
351T450R5C	350	450	R5C	8.67
401T450R5L	400	450	R5L	9.43
481T450DF1	480	450	DF1	12.59
651T450V4C	650	450	V4C	13.38
801T450V4L	800	450	V4L	14.38
102T450W4C	1,000	450	W4C	21.78
112T450FF1	1,100	450	FF1	25.87
142T450W5C	1,400	450	W5C	29.09
152T450FH1	1,500	450	FH1	33.52
152T450X4C	1,500	450	X4C	30.15
182T450FJ1	1,800	450	FJ1	36.64
202T450X5C	2,000	450	X5C	36.28
242T450X5L	2,400	450	X5L	39.04

CGS Case Sizes			Dia. x L., Inches	Mtg. Clamp
N2L	..	...	1 x 2⅝	VR1†
N3C	..	...	1 x 3⅛	VR1†
N3L	..	...	1 x 3⅝	VR1†
N4C	..	...	1 x 4⅛	VR1†
R1N	..	...	1⅜ x 1¾	VR3‡
R2C	A	BB	1⅜ x 2⅛	VR3‡
R2L	..	...	1⅜ x 2⅝	VR3‡
R3C	B	BD	1⅜ x 3⅛	VR3‡
R3L	..	...	1⅜ x 3⅝	VR3‡
R4C	C	BF	1⅜ x 4⅛	VR3‡
R4L	..	...	1⅜ x 4⅝	VR3‡
R5C	..	...	1⅜ x 5⅛	VR3‡
R5L	..	...	1⅜ x 5⅝	VR3‡
U3C	H	...	1¾ x 3⅛	VR6§
U4C	J	...	1¾ x 4⅛	VR6§
U4L	..	...	1¾ x 4⅝	VR6§
U5C	..	...	1¾ x 5⅛	VR6§
U5L	..	...	1¾ x 5⅝	VR6§
V2L	..	...	2 x 2⅝	VR8#
V3C	K	DD	2 x 3⅛	VR8#
V3L	..	...	2 x 3⅝	VR8#
V4C	D	DF	2 x 4⅛	VR8#
V4L	..	...	2 x 4⅝	VR8#
V5C	..	...	2 x 5⅛	VR8#
V5L	..	DI	2 x 5⅝	VR8#
W3C	..	...	2½ x 3⅛	VR10^
W3L	..	...	2½ x 3⅝	VR10^
W4C	E	...	2½ x 4⅛	VR10^
W4L	..	...	2½ x 4⅝	VR10^
W5C	..	...	2½ x 5⅛	VR10^
W5L	..	...	2½ x 5⅝	VR10^
X3L	..	...	3 x 3⅝	VR12•
X4C	F	FF	3 x 4⅛	VR12•
X4L	..	...	3 x 4⅝	VR12•
X5C	..	FH	3 x 5⅛	VR12•
X5L	G	...	3 x 5⅝	VR12•
X5R	..	FJ	3 x 5⅞	VR12•
X6L	..	...	3 x 6⅝	VR12•
X7L	..	...	3 x 7⅝	VR12•
X8L	..	...	3 x 8⅝	VR12•

Net Each: †$0.35; ‡$0.37; §$0.53; #$0.59; ^$0.62; •$0.72.

SPACE DOES NOT PERMIT LISTING OF ALL RELATED COMPONENTS. WRITE FOR INFORMATION ON UNLISTED ITEMS.

PRICES LISTED ARE FOR GUIDANCE ONLY

33 WVDC

Tolerance, ±2.5%.

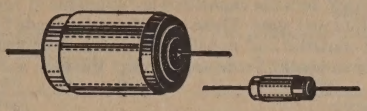
Mallory No.	Cap., pF	Size, In. Dia. x L.	Net Each
SXK310	100	.118 x .315	$0.35
SXK312	120	.118 x .315	.35
SXK315	150	.122 x .315	.35
SXK318	180	.122 x .315	.35
SXK322	220	.126 x .315	.35
SXK327	270	.130 x .315	.31
SXK333	330	.134 x .315	.31
SXK339	390	.142 x .315	.31
SXK347	470	.146 x .315	.31
SXK356	560	.150 x .315	.31
SXK368	680	.154 x .315	.31
SXK382	820	.157 x .315	.31
SXK210	1000	.161 x .315	.31
SXK212	1200	.150 x .473	.33
SXK215	1500	.154 x .473	.33
SXK218	1800	.165 x .473	.33
SXK222	2200	.173 x .473	.33
SXK227	2700	.193 x .473	.33
SXK233	3300	.205 x .473	.33
SXK239	3900	.217 x .473	.33
SXK247	4700	.236 x .473	.33
SXK256	5600	.220 x .670	.37
SXK268	6800	.236 x .670	.37
SXK282	8200	.252 x .670	.37
SXK110	10,000	.272 x .670	.37
SXK112	12,000	.291 x .670	.44
SXK115	15,000	.323 x .670	.44
SXK118	18,000	.350 x .670	.52
SXK122	22,000	.286 x .670	.52
SXK125	25,000	.407 x .670	.52
SXK127	27,000	.421 x .670	.52
SXK133	33,000	.402 x .867	.57
SXK139	39,000	.453 x .867	.57
SXK147	47,000	.480 x .867	.57
SXK156	56,000	.520 x .867	.68
SXK168	68,000	.563 x .867	.71
SXK182	82,000	.626 x .867	.78
SXK010	100,000	.670 x .867	.78

63 WVDC

Tolerance, ±2.5%.

SXL482	82	.122 x .315	$0.35
SXL310	100	.122 x .315	.35
SXL312	120	.126 x .315	.35
SXL315	150	.126 x .315	.35
SXL318	180	.126 x .315	.35
SXL322	220	.130 x .315	.28
SXL327	270	.134 x .315	.28
SXL333	330	.138 x .315	.28
SXL339	390	.146 x .315	.28
SXL347	470	.154 x .315	.28
SXL356	560	.157 x .315	.28
SXL368	680	.169 x .315	.28
SXL382	820	.177 x .315	.28
SXL210	1000	.173 x .473	.28
SXL212	1200	.189 x .473	.30
SXL215	1500	.213 x .473	.30
SXL218	1800	.224 x .473	.30
SXL222	2200	.232 x .473	.30
SXL227	2700	.244 x .473	.30
SXL233	3300	.256 x .473	.30
SXL239	3900	.280 x .473	.30
SXL247	4700	.303 x .473	.30
SXL256	5600	.276 x .670	.33
SXL268	6800	.287 x .670	.33
SXL282	8200	.303 x .670	.33
SXL110	10,000	.319 x .670	.33
SXL111	11,000	.303 x .867	.38
SXL112	12,000	.303 x .867	.38
SXL113	13,000	.315 x .867	.38
SXL115	15,000	.323 x .867	.38
SXL116	16,000	.330 x .867	.45
SXL118	18,000	.346 x .867	.45
SXL120	20,000	.358 x .867	.45
SXL122	22,000	.378 x .867	.56
SXL124	24,000	.388 x .867	.56
SXL125	25,000	.402 x .867	.56

POLYSTYRENE CAPACITORS



Manufactured from a unique form of stretched and fused polystyrene to provide the ultimate in temperature stability and humidity protection. Can replace mica, film, paper, ceramic types in most uses. **Insulation Resistance:** Greater than 100,000 megohms **Power Factor:** Less than 0.05%. **Temperature Coefficient:** −150 ppm/° C, ±60 ppm/° C. **Temperature Range:** −40° C to +85° C; for best operating stability, −25° C to +70° C. **Ask for Bulletin 9-370 for complete specifications.**

160 WVDC

Tolerance, ±2.5%.

Mallory No.	Cap., pF	Size, In. Dia. x L.	Net Each
SXM420	20	.173 x .315	$0.35
SXM433	33	.173 x .315	.27
SXM439	39	.181 x .315	.27
SXM447	47	.185 x .315	.27
SXM456	56	.177 x .315	.27
SXM468	68	.165 x .315	.27
SXM482	82	.146 x .315	.27
SXM310	100	.154 x .315	.27
SXM312	120	.161 x .315	.27
SXM315	150	.169 x .315	.27
SXM318	180	.173 x .315	.27
SXM322	220	.177 x .315	.27
SXM327	270	.181 x .315	.27
SXM330	300	.185 x .315	.27
SXM333	330	.189 x .315	.27
SXM336	360	.194 x .315	.27
SXM339	390	.201 x .315	.27
SXM343	430	.204 x .315	.27
SXM347	470	.209 x .315	.27
SXM350	500	.211 x .315	.27
SXM351	510	.213 x .315	.27
SXM356	560	.213 x .315	.27
SXM360	600	.220 x .315	.27
SXM362	620	.222 x .473	.27
SXM368	680	.228 x .473	.27
SXM375	750	.232 x .473	.27
SXM382	820	.236 x .473	.27
SXM391	910	.240 x .473	.27
SXM210	1000	.244 x .473	.26
SXM211	1100	.250 x .473	.29
SXM212	1200	.256 x .473	.29
SXM213	1300	.262 x .473	.29
SXM215	1500	.268 x .473	.29
SXM216	1600	.272 x .473	.29
SXM218	1800	.280 x .473	.29
SXM220	2000	.285 x .473	.29
SXM222	2200	.228 x .670	.29
SXM224	2400	.236 x .670	.29
SXM227	2700	.252 x .670	.29
SXM230	3000	.268 x .670	.29
SXM233	3300	.280 x .670	.32
SXM236	3600	.295 x .670	.32
SXM239	3900	.307 x .670	.32
SXM243	4300	.324 x .670	.32
SXM247	4700	.335 x .670	.32
SXM250	5000	.340 x .670	.32
SXM251	5100	.310 x .867	.38
SXM256	5600	.315 x .867	.38
SXM262	6200	.325 x .867	.38
SXM268	6800	.335 x .867	.38
SXM275	7500	.346 x .867	.38
SXM282	8200	.358 x .867	.38
SXM291	9100	.370 x .867	.38
SXM110	10,000	.382 x .867	.38
SXM111	11,000	.405 x .867	.41
SXM112	12,000	.417 x .867	.41
SXM113	13,000	.434 x .867	.41
SXM115	15,000	.452 x .867	.41
SXM116	16,000	.422 x 1.260	.54
SXM118	18,000	.429 x 1.260	.54
SXM120	20,000	.440 x 1.260	.54
SXM122	22,000	.465 x 1.260	.58
SXM124	24,000	.485 x 1.260	.58
SXM125	25,000	.492 x 1.260	.58

630 WVDC

Tolerance, ±1 pF for values 5-18 pF; ±5%, all others.

Mallory No.	Cap., pF	Size, In. Dia. x L.	Net Each
SX420	20	.173 x .473	$0.26
SX422	22	.173 x .473	.26
SX424	24	.173 x .473	.26
SX427	27	.173 x .473	.26
SX430	30	.173 x .473	.26
SX433	33	.173 x .473	.25
SX436	36	.178 x .473	.25
SX439	39	.181 x .473	.25
SX443	43	.183 x .473	.25
SX447	47	.185 x .473	.25
SX456	56	.189 x .473	.25
SX462	62	.191 x .473	.25
SX468	68	.193 x .473	.25
SX475	75	.195 x .473	.25
SX482	82	.197 x .473	.25
SX491	91	.199 x .473	.25
SX310	100	.201 x .473	.25
SX311	110	.203 x .473	.25
SX312	120	.205 x .473	.25
SX313	130	.207 x .473	.25
SX315	150	.209 x .473	.25
SX316	160	.211 x .473	.25
SX318	180	.213 x .473	.25
SX320	200	.217 x .473	.25
SX322	220	.220 x .473	.25
SX324	240	.222 x .473	.25
SX327	270	.224 x .473	.25
SX330	300	.226 x .473	.25
SX333	330	.228 x .473	.25
SX336	360	.232 x .473	.25
SX339	390	.236 x .473	.25
SX343	430	.242 x .473	.25
SX347	470	.248 x .473	.25
SX351	510	.214 x .670	.25
SX356	560	.217 x .670	.25
SX362	620	.226 x .670	.25
SX368	680	.232 x .670	.25
SX375	750	.244 x .670	.25
SX382	820	.248 x .670	.25
SX391	910	.256 x .670	.25
SX210	1000	.264 x .670	.25
SX211	1100	.276 x .670	.31
SX212	1200	.283 x .670	.31
SX213	1300	.291 x .670	.31
SX215	1500	.299 x .670	.31
SX216	1600	.305 x .670	.31
SX218	1800	.319 x .670	.31
SX220	2000	.329 x .670	.31
SX222	2200	.339 x .670	.31
SX224	2400	.352 x .670	.31
SX225	2500	.355 x .670	.31
SX227	2700	.362 x .670	.31
SX230	3000	.366 x .670	.31
SX233	3300	.378 x .867	.38
SX236	3600	.388 x .867	.38
SX239	3900	.398 x .867	.38
SX243	4300	.414 x .867	.38
SX247	4700	.425 x .867	.38
SX250	5000	.445 x .867	.38
SX251	5100	.447 x .867	.56
SX256	5600	.453 x .867	.56
SX262	6200	.470 x .867	.56
SX268	6800	.480 x .867	.56
SX275	7500	.498 x .867	.56
SX282	8200	.516 x .867	.56
SX291	9100	.532 x .867	.56
SX110	10,000	.555 x .867	.56
SX112	12,000	.520 x 1.260	.82
SX115	15,000	.563 x 1.260	.82
SX118	18,000	.598 x 1.260	.93
SX122	22,000	.650 x 1.260	1.04
SX125	25,000	.690 x 1.260	1.04

OUR STOCKS ARE FULLY UP TO DATE WITH ALL THE LATEST PRODUCTS.

ASK ABOUT NEW OR UNLISTED ITEMS.

Radia

TYPE 1C, 2C, 3C AND 5C MONOLYTHIC® CERAMIC CAPACITORS

Monolythic® ceramic capacitors are available in wide range of body formulations, capacitance values and sizes. These capacitors are made by spraying alternate layers of ceramic dielectric material and metallic electrodes, then firing into a single, all but indestructible homogenous block. Protected against damage and moisture by tough resin coating.

GENERAL APPLICATION FORMULATION Z5U (+10° C to 85° C)

Tolerance: ±20%. For +80 −20% tolerance, change **X0** in Sprague Number to **D8; prices on request.**

Sprague Number	Cap., µF	Case Code*	Net Each, Lots of 1-49	50-99	100-249
TYPE 1C—50 WVDC					
1CZ5U103X0050C4	.01	A	$0.250	$0.188	$0.140
1CZ5U153X0050C4	.015	A	.275	.206	.154
1CZ5U223X0050C4	.022	A	.275	.206	.154
1CZ5U333X0050C4	.033	A	.275	.206	.154
1CZ5U473X0050C4	.047	A	.275	.206	.154
1CZ5U683X0050C4	.068	A	.290	.218	.162
1CZ5U104X0050C4	.1	B	.300	.225	.168
TYPE 2C—50 WVDC					
2CZ5U103X0050C4	.01	C	$0.250	$0.188	$0.140
2CZ5U153X0050C4	.015	C	.275	.206	.154
2CZ5U223X0050C4	.022	C	.275	.206	.154
2CZ5U333X0050C4	.033	C	.275	.206	.154
2CZ5U473X0050C4	.047	C	.275	.206	.154
2CZ5U683X0050C4	.068	C	.290	.218	.162
2CZ5U104X0050C4	.1	C	.300	.225	.168
2CZ5U154X0050C4	.15	D	.400	.300	.224
2CZ5U224X0050C4	.22	D	.475	.356	.266
2CZ5U334X0050C4	.33	F	.625	.469	.350
2CZ5U474X0050C4	.47	F	.670	.503	.375
2CZ5U684X0050C4	.68	F	.875	.656	.490
TYPE 3C—50 WVDC					
3CZ5U103X0050C5	.01	H	$0.250	$0.188	$0.140
3CZ5U153X0050C5	.015	H	.275	.206	.154
3CZ5U223X0050C5	.022	H	.275	.206	.154
3CZ5U333X0050C5	.033	H	.275	.206	.154
3CZ5U473X0050C5	.047	H	.275	.206	.154
3CZ5U683X0050C5	.068	H	.290	.218	.162
3CZ5U104X0050C5	.1	H	.300	.225	.168
3CZ5U154X0050C5	.15	H	.400	.300	.224
3CZ5U224X0050C5	.22	H	.475	.356	.226
3CZ5U334X0050C5	.33	I	.625	.469	.350
3CZ5U474X0050C5	.47	I	.670	.503	.375
3CZ5U684X0050C5	.68	M	.875	.656	.490
3CZ5U105X0050C5	1.0	M	1.380	1.035	.773
TYPE 5C—50 WVDC					
5CZ5U104X0050C5	.1	N	$0.300	$0.225	$0.168
5CZ5U154X0050C5	.15	N	.400	.300	.224
5CZ5U224X0050C5	.22	N	.475	.356	.266
5CZ5U334X0050C5	.33	N	.625	.469	.350
5CZ5U474X0050C5	.47	O	.670	.503	.375
5CZ5U684X0050C5	.68	O	.875	.656	.490
5CZ5U105X0050C5	1.0	Q	1.380	1.035	.773
5CZ5U155X0050C5	1.5	S	1.900	1.425	1.064
5CZ5U225X0050C5	2.2	U	3.200	2.400	1.792
5CZ5U335X0050C5	3.3	U	5.130	3.848	2.873

TEMPERATURE-STABLE FORMULATION X7R

Tolerance: ±10%. For ±20% tolerance, change **X9** in Sprague Number to **X0; prices on request.**

Sprague Number	Cap., µF	Case Code*	Net Each, Lots of 1-49	50-99	100-249
TYPE 1C—100 WVDC					
1CX7R102X9100C4	.001	A	$0.340	$0.255	$0.190
1CX7R122X9100C4	.0012	A	.340	.255	.190
1CX7R152X9100C4	.0015	A	.340	.255	.190
1CX7R222X9100C4	.0022	A	.340	.255	.190
1CX7R272X9100C4	.0027	A	.340	.255	.190
1CX7R332X9100C4	.0033	A	.340	.255	.190
1CX7R392X9100C4	.0039	A	.340	.255	.190
1CX7R472X9100C4	.0047	A	.340	.255	.190
1CX7R562X9100C4	.0056	A	.340	.255	.190
1CX7R682X9100C4	.0068	A	.365	.274	.204
1CX7R822X9100C4	.0082	A	.365	.274	.204
1CX7R103X9100C4	.01	A	.370	.278	.207
1CX7R123X9100C4	.012	A	.370	.278	.207
1CX7R153X9100C4	.015	A	.370	.278	.207
1CX7R183X9100C4	.018	A	.370	.278	.207
1CX7R223X9100C4	.022	A	.370	.278	.207
1CX7R273X9100C4	.027	A	.370	.278	.207
1CX7R333X9100C4	.033	A	.390	.293	.218
TYPE 2C—100 WVDC					
2CX7R103X9100C4	.01	C	$0.370	$0.278	$0.207
2CX7R123X9100C4	.012	C	.370	.278	.207
2CX7R153X9100C4	.015	C	.370	.278	.207
2CX7R183X9100C4	.018	C	.370	.278	.207
2CX7R223X9100C4	.022	C	.370	.278	.207
2CX7R333X9100C4	.033	C	.390	.293	.218
2CX7R393X9100C4	.039	C	.390	.293	.218
2CX7R473X9100C4	.047	E	.390	.293	.218

FORMULATION X7R (CONT'D.)

Sprague Number	Cap., µF	Case Code*	Net Each, Lots of 1-49	50-99	100-249
TYPE 2C—100 WVDC (CONT'D)					
2CX7R563X9100C4	.056	E	.425	.319	.238
2CX7R683X9100C4	.068	E	.425	.319	.238
2CX7R823X9100C4	.082	E	.550	.413	.308
2CX7R104X9100C4	.1	E	.550	.413	.308
TYPE 3C—100 WVDC					
3CX7R103X9100C5	.01	H	$0.370	$0.278	$0.207
3CX7R123X9100C5	.012	H	.370	.278	.207
3CX7R153X9100C5	.015	H	.370	.278	.207
3CX7R183X9100C5	.018	H	.370	.278	.207
3CX7R223X9100C5	.022	H	.370	.278	.207
3CX7R273X9100C5	.027	H	.370	.278	.207
3CX7R333X9100C5	.033	H	.390	.293	.218
3CX7R393X9100C5	.039	H	.390	.293	.218
3CX7R473X9100C5	.047	H	.390	.293	.218
3CX7R563X9100C5	.056	H	.425	.319	.238
3CX7R683X9100C5	.068	H	.425	.319	.238
3CX7R823X9100C5	.082	H	.550	.413	.308
3CX7R104X9100C5	.1	H	.550	.413	.308
3CX7R124X9100C5	.12	M	.925	.694	.518
3CX7R154X9100C5	.15	M	.925	.694	.518
3CX7R184X9100C5	.18	M	.925	.694	.518
3CX7R224X9100C5	.22	M	.970	.728	.543
3CX7R274X9100C5	.27	M	1.500	1.125	.840
3CX7R334X9100C5	.33	M	1.500	1.125	.840
TYPE 5C—100 WVDC					
5CX7R104X9100C5	.1	N	$0.610	$0.458	$0.342
5CX7R124X9100C5	.12	N	.925	.694	.518
5CX7R154X9100C5	.15	N	.925	.694	.518
5CX7R184X9100C5	.18	N	.925	.694	.518
5CX7R224X9100C5	.22	P	.970	.728	.543
5CX7R274X9100C5	.27	P	1.500	1.125	.840
5CX7R334X9100C5	.33	S	1.500	1.125	.840
5CX7R394X9100C5	.39	S	2.300	1.725	1.288
5CX7R474X9100C5	.47	U	2.300	1.725	1.288
5CX7R564X9100C5	.56	U	3.300	2.475	1.848
5CX7R684X9100C5	.68	U	3.300	2.475	1.848

TEMPERATURE COMPENSATING FORMULATION COG

Tolerance: ±10%. For ±20% tolerance, change **X9** in Sprague Number to **X0; prices on request.**

Sprague Number	Cap., pF	Case Code*	Net Each, Lots of 1-49	50-99	100-249
TYPE 1C—100 WVDC					
1CC0G100X9100C4	10	A	$0.410	$0.308	$0.230
1CC0G110X9100C4	11	A	.390	.293	.218
1CC0G120X9100C4	12	A	.390	.293	.218
1CC0G130X9100C4	13	A	.390	.293	.218
1CC0G150X9100C4	15	A	.390	.293	.218
1CC0G160X9100C4	16	A	.390	.293	.218
1CC0G180X9100C4	18	A	.390	.293	.218
1CC0G200X9100C4	20	A	.390	.293	.218
1CC0G220X9100C4	22	A	.390	.293	.218
1CC0G240X9100C4	24	A	.390	.293	.218
1CC0G270X9100C4	27	A	.390	.293	.218
1CC0G300X9100C4	30	A	.390	.293	.218
1CC0G330X9100C4	33	A	.390	.293	.218
1CC0G360X9100C4	36	A	.390	.293	.218
1CC0G390X9100C4	39	A	.390	.293	.218
1CC0G430X9100C4	43	A	.390	.293	.218
1CC0G470X9100C4	47	A	.390	.293	.218
1CC0G510X9100C4	51	A	.410	.308	.230
1CC0G560X9100C4	56	A	.410	.308	.230
1CC0G620X9100C4	62	A	.410	.308	.230
1CC0G680X9100C4	68	A	.410	.308	.230
1CC0G750X9100C4	75	A	.410	.308	.230
1CC0G820X9100C4	82	A	.410	.308	.230
1CC0G910X9100C4	91	A	.410	.308	.230
1CC0G101X9100C4	100	A	.410	.308	.230
1CC0G111X9100C4	110	A	.410	.308	.230
1CC0G121X9100C4	120	A	.410	.308	.230
1CC0G131X9100C4	130	A	.410	.308	.230
1CC0G151X9100C4	150	A	.410	.308	.230
1CC0G161X9100C4	160	A	.410	.308	.230
1CC0G181X9100C4	180	A	.410	.308	.230
1CC0G201X9100C4	200	A	.410	.308	.230
1CC0G221X9100C4	220	A	.410	.308	.230
1CC0G241X9100C4	240	A	.425	.319	.238
1CC0G271X9100C4	270	A	.425	.319	.238
1CC0G301X9100C4	300	A	.425	.319	.238
1CC0G331X9100C4	330	A	.425	.319	.238
1CC0G361X9100C4	360	A	.425	.319	.23

*SEE FOLLOWING PAGE FOR CASE SIZES.

CONTINUED ON FOLLOWING PAGE

THESE CAPACITORS ARE SUBJECT TO A PRECIOUS-METAL SURCHARGE

TYPE 1C, 2C, 3C AND 5C CERAMIC CAPACITORS (CONT'D)

FORMULATION COG (CONT'D.)

Sprague Number	Cap., pF	Case Code*	Net Each, Lots of 1-49	50-99	100-249
TYPE 1C—100 WVDC (CONT'D)					
1CC0G391X9100C4	390	A	$0.425	$0.319	$0.238
1CC0G431X9100C4	430	A	.445	.334	.249
1CC0G471X9100C4	470	A	.445	.334	.249
1CC0G511X9100C4	510	A	.445	.334	.249
1CC0G561X9100C4	560	A	.445	.334	.249
TYPE 2C—100 WVDC					
2CC0G510X9100C4	51	C	$0.410	$0.308	$0.230
2CC0G560X9100C4	56	C	.410	.308	.230
2CC0G620X9100C4	62	C	.410	.308	.230
2CC0G680X9100C4	68	C	.410	.308	.230
2CC0G750X9100C4	75	C	.410	.308	.230
2CC0G820X9100C4	82	C	.410	.308	.230
2CC0G910X9100C4	91	C	.410	.308	.230
2CC0G101X9100C4	100	C	.410	.308	.230
2CC0G111X9100C4	110	C	.410	.308	.230
2CC0G121X9100C4	120	C	.445	.334	.249
2CC0G131X9100C4	130	C	.445	.334	.249
2CC0G151X9100C4	150	C	.410	.308	.230
2CC0G161X9100C4	160	C	.410	.308	.230
2CC0G181X9100C4	180	C	.410	.308	.230
2CC0G201X9100C4	200	C	.410	.308	.230
2CC0G221X9100C4	220	C	.410	.308	.230
2CC0G241X9100C4	240	C	.425	.319	.238
2CC0G271X9100C4	270	C	.425	.319	.238
2CC0G301X9100C4	300	C	.425	.319	.238
2CC0G331X9100C4	330	C	.425	.319	.238
2CC0G361X9100C4	360	C	.425	.319	.238
2CC0G391X9100C4	390	C	.425	.319	.238
2CC0G431X9100C4	430	C	.445	.334	.249
2CC0G511X9100C4	510	C	.445	.334	.249
2CC0G561X9100C4	560	C	.445	.334	.249
2CC0G621X9100C4	620	C	.445	.334	.249
2CC0G681X9100C4	680	C	.445	.334	.249
2CC0G751X9100C4	750	C	.445	.334	.249
2CC0G821X9100C4	820	C	.445	.334	.249
2CC0G911X9100C4	910	C	.445	.334	.249
2CC0G102X9100C4	1000	C	.445	.334	.249
2CC0G112X9100C4	1100	C	.475	.356	.266
2CC0G122X9100C4	1200	C	.475	.356	.266
2CC0G132X9100C4	1300	C	.475	.356	.266
2CC0G152X9100C4	1500	C	.475	.356	.266
2CC0G162X9100C4	1600	C	.475	.356	.266
2CC0G182X9100C4	1800	C	.475	.356	.266
2CC0G202X9100C4	2000	C	.525	.394	.294
2CC0G222X9100C4	2200	E	.525	.394	.294
2CC0G242X9100C4	2400	E	.525	.394	.294
2CC0G272X9100C4	1700	E	.525	.394	.294
TYPE 3C—100 WVDC					
3CC0G510X9100C5	51	H	$0.410	$0.308	$0.230
3CC0G560X9100C5	56	H	.410	.308	.230
3CC0G620X9100C5	62	H	.410	.308	.230
3CC0G680X9100C5	68	H	.410	.308	.230
3CC0G750X9100C5	75	H	.410	.308	.230
3CC0G820X9100C5	82	H	.410	.308	.230
3CC0G910X9100C5	91	H	.410	.308	.230
3CC0G101X9100C5	100	H	.410	.308	.230
3CC0G111X9100C5	110	H	.410	.308	.230
3CC0G121X9100C5	120	H	.410	.308	.230
3CC0G131X9100C5	130	H	.410	.308	.230
3CC0G151X9100C5	150	H	.410	.308	.230
3CC0G161X9100C5	160	H	.410	.308	.230
3CC0G181X9100C5	180	H	.410	.308	.230
3CC0G201X9100C5	200	H	.410	.308	.230
3CC0G221X9100C5	220	H	.410	.308	.230
3CC0G241X9100C5	240	H	.425	.319	.238
3CC0G271X9100C5	270	H	.425	.319	.238
3CC0G301X9100C5	300	H	.425	.319	.238
3CC0G331X9100C5	330	H	.425	.319	.238
3CC0G361X9100C5	360	H	.425	.319	.238
3CC0G391X9100C5	390	H	.425	.319	.238
3CC0G431X9100C5	430	H	.445	.334	.249
3CC0G471X9100C5	470	H	.445	.334	.249
3CC0G511X9100C5	510	H	.445	.334	.249
3CC0G561X9100C5	560	H	.445	.334	.249
3CC0G621X9100C5	620	H	.445	.334	.249

FORMULATION COG (CONT'D.)

Sprague Number	Cap., pF	Case Code*	Net Each, Lots of 1-49	50-99	100-249
TYPE 3C—100 WVDC (CONT'D)					
3CC0G681X9100C5	680	H	$0.445	$0.334	$0.249
3CC0G751X9100C5	750	H	.445	.334	.249
3CC0G821X9100C5	820	H	.445	.334	.249
3CC0G911X9100C5	910	H	.445	.334	.249
3CC0G102X9100C5	1000	H	.445	.334	.249
3CC0G112X9100C5	1100	H	.475	.356	.266
3CC0G122X9100C5	1200	H	.475	.356	.266
3CC0G132X9100C5	1300	H	.475	.356	.266
3CC0G152X9100C5	1500	H	.475	.356	.266
3CC0G162X9100C5	1600	H	.475	.356	.266
3CC0G182X9100C5	1800	I	.475	.356	.266
3CC0G202X9100C5	2000	I	.525	.394	.294
3CC0G222X9100C5	2200	I	.525	.394	.294
3CC0G242X9100C5	2400	I	.580	.435	.325
3CC0G272X9100C5	2700	L	.525	.394	.294
3CC0G302X9100C5	3000	L	.660	.495	.370
3CC0G332X9100C5	3300	L	.660	.495	.370
3CC0G362X9100C5	3600	L	.660	.495	.370
3CC0G392X9100C5	3900	L	.660	.495	.370
3CC0G432X9100C5	4300	L	.890	.668	.498
3CC9G472X9100C5	4700	L	.890	.668	.498
3CC0G512X9100C5	5100	L	.970	.728	.543
3CC0G562X9100C5	5600	M	.970	.728	.543
3CC0G622X9100C5	6200	M	1.055	.791	.591
TYPE 5C—100 WVDC					
5CC0G681X9100C5	680	N	$0.445	$0.334	$0.249
5CC0G751X9100C5	750	N	.445	.334	.249
5CC0G821X9100C5	820	N	.445	.334	.249
5CC0G911X9100C5	910	N	.445	.334	.249
5CC0G102X9100C5	1000	N	.445	.334	.249
5CC0G112X9100C5	1100	N	.475	.356	.266
5CC0G122X9100C5	1200	N	.475	.356	.266
5CC0G132X9100C5	1300	N	.475	.356	.266
5CC0G152X9100C5	1500	N	.475	.356	.266
5CC0G162X9100C5	1600	N	.475	.356	.266
5CC0G182X9100C5	1800	N	.475	.356	.266
5CC0G202X9100C5	2000	N	.525	.394	.294
5CC0G222X9100C5	2200	N	.525	.394	.294
5CC0G242X9100C5	2400	N	.525	.394	.294
5CC0G272X9100C5	2700	N	.525	.394	.294
5CC0G302X9100C5	3000	O	.660	.495	.370
5CC0G332X9100C5	3300	O	.660	.495	.370
5CC0G362X9100C5	3600	P	.660	.495	.370
5CC0G392X9100C5	3900	P	.660	.495	.370
5CC0G432X9100C5	4300	P	.890	.668	.498
5CC0G472X9100C5	4700	P	.890	.668	.498
5CC0G512X9100C5	5100	P	.970	.728	.543
5CC0G562X9100C5	5600	R	.970	.728	.543
5CC0G622X9100C5	6200	R	1.055	.791	.591
5CC0G682X9100C5	6800	R	1.055	.791	.591
5CC0G752X9100C5	7500	R	1.135	.851	.636
5CC0G822X9100C5	8200	T	1.135	.851	.636
5CC0G912X9100C5	9100	T	1.215	.911	.680
5CC0G103X9100C5	10000	T	1.215	.911	.680

*CASE SIZES

Size Code	Dimensions, Inches Radial Lead Length	Width	Thick	Size Code	Dimensions, Inches Radial Lead Length	Width	Thick
A	.200	.200	.125	N	.500	.200	.125
B	.200	.200	.150	O	.500	.200	.150
C	.300	.200	.125	P	.500	.296	.125
D	.300	.200	.150	Q	.500	.296	.150
E	.300	.300	.125	R	.500	.400	.125
F	.300	.300	.150	S	.500	.400	.150
G	.300	.300	.238	T	.500	.500	.125
H	.390	.200	.125	U	.500	.500	.150
I	.390	.200	.150	V	.500	.500	.156
J	.390	.200	.156	W	.500	.500	.238
K	.390	.200	.238	X	.515	.296	.125
L	.400	.400	.125	Y	.515	.296	.156
M	.400	.400	.150	Z	.515	.296	.238

THESE CAPACITORS ARE SUBJECT TO A PRECIOUS-METAL SURCHARGE

TYPE 7C MONOLYTHIC® CERAMIC CAPACITORS

Radial lead style designed for printed wiring board mounting. Phenolic terminal base with standoff feet avoids any resin run down on leads, provides uniform lead spacing; degreasing fluid flows freely between capacitors and board. Made by spraying alternate layers of ceramic dielectric material and metallic electrodes, firing into solid homogenous block, then coating with a tough phenolic resin. All capacitors listed are rated at 50 WVDC. Available with radial leads only.

TEMPERATURE-COMPENSATING FORMULATION C0G ±10% TOLERANCE

Sprague Number	Cap., pF	Size Code*	Price Code★
7CC0G510X9100D1	51	D1	72R
7CC0G560X9100D1	56	D1	72R
7CC0G620X9100D1	62	D1	73R
7CC0G680X9100D1	68	D1	73R
7CC0G750X9100D1	75	D1	73R
7CC0G820X9100D1	82	D1	73R
7CC0G910X9100D1	91	D1	73R
7CC0G101X9100D1	100	D1	73R
7CC0G111X9100D1	110	D1	73R
7CC0G121X9100D1	120	D1	73R
7CC0G131X9100D1	130	D1	73R
7CC0G151X9100D1	150	D1	73R
7CC0G161X9100D1	160	D1	73R
7CC0G181X9100D1	180	D1	73R
7CC0G201X9100D1	200	D1	73R
7CC0G221X9100D1	220	D1	73R
7CC0G241X9100D1	240	D1	74R
7CC0G271X9100D1	270	D1	74R
7CC0G301X9100D1	300	D1	74R
7CC0G331X9100D1	330	D1	74R
7CC0G361X9100D1	360	D1	75R
7CC0G391X9100D1	390	D1	75R
7CC0G431X9100D1	430	D1	75R
7CC0G471X9100D1	470	D1	75R
7CC0G511X9100D1	510	D1	75R
7CC0G561X9100D1	560	D1	75R
7CC0G621X9100D1	620	D1	75R
7CC0G681X9100D1	680	D1	75R
7CC0G751X9100D1	750	D1	75R
7CC0G821X9100D1	820	D1	75R
7CC0G911X9100D1	910	D1	75R
7CC0G102X9100D1	1000	D1	75R
7CC0G112X9100D1	1100	D1	76R
7CC0G122X9100D1	1200	D1	76R
7CC0G132X9100D1	1300	D1	76R
7CC0G152X9100D1	1500	D1	76R
7CC0G162X9100D1	1600	D1	76R
7CC0G182X9100D1	1800	D1	76R
7CC0G202X9100D1	2000	D1	77R
7CC0G222X9100D1	2200	D1	77R
7CC0G242X9100D1	2400	D1	77R
7CC0G272X9100D2	2700	D1	77R
7CC0G302X9100D2	3000	D1	78R
7CC0G332X9100D2	3300	D1	78R
7CC0G362X9100D2	3600	D1	78R
7CC0G392X9100D2	3900	D1	78R
7CC0G432X9100D2	4300	D1	79R
7CC0G472X9100D2	4700	D1	79R
7CC0G512X9100D2	5100	D1	79R
7CC0G562X9100E3	5600	E3	80R
7CC0G622X9100E3	6200	E3	81R
7CC0G682X9100E3	6800	E3	81R
7CC0G752X9100E3	7500	E3	81R
7CC0G822X9100E4	8200	E4	81R
7CC0G912X9100E4	9100	E4	82R
7CC0G103X9100E4	10000	E4	82R
7CC0G113X9100E5	11000	F1	82R
7CC0G123X9100E5	12000	F1	83R
7CC0G133X9100E5	13000	F1	83R
7CC0G153X9100E5	15000	F1	83R
7CC0G183X9100E5	18000	F1	84R
7CC0G203X1900E5	20000	F1	85R
7CC0G223X9100E5	22000	F1	85R

TEMPERATURE-STABLE FORMULATION X7R ±20% TOLERANCE

Also available in ±10% tolerance; to order, change X0 in Sprague Number to X9.

Sprague Number	Cap., µF	Size Code*	Price Code★
7CX7R102X0100D1	.001	D1	60R
7CX7R122X0100D1	.0012	D1	60R
7CX7R152X0100D1	.0015	D1	60R
7CX7R222X0100D1	.0022	D1	60R
7CX7R272X0100D1	.0027	D1	60R
7CX7R332X0100D1	.0033	D1	60R
7CX7R392X0100D1	.0039	D1	60R
7CX7R472X0100D1	.0047	D1	60R
7CX7R562X0100D1	.0056	D1	60R
7CX7R682X0100D1	.0068	D1	60R
7CX7R822X0100D1	.0082	D1	60R
7CX7R103X0100D1	.01	D1	60R
7CX7R123X0100D1	.012	D1	61R
7CX7R153X0100D1	.015	D1	61R
7CX7R223X0100D1	.022	D1	61R
7CX7R273X0100D1	.027	D1	62R
7CX7R333X0100D1	.033	D1	62R
7CX7R393X0100D1	.039	D1	63R
7CX7R473X0100D1	.047	D1	63R
7CX7R563X0100D1	.056	D1	63R
7CX7R683X0100D1	.068	D1	63R
7CX7R823X0100D1	.082	D1	64R
7CX7R104X0100D1	.1	D1	64R
7CX7R124X0100D2	.12	D2	65R
7CX7R154X0100D2	.15	D2	65R
7CX7R224X0100D2	.22	D2	66R
7CX7R274X0100D2	.27	D2	67R
7CX7R334X0100D2	.33	D2	67R
7CX7R394X0100E3	.39	E3	68R
7CX7R474X0100E4	.47	E4	68R
7CX7R564X0100E4	.56	E4	69R
7CX7R684X0100E4	.68	E4	69R
7CX7R824X0100F1	.82	F1	70R
7CX7R105X0100F1	1.0	F1	71R

GENERAL APPLICATION FORMULATION Z5U ±20% TOLERANCE

Also available in +80, −20% tolerance; to order, change X0 in Sprague Number to D8.

Sprague Number	Cap., µF	Size Code*	Price Code★
7CZ5U103X0050D1	.01	D1	47R
7CZ5U153X0050D1	.015	D1	47R
7CZ5U223X0050D1	.022	D1	47R
7CZ5U333X0050D1	.033	D1	47R
7CZ5U473X0050D1	.047	D1	47R
7CZ5U683X0050D1	.068	D1	48R
7CZ5U104X0050D1	.10	D1	49R
7CZ5U154X0050D1	.15	D1	50R
7CZ5U224X0050D1	.22	D1	51R
7CZ5U334X0050E1	.33	E1	52R
7CZ5U474X0050E1	.47	E1	53R
7CZ5U684X0050E2	.68	E2	54R
7CZ5U105X0050E2	1.0	E2	55R
7CZ5U155X0050E3	1.5	E2	56R
7CZ5U225X0050E4	2.2	E2	57R
7CZ5U335X0050E5	3.3	F1	58R
7CZ5U475X0050E5	4.7	F1	59R

*CASE SIZES

* Case Code	Size, Inches L.	W.	T.	Lead Spcg. Ins.
D1	.400	.250	.160	.250
D2	.400	.400	.160	.250
E1	.500	.250	.160	.375
E2	.500	.300	.160	.375
E3	.500	.375	.160	.375
E4	.500	.500	.160	.375
E5	.625	.625	.160	.375
F1	.625	.625	.160	.375

★ PRICING

All types have a $50.00 Minimum Item Charge except those with Z5U Formulation.

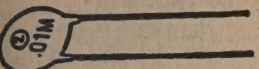
★ Code	Tol. %	Net Each, Lots of 1-49	50-99	100-249
47R	*	$0.425	$0.319	$0.238
47R	±20	.425	.319	.238
48R	*	.440	.330	.246
48R	±20	.440	.330	.246
49R	*	.510	.330	.246
49R	±20	.510	.330	.246
50R	*	.610	.458	.342
50R	±20	.610	.458	.342
51R	*	.715	.536	.400
51R	±20	.715	.536	.400
52R	*	.955	.716	.535
52R	±20	.955	.716	.535
53R	*	1.000	.750	.560
53R	±20	1.000	.750	.560
54R	*	1.115	.836	.624
54R	±20	1.115	.836	.624
55R	*	1.690	1.268	.946
55R	±20	1.690	1.268	.946
56R	*	2.140	1.605	1.198
56R	±20	2.140	1.605	1.198
57R	*	3.440	2.580	1.926
57R	±20	3.440	2.580	1.926
58R	*	5.370	4.028	3.007
58R	±20	5.370	4.028	3.007
59R	*	5.370	4.028	3.007
59R	±20	5.370	4.028	3.007
60R	±20	.470	.353	.263
60R	±10	.520	.390	.291
61R	±20	.470	.353	.263
61R	±10	.520	.390	.291
62R	±20	.485	.364	.272
62R	±10	.540	.405	.302
63R	±20	.520	.390	.291
63R	±10	.575	.431	.322
64R	±20	.685	.514	.384
64R	±10	.760	.570	.426
65R	±20	.965	.724	.540
65R	±10	1.075	.806	.602
66R	±20	1.010	.758	.566
66R	±10	1.120	.840	.627
67R	±20	1.485	1.114	.832
67R	±10	1.650	1.238	.924
68R	±20	2.285	1.714	1.280
68R	±10	2.540	1.905	1.422
69R	±20	3.185	2.389	1.784
69R	±10	3.540	2.655	1.982
70R	±20	3.725	2.794	2.086
70R	±10	4.140	3.105	2.318
71R	±20	3.725	2.794	2.086
71R	±10	4.140	3.105	2.318
72R	±10	.525	.394	.294
73R	±10	.545	.409	.305
74R	±10	.560	.420	.314
75R	±10	.580	.435	.325
76R	±10	.610	.458	.342
77R	±10	.660	.495	.370
78R	±10	.795	.596	.445
79R	±10	1.105	.829	.619
80R	±10	1.190	.893	.666
81R	±10	1.350	1.013	.756
82R	±10	1.080	.810	.605
83R	±10	1.430	1.073	.801
84R	±10	2.615	1.961	1.464
85R	±10	3.015	2.261	1.688

*Tolerance, +80 −20%.

THESE CAPACITORS ARE SUBJECT TO A PRECIOUS-METAL SURCHARGE

PRICES LISTED ARE FOR GUIDANCE ONLY

CERA-MITE® CERAMIC CAPACITORS



Tiny, tough and dependable. Fine replacement for molded micas and tubular ceramics. Heavy moisture-proof insulating coat. For 85° C use. Std. Tol.: ±20% except as indicated.

GENERAL APPLICATION

Extra small for use anywhere. Ideal where TC is not important.

100 WVDC

Sprague No.	pF	Net Ea.
TG-D50	5000	$0.18
TG-S10	10,000	.18
TG-S20	20,000	.21
TG-S50	50,000	.78
TG-P10	100,000	1.17

500 WVDC

5GAS-S10	10,000	$0.27
5HK-SS10	10,000	.24
5HK-S15	15,000	.30
5GAS-S20	20,000	.33
5HK-S20	20,000	.30
5GA-S25	25,000	.36
5HK-S25	25,000	.33
5HK-S40	40,000	1.11
5GA-S50	50,000	.63
5HK-S50	50,000	1.17
5GA-P10	100,000	1.56
5HK-P10	100,000	1.35

1000 WVDC

5GA-V50	5	$0.18
5GA-V75	7.5	.18
5GA-Q10	10	.18
5GA-Q12	12	.18
5GA-Q15	15	.18
5GA-Q20	20	.18
5GA-Q22	22	.18
5GA-Q25	25	.18
5GA-Q27	27	.18
5GA-Q30	30	.18
5GA-Q33	33	.18
5GA-Q39	39	.18
5GA-Q47	47	.18
5GA-Q50	50	.18
5GA-Q56	56	.18
5GA-Q68	68	.18
5GA-Q75	75	.18
5GA-Q82	82	.21
5GA-T10	100	.21
5GA-T12	120	.21
5GA-T15	150	.21
5GA-T18	180	.21
5GA-T20	200	.21
5GA-T22	220	.21
5GA-T25	250	.21
5GA-T27	270	.21
5GA-T30	300	.21
5GA-T33	330	.21
5GA-T36	360	.21
5GA-T39	390	.21
5GA-T47	470	.21
5GA-T50	500	.21
5GA-T56	560	.18
5GA-T68	680	.18
5GA-T75	750	.18
5GA-T82	820	.18
5GA-D10	1000	.18
5HK-D10	1000	.18
5GA-D12	1200	.18
5GA-D15	1500	.18
5GA-D18	1800	.18
5GA-D20	2000	.18
5GA-D22	2200	.18
5GA-D25	2500	.18
5GA-D27	2700	.18
5GA-D30	3000	.18
5GA-D33	3300	.18
5GA-D39	3900	.18
5GA-D47	4700	.21
5HK-D47	4700	.21
5GA-D50	5000	.21
5HK-D50	5000	.21
5GA-D68	6800	.24
5GA-D82	8200	.24
5GA-S10	10,000	.36
5HK-S10	10,000	.36
5GA-S15	15,000	.39
5GA-S20	20,000	.51

3000 WVDC

Sprague No.	pF	Net Ea.
30GA-Q10	10	$0.33
30GA-Q12	12	.33
30GA-Q15	15	.33
30GA-Q18	18	.33
30GA-Q22	22	.33
30GA-Q27	27	.33
30GA-Q33	33	.33
30GA-Q39	39	.33
30GA-Q47	47	.33
30GA-Q56	56	.33
30GA-Q68	68	.33
30GA-Q82	82	.33
30GA-T10	100	.33
30GA-T12	120	.33
30GA-T15	150	.33
30GA-T18	180	.33
30GA-T22	220	.33
30GA-T27	270	.33
30GA-T33	330	.33
30GA-T39	390	.33
30GA-T47	470	.33
30GA-T56	560	.33
30GA-T68	680	.33
30GA-T82	820	.33
30GA-D10	1000	.33
30GA-D12	1200	.33
30GA-D15	1500	.36
30GA-D22	2200	.36
30GA-D27	2700	.48
30GA-D33	3300	.57
30GA-D39	3900	.57
30GA-D47	4700	.63
30GA-D68	6800	.78
30GA-D82	8200	.90
30GA-S10	10,000	1.20

6000 WVDC

60GA-Q10	10	.93
60GA-Q12	12	.93
60GA-Q15	15	.93
60GA-Q18	18	.93
60GA-Q22	22	.93
60GA-Q27	27	.93
60GA-Q33	33	.93
60GA-Q39	39	.93
60GA-Q47	47	.93
60GA-Q56	56	.93
60GA-Q68	68	.93
60GA-Q82	82	.93
60GA-T10	100	.93
60GA-T12	120	.93
60GA-T15	150	.93
60GA-T18	180	.93
60GA-T22	220	.93
60GA-T27	270	.93
60GA-T33	330	.93
60GA-T39	390	.93
60GA-T47	470	.93
60GA-T56	560	.93
60GA-T68	680	.93
60GA-T82	820	.93
60GA-D10	1000	.93
60GA-D12	1200	1.05
60GA-D15	1500	1.14
60GA-D22	2200	1.59
60GA-D27	2700	1.59
60GA-D33	3300	1.59
60GA-D39	3900	1.59
60GA-D47	4700	1.59

7500 WVDC

75GA-Q10	10	.99
75GA-Q12	12	.99
75GA-Q15	15	.99
75GA-Q18	18	.99
75GA-Q22	22	.99
75GA-Q33	33	.99
75GA-Q47	47	.99
75GA-Q56	56	.99
75GA-T10	100	.99
75GA-T22	220	.99
75GA-T47	470	.99
75GA-T56	560	.99
75GA-T68	680	.99
75GA-T82	820	.99
75GA-D10	1000	1.10
75GA-D12	1200	1.35
75GA-D15	1500	1.89
75GA-D18	1800	1.89
75GA-D20	2000	1.89
75GA-D22	2200	1.89
75GA-D25	2500	1.89

TEMPERATURE-STABLE

Used where minimum capacitance change with temperature is an important consideration. Rated 1000 WVDC. Std. Tol., ±10%.

Sprague No.	pF	Net Ea.
10TS-V33	3.3	$0.18
10TS-V50	5	.18
10TS-Q10	10	.18
10TS-Q15	15	.18
10TS-Q18	18	.18
10TS-Q20	20	.18
10TS-Q22	22	.18
10TS-Q25	25	.18
10TS-Q30	30	.18
10TS-Q33	33	.18
10TS-Q39	39	.18
10TS-Q47	47	.21
10TS-Q50	50	.21
10TS-Q68	68	.21
10TS-Q75	75	.21
10TS-T10	100	.21
10TS-T12	120	.21
10TS-T15	150	.21
10TS-T18	180	.21
10TS-T20	200	.21
10TS-T22	220	.21
10TS-T25	250	.21
10TS-T27	270	.21
10TS-T30	300	.21
10TS-T33	330	.21
10TS-T39	390	.21
10TS-T47	470	.21
10TS-T50	500	.21
10TS-T56	560	.21
10TS-T68	680	.21
10TS-T82	820	.21
10TS-D10	1000	.24
10TS-D15	1500	.27
10TS-D20	2000	.39
10TS-D22	2200	.39
10TS-D25	2500	.45
10TS-D27	2700	.45
10TS-D30	3000	.45
10TS-D33	3300	.45
10TS-D39	3900	.60
10TS-D40	4000	.60
10TS-D47	4700	.75
10TS-D56	5600	.75

AC DISC CERAMICS

For AC line bypass uses. Rated 125 VAC or 1400 VDC.

Sprague No.	pF	Net Ea.
125L-D10	.001	$0.57
125L-D15	.0015	.60
125L-D20	.002	.60
125L-D47	.0047	.84
125L-D50	.005	.84
125L-S10	.01	1.20
125L-S20	.02	3.90

HYPERCON® CERAMIC DISCS

Ultra-miniature discs for transistorized circuitry, bypass and coupling. Especially suited for any low voltage use where high capacitance and low power factors are important. Std. Tol.: HY-420–HY-470 and HY-510–HY-550, +80 −20%; all others +50 −20%.

Sprague No.	μF	WVDC	Net Each
TOLERANCE +80, −20%			
HY-520	.01	25	$0.24
HY-522	.015	25	.24
HY-525	.022	25	.24
HY-530	.033	25	.27
HY-535	.047	25	.27
HY-538	.05	25	.27
HY-540	.068	25	.27
HY-550	.1	25	.33
HY-565	.15	25	.42
TOLERANCE +50, −20%			
HY-715	.01	25	$0.24
HY-720	.015	25	.24
HY-725	.022	25	.24
HY-730	.033	25	.27
HY-735	.047	25	.27
HY-738	.05	25	.27
HY-740	.068	25	.27
HY-750	.1	25	.33
HY-765	.15	25	.42
TOLERANCE ±20%			
HY-820	.01	25	$0.21
HY-822	.015	25	.27
HY-825	.022	25	.27
HY-830	.033	25	.27
HY-835	.047	25	.30
HY-838	.05	25	.30
HY-840	.068	25	.30
HY-850	.1	25	.36
HY-865	.15	25	.48

NPO (DISCS)

Zero temperature coefficient capacitors used where capacitance change with temperature is undesirable. Superior to silvered-mica types in stability, high "Q" and insulation resistance. Rated 1000 WVDC. Std. Tol.: ±5%, 12 pF up; all others ±0.5 pF.

Sprague No.	pF	Net Each
10TCC-V22	2.2	$0.36
10TCC-V27	2.7	.36
10TCC-V30	3.0	.36
10TCC-V33	3.3	.36
10TCC-V39	3.9	.36
10TCC-V47	4.7	.36
10TCC-V50	5.0	.36
10TCC-V56	5.6	.36
10TCC-V68	6.8	.36
10TCC-V82	8.2	.36
10TCC-Q10	10	.36
10TCC-Q12	12	.36
10TCC-Q15	15	.36
10TCC-Q18	18	.39
10TCC-Q20	20	.39
10TCC-Q22	22	.39
10TCC-Q25	25	.39
10TCC-Q27	27	.39
10TCC-Q30	30	.39
10TCC-Q33	33	.48
10TCC-Q39	39	.48
10TCC-Q47	47	.48
10TCC-Q50	50	.48
10TCC-Q56	56	.48
10TCC-Q68	68	.57
10TCC-Q82	82	.81
10TCC-T10	100	.81
10TCC-T12	120	.81
10TCC-T15	150	.93
10TCC-T18	180	1.11
10TCC-T22	220	1.26
10TCC-T27	270	1.53

TYPE PS ORANGE DROP DIPPED TUBULAR CAPACITORS

- Double dipped in bright orange epoxy resin—beats heat and humidity.
- Outside foil on all units identified by black striping.
- Dual dielectric (polyester film-paper) solidly impregnated with exclusive HCX®—produces rock-hard capacitor section.
- Crimped wire leads for correct spacing when mounted on printed wiring boards.

200 VDC

Sprague No. 2PS-	µF	Net Each, Lots of 50 20	25- 45	50- 95	100- 245
S20	.02	$0.57	$0.307	$0.248	$0.20
S22	.022	.57	.307	.248	.20
S47	.047	.69	.369	.298	.24
S50	.05	.72	.392	.316	.255
P10	.1	.81	.434	.35	.283
P15	.15	.93	.503	.406	.328
P20	.2	1.02	.553	.446	.36
P22	.22	1.02	.553	.446	.36
P25	.25	1.32	.722	.583	.47
P33	.33	1.32	.722	.583	.47
P47	.47	1.77	.968	.781	.63
P50	.5	1.77	.968	.781	.63

400 VDC

Sprague No. 4PS-	µF	Net Each, Lots of 5- 20	25- 45	50- 95	100- 245
S10	.01	$0.57	$0.307	$0.248	$0.20
S15	.015	.57	.307	.248	.20
S20	.02	.63	.338	.273	.22
S22	.022	.63	.338	.273	.22
S25	.025	.69	.369	.298	.24
S30	.03	.69	.369	.298	.24
S33	.033	.69	.369	.298	.24
S40	.04	.75	.403	.326	.263
S47	.047	.75	.403	.326	.263
S50	.05	.81	.434	.35	.283
S56	.056	.81	.434	.35	.283
S68	.068	.81	.434	.35	.283
S75	.075	.93	.499	.403	.325
P10	.1	.72	.93	.499	.403
P15	.15	.87	1.02	.553	.446
P22	.22	1.38	1.41	.768	.72

600 VDC

Sprague No. 6PS-	µF	Net Each, Lots of 1- 24	25- 49	50- 99	100- 249★
D10	.001	$0.54	$0.292	$0.236	$0.19
D12	.0012	.54	.292	.236	.19
D15	.0015	.54	.292	.236	.19
D18	.0018	.54	.292	.236	.19
D20	.002	.54	.292	.236	.19
D22	.0022	.54	.292	.236	.19
D25	.0025	.54	.292	.236	.19
D27	.0027	.54	.292	.236	.19
D30	.003	.54	.292	.236	.19
D33	.0033	.54	.292	.236	.19
D39	.0039	.57	.315	.254	.205
D40	.004	.57	.315	.254	.205
D47	.0047	.57	.315	.254	.205
D50	.005	.57	.315	.254	.205
D56	.0056	.57	.315	.254	.205
D60	.006	.57	.315	.254	.205
D68	.0068	.57	.315	.254	.205
D75	.0075	.63	.342	.276	.223
D80	008	.63	.342	.276	.223
D82	.0082	.63	.342	.276	.223
S10	.01	.63	.342	.276	.223
S12	.012	.66	.361	.291	.235
S15	.015	.66	.361	.291	.235
S20	.02	.75	.403	.326	.263
S22	.022	.75	.403	.326	.263
S25	.025	.81	.445	.36	.29
S27	.027	.81	.445	.36	.29
S30	.03	.81	.445	.36	.29
S33	.033	.81	.445	.36	.29
S35	.035	.96	.526	.425	.343
S39	.039	.96	.526	.425	.343
S40	.04	.96	.526	.425	.343
S47	.047	.96	.526	.425	.343
S50	.05	1.05	.576	.465	.375
S56	.056	1.05	.576	.465	.375
S60	.06	1.05	.576	.465	.375
S68	.068	1.05	.576	.465	.375
S75	.075	1.14	.626	.505	.408
S82	.082	1.14	.626	.505	.408
P10	.1	1.14	.626	.505	.408
P15	.15	1.65	.899	.725	.585
P20	.2	2.31	1.267	1.023	.825
P22	.22	2.31	1.267	1.023	.825
P25	.25	2.40	1.313	1.06	.855
P33	.33	2.97	1.632	1.318	1.063
P47	.47	4.89	2.688	2.17	1.75

1000 VDC

Sprague No. 10PS-	µF	Net Each, Lots of 1- 24	25- 49	50- 99	100- 249★
D10	.001	$0.69	$0.376	$0.304	$0.245
D15	.0015	.69	.376	.304	.245
D20	.002	.69	.376	.304	.245
D22	.0022	.69	.376	.304	.245
D30	.033	.72	.392	.316	.255
D33	.0033	.72	.392	.316	.255

1000 VDC (CONT'D)

Sprague No. 10PS-	µF	Net Each, Lots of 1- 24	25- 49	50- 99	100- 249★
D40	.004	$0.78	$0.426	$0.344	$0.278
D47	.0047	.78	.426	.344	.278
D50	.005	.84	.457	.369	.298
D68	.0068	.84	.457	.369	.298
S10	.01	.90	.492	.397	.32
S15	.015	.99	.545	.44	.358
S22	.022	1.08	.595	.481	.388
S33	.033	1.29	.699	.564	.455
S39	.039	1.41	.768	.62	.50
S47	.047	1.41	.768	.62	.50
S56	.056	1.59	.868	.701	.565
S68	.068	1.59	.868	.701	.565
S82	.082	2.13	1.164	.939	.756
P10	.1	2.13	1.164	.939	.756

1600 VDC

Sprague No. 16PS-	µF	Net Each, Lots of 1- 24	25- 49	50- 99	100- 249★
D10	.001	$0.99	$0.534	$0.431	$0.348
D15	.0015	.99	.534	.431	.348
D20	.002	.99	.534	.431	.348
D22	.0022	.99	.534	.431	.348
D30	.003	.99	.534	.431	.348
D33	.0033	.99	.534	.431	.348
D39	.0039	.99	.534	.431	.348
D40	.004	.99	.534	.431	.348
D47	.0047	.99	.534	.431	.348
D50	.005	1.14	.614	.496	.40
D60	.006	1.14	.614	.496	.40
D68	.0068	1.14	.614	.496	.40
D70	.007	1.14	.614	.496	.40
D75	.0075	1.17	.645	.521	.42
D80	.008	1.17	.645	.521	.42
S10	.01	1.17	.645	.521	.42
S15	.015	1.53	.833	.673	.543
S18	.018	1.77	.964	.778	.628
S20	.02	1.77	.964	.778	.628
S22	.022	1.77	.964	.778	.628
S30	.03	2.13	1.175	.949	.765
S33	.033	2.13	1.175	.948	.765
S40	.04	2.55	1.398	1.128	.91
S47	.047	2.79	1.536	1.24	1.00
S50	.05	2.79	1.536	1.24	1.00

2000 VDC

Sprague No. 20PS-	µF	Net Each, Lots of 1- 24	25- 49	50- 99	100- 249★
D10	.001	$0.99	$0.534	$0.431	$0.348
D15	.0015	.99	.534	.431	.348
D22	.0022	.99	.534	.431	.348
D33	.0033	1.08	.584	.471	.38
D47	.0047	1.08	.584	.471	.38
D56	.0056	1.17	.645	.521	.42
D68	.0068	1.32	.718	.58	.468
D82	.0082	1.53	.833	.673	.543
S27	.027	3.09	1.705	1.376	1.11

★100-249, bulk-pack; other quantities, Kleer-Pak. 250 Up bulk-pak available on request.

TYPE 225P FILMITE® "E" ORANGE DROP CAPACITORS

Designed for PC board use with radial leads. Similar in appearance to PS Series, above. Used in TV sets, radios and commercial equipment. Sections are wound from polyester film and thin gauge foil; wax-free conformal epoxy coating protects against moisture. For operation up to 85° C. Tolerance, ±10%.

100 VDC

Sprague No. 225P-	µF	Net Each, Lots of 1- 24	25- 49	50- 99	100- 249★
10291WD3	.001	$.40	$0.175	$0.16	$0.15
12291WD3	.0012	.40	.175	.16	.15
15291WD3	.0015	.40	.175	.16	.15
18291WD3	.0018	.40	.175	.16	.15
22291WD3	.0022	.404	.177	.162	.152
27291WD3	.0027	.404	.177	.162	.152
33291WD3	.0033	.404	.177	.162	.152
39291WD3	.0039	.404	.177	.162	.152
47291WD3	.0047	.404	.177	.162	.152
56291WD3	.0056	.408	.179	.163	.153
68291WD3	.0068	.408	.179	.163	.153
82291WD3	.0082	.408	.179	.163	.153
10391WD3	.01	.40	.175	.16	.15
12391WD3	.012	.40	.175	.16	.15
15391WD3	.015	.40	.175	.16	.15
18391WD3	.018	.40	.175	.16	.15
22391WD3	.022	.40	.175	.16	.15
27391WD3	.027	.40	.175	.16	.15
33391WD3	.033	.40	.175	.16	.15
39391WD3	.039	.444	.194	.178	.167
47391WD3	.047	.444	.194	.178	.167
56391WD3	.056	.468	.205	.187	.176
68391WD3	.068	.468	.205	.187	.176
82391WD3	.082	.468	.205	.187	.176
10491WD3	.1	.468	.205	.187	.176
12491XD3	.12	.628	.275	.251	.236
15491XD3	.15	.628	.275	.251	.236

100 VDC (CONT'D)

Sprague No. 225P-	µF	Net Each, Lots of 1- 24	25- 49	50- 99	100- 249★
18491XD3	.18	$.732	$0.32	$0.293	$0.275
22491XD3	.22	.732	.32	.293	.275
27491XD3	.27	.888	.389	.355	.333
33491XD3	.33	.888	.389	.355	.333
39491XD3	.39	1.412	.618	.565	.53
47491XD3	.47	1.412	.618	.565	.53
56491YD3	.56	1.732	.758	.693	.65
68491YD3	.68	1.732	.758	.693	.65
82491YD3	.82	2.156	.943	.862	.809
10591YD3	1.0	2.156	.943	.862	.809

200 VDC

Sprague No. 225P-	µF	Net Each, Lots of 1- 24	25- 49	50- 99	100- 249★
10292XD3	.001	$.472	$0.207	$0.189	$0.177
15292XD3	.0015	.472	.207	.189	.177
22292XD3	.0022	.472	.207	.189	.177
33292XD3	.0033	.472	.207	.189	.177
47292XD3	.0047	.472	.207	.189	.177
68292XD3	.0068	.472	.207	.189	.177
10392XD3	.01	.472	.207	.189	.177
15392XD3	.015	.528	.231	.211	.198
22392XD3	.022	.536	.235	.214	.201
33392XD3	.033	.58	.254	.232	.218
47392XD3	.047	.58	.254	.232	.218

200 VDC (CONT'D)

Sprague No. 225P-	µF	Net Each, Lots of 1- 24	25- 49	50- 99	100- 249★
68392XD3	.068	$.58	$0.254	$0.232	$0.218
10492XD3	.1	.58	.254	.232	.218
15492XD3	.15	.628	.275	.251	.236
22492XD3	.22	.74	.324	.296	.278
33492YD3	.33	.892	.39	.357	.335
47492YD3	.47	1.436	.628	.574	.539
68492YD3	.68	2.016	.882	.806	.756

400 VDC

Sprague No. 225P-	µF	Net Each, Lots of 1- 24	25- 49	50- 99	100- 249★
10294XD3	.001	$.472	$0.207	$0.189	$0.177
15294XD3	.0015	.472	.207	.189	.177
22294XD3	.0022	.472	.207	.189	.177
33294XD3	.0033	.472	.207	.189	.177
47294XD3	.0047	.472	.207	.189	.177
68294XD3	.0068	.472	.207	.189	.177
10394XD3	.01	.472	.207	.189	.177
15394XD3	.015	.496	.217	.198	.186
22394XD3	.022	.50	.219	.20	.186
33394XD3	.033	.58	.254	.232	.218
47394XD3	.047	.58	.254	.232	.218
68394XD3	.068	.628	.275	.251	.236
10494XD3	.1	.732	.32	.293	.275
15494YD3	.15	.892	.39	.357	.335
22494YD3	.22	1.436	.628	.574	.539
33494YD3	.33	2.016	.882	.806	.756
47494YD3	.47	3.904	1.708	1.562	1.464

★1-24, 25 Up supplied in Kleer-Pak; all others, bulkpack. Ask for 250 Up bulk-pack prices

TYPE TE LITTL-LYTIC® CAPACITORS

SPRAGUE

Ultra small; excellent, dependable replacement units for transistorized equipment presently on the market. Hermetically sealed in metal case. Low leakage current; long shelf life. Furnished with clear plastic outer insulating sleeves. Rated 85° C.

3 WVDC

No. TE-	Cap. µF	†	Net Each, Lots of* 1-24	25-49	50-99	100-249	250-499
1050	1	A	1.08	$.621	$.497	$.354	$.295
1051	2	A	1.08	.621	.497	.354	.295
1052	3	A	1.08	.621	.497	.354	.295
1052.1	4	A	1.08	.621	.497	.354	.295
1052.2	5	A	1.08	.621	.497	.354	.295
1052.3	6	A	1.08	.621	.497	.354	.295
1052.5	8	A	1.08	.621	.497	.354	.295
1053	10	A	1.08	.621	.497	.354	.295
1053.5	15	A	1.08	.621	.497	.354	.295
1054	20	A	1.08	.621	.497	.354	.295
1055	25	A	1.08	.621	.497	.354	.295
1055.5	30	A	1.08	.621	.497	.354	.295
1058	50	B	1.11	.634	.507	.362	.301
1058.5	65	B	1.11	.634	.507	.362	.301
1059	75	C	1.20	.697	.558	.398	.331
1059.5	100	C	1.20	.697	.558	.398	.331
1060.1	130	C	1.20	.697	.558	.398	.331
1061	150	D	1.26	.732	.585	.417	.348
1064	200	D	1.26	.732	.585	.417	.348
1065	250	F	1.29	.742	.594	.423	.353
1066	300	F	1.29	.742	.594	.423	.353
1067	400	G	1.29	.742	.594	.423	.353
1068	500	H	1.44	.826	.661	.471	.393
1069.1	600	H	1.44	.826	.661	.471	.393
1070.1	800	I	1.53	.887	.705	.506	.421

6 WVDC

No. TE-	Cap. µF	†	Net Each, Lots of* 1-24	25-49	50-99	100-249	250-499
1080	1	A	1.08	$.621	$.497	$.354	$.295
1081	2	A	1.08	.621	.497	.354	.295
1082	3	A	1.08	.621	.497	.354	.295
1083	4	A	1.08	.621	.497	.354	.295
1084	5	A	1.08	.621	.497	.354	.295
1085	6	A	1.08	.621	.497	.354	.295
1086	8	A	1.08	.621	.497	.354	.295
1087	10	A	1.08	.621	.497	.354	.295
1089	15	A	1.08	.621	.497	.354	.295
1090	20	A	1.08	.621	.497	.354	.295
1091	25	B	1.11	.634	.507	.362	.301
1093	35	B	1.11	.634	.507	.362	.301
1100	50	B	1.11	.634	.507	.362	.301
1101.5	75	C	1.20	.697	.558	.398	.331
1101.7	90	C	1.20	.697	.558	.398	.331
1102	100	D	1.26	.732	.585	.417	.348
1102.5	140	D	1.26	.732	.585	.417	.348
1103	150	F	1.29	.742	.594	.423	.353
1104	200	F	1.29	.742	.594	.423	.353
1105	250	G	1.29	.742	.594	.423	.353
1106	300	H	1.29	.742	.594	.423	.353

6 WVDC (CONT'D)

No. TE-	Cap. µF	†	Net Each, Lots of* 1-24	25-49	50-99	100-249	250-499
1107	400	H	1.44	$.826	$.661	$.471	$.393
1107.5	500	I	1.53	.887	.705	.506	.421
1108.5	600	I	1.53	.887	.705	.506	.421

12 WVDC

No. TE-	Cap. µF	†	Net Each, Lots of* 1-24	25-49	50-99	100-249	250-499
1120	1	A	1.08	$.621	$.497	$.354	$.295
1121	2	A	1.08	.621	.497	.354	.295
1122	3	A	1.08	.621	.497	.354	.295
1123	4	A	1.08	.621	.497	.354	.295
1127	5	A	1.08	.621	.497	.354	.295
1127.1	6	A	1.08	.621	.497	.354	.295
1127.3	8	A	1.08	.621	.497	.354	.295
1128	10	A	1.08	.621	.497	.354	.295
1129	15	A	1.08	.621	.497	.354	.295
1130	20	B	1.11	.634	.507	.362	.301
1131	25	B	1.11	.634	.507	.362	.301
1132.1	30	B	1.11	.634	.507	.362	.301
1133	50	C	1.20	.697	.558	.398	.331
1133.5	60	C	1.20	.697	.558	.398	.331
1134	75	D	1.26	.732	.585	.417	.348
1134.5	90	E	1.29	.74	.592	.422	.351
1135	100	D	1.26	.732	.585	.417	.348
1135.5	140	F	1.29	.742	.594	.423	.353
1136	150	G	1.29	.747	.598	.426	.355
1136.5	190	G	1.29	.747	.598	.426	.355
1137	200	H	1.44	.826	.661	.471	.393
1138	250	H	1.44	.826	.661	.471	.393
1139	290	H	1.44	.826	.661	.471	.393
1140	390	I	1.53	.887	.709	.506	.421

16 WVDC

No. TE-	Cap. µF	†	Net Each, Lots of* 1-24	25-49	50-99	100-249	250-499
1148	1	A	1.08	$.621	$.497	$.354	$.295
1149	2	A	1.08	.621	.497	.354	.295
1150	3	A	1.08	.621	.497	.354	.295
1151	4	A	1.08	.621	.497	.354	.295
1152	5	A	1.08	.621	.497	.354	.295
1153	6	A	1.08	.621	.497	.354	.295
1154	8	A	1.08	.621	.497	.354	.295
1155	10	A	1.08	.621	.497	.354	.295
1156	15	B	1.11	.634	.507	.362	.301
1157	20	B	1.11	.634	.507	.362	.301
1157.1	25	B	1.11	.634	.507	.362	.301
1158	30	C	1.20	.697	.558	.398	.331
1159	35	C	1.20	.697	.558	.398	.331
1160	50	C	1.20	.697	.558	.398	.331
1161	75	D	1.26	.732	.585	.417	.348
1161.5	85	E	1.29	.74	.592	.422	.351
1161.7	90	D	1.26	.732	.585	.417	.348
1162	100	F	1.29	.742	.594	.423	.353
1162.5	130	F	1.29	.742	.594	.423	.353
1163	150	G	1.29	.747	.598	.426	.355
1163.7	180	G	1.29	.747	.598	.426	.355
1164	200	H	1.44	.826	.661	.471	.393
1164.5	250	H	1.44	.826	.661	.471	.393
1165.5	300	I	1.53	.887	.709	.506	.421
1166	350	I	1.53	.887	.709	.506	.421

†SIZES

Dia. x lg.: A—.260 x .536; B—.260 x .723; C—.322 x .723; D—.322 x .848; E—.385 x .723; F—.385 x .848; G—.385 x .973; H—.385 x 1.286; I—.385 x 1.536.

*500–999 Quantity price Available on Request.

25 WVDC

No. TE-	Cap. µF	†	Net Each, Lots of* 1-24	25-49	50-99	100-249	250-499
1200	1	A	1.08	$.621	$.497	$.354	$.295
1201	2	A	1.08	.621	.497	.354	.295
1201.1	3	A	1.08	.621	.497	.354	.295
1201.2	4	A	1.08	.621	.497	.354	.295
1202	5	A	1.08	.621	.497	.354	.295
1203	6	A	1.08	.621	.497	.354	.295
1203.5	8	A	1.08	.621	.497	.354	.295
1204	10	B	1.10	.634	.507	.362	.301
1205	15	B	1.10	.634	.507	.362	.301
1206	20	C	1.20	.697	.558	.398	.331
1207	25	C	1.20	.697	.558	.398	.331
1207.5	30	C	1.20	.697	.558	.398	.331
1208	35	C	1.20	.697	.558	.398	.331
1209	50	D	1.26	.732	.585	.417	.348
1210	75	F	1.29	.742	.594	.423	.353
1211	100	G	1.29	.747	.598	.426	.355
1212	150	H	1.44	.826	.661	.471	.393
1213	200	I	1.53	.887	.709	.506	.421

50 WVDC

No. TE-	Cap. µF	†	Net Each, Lots of* 1-24	25-49	50-99	100-249	250-499
1300	1	A	1.08	$.621	$.497	$.354	$.295
1301	2	A	1.08	.621	.497	.354	.295
1302	3	A	1.08	.621	.497	.354	.295
1302.1	4	A	1.08	.621	.497	.354	.295
1303	5	B	1.11	.634	.507	.362	.301
1303.1	6	B	1.11	.634	.507	.362	.301
1303.3	8	B	1.11	.634	.507	.362	.301
1304	10	C	1.20	.697	.558	.398	.331
1304.2	15	C	1.20	.697	.558	.398	.331
1305	20	D	1.26	.732	.585	.417	.348
1305.5	25	D	1.26	.732	.585	.417	.348
1306	35	F	1.29	.742	.594	.423	.353
1307	50	G	1.29	.747	.598	.426	.355
1308	75	H	1.44	.826	.661	.471	.393
1309	100	I	1.53	.887	.709	.506	.421

100 WVDC

No. TE-	Cap. µF	†	Net Each, Lots of* 1-24	25-49	50-99	100-249	250-499
1400	1	A	1.08	$.621	$.497	$.354	$.295
1401	2	B	1.11	.634	.507	.362	.301
1402	3	C	1.20	.697	.558	.398	.331
1403	4	C	1.20	.697	.558	.398	.331
1404	5	D	1.26	.732	.585	.417	.348
1405	6	D	1.26	.732	.585	.417	.348
1406	8	F	1.29	.742	.594	.423	.353
1407	10	F	1.29	.742	.594	.423	.353
1408	15	G	1.29	.747	.598	.426	.355
1409	20	H	1.44	.826	.661	.471	.393
1410	25	I	1.53	.887	.709	.506	.421
1411	30	I	1.53	.887	.709	.506	.421

150 WVDC

No. TE-	Cap. µF	†	Net Each, Lots of* 1-24	25-49	50-99	100-249	250-499
1500	1	A	1.08	$.621	$.497	$.354	$.295
1501	2	B	1.11	.634	.507	.362	.301
1502	3	C	1.20	.697	.558	.398	.331
1503	4	D	1.26	.732	.585	.417	.348
1504	5	D	1.26	.732	.585	.417	.348
1505	6	F	1.29	.742	.594	.423	.353
1505.5	7	F	1.29	.742	.594	.423	.353
1506	8	F	1.29	.742	.594	.423	.353
1507	10	G	1.29	.747	.598	.426	.355
1508.1	15	H	1.44	.826	.661	.471	.393
1509	20	I	1.53	.887	.709	.506	.421

WRITE US FOR INFORMATION AND PRICING ON ALL NEW OR UNLISTED ITEMS. NO SPECIAL ORDER NUMBERS NECESSARY, JUST USE THE MANUFACTURER'S MODEL NUMBERS.

TYPE 503D VERTI-LYTIC® MINIATURE ELECTROLYTICS

Low cost capacitors are designed for high density applications. Low leakage current and excellent stability and ESR. Operating temperature, 85° C. Metal-encased, with plastic insulating sleeve.

Sprague Number 503D-	µF	WV DC	Size, Ins. Dia. x Lgth.	Net Each, Lots of★ 1-49	50-99	100-299
476G6R3AS	47	6.3	.236 x .433	$0.316	$0.211	$0.15
107G6R3BB	100	6.3	.315 x .492	.328	.219	.156
227F6R3NB	220	6.3	.394 x .492	.445	.286	.212
337F6R3NC	330	6.3	.394 x .630	.512	.329	.244
477F6R3ND	470	6.3	.394 x .787	.563	.362	.268
477G6R3CG	470	6.3	.394 x .787	.398	.265	.189
687G6R3DG	680	6.3	.512 x .787	.568	.379	.27
108G6R3DK	1000	6.3	.512 x .984	.632	.421	.30
158G6R3EK	1500	6.3	.630 x .984	1.03	.686	.489
228F6R3QE	2200	6.3	.630 x .984	1.151	.74	.548
228G6R3ER	2200	6.3	.630 x 1.200	1.213	.809	.576
338F6R3QG	3300	6.3	.630 x 1.400	1.537	.988	.732
338G6R3ET	3300	6.3	.630 x 1.610	1.579	1.053	.75
478F6R3SJ	4700	6.3	.709 x 1.610	2.629	1.69	1.252
688F6R3TJ	6800	6.3	.866 x 1.610	3.704	2.381	1.764
109F6R3UJ	10000	6.3	1.000 x 1.610	4.822	3.10	2.296
226F010KA	22	10	.197 x .433	.294	.189	.14
336G010AS	33	10	.236 x .433	.316	.211	.15
476F010LA	47	10	.236 x .433	.328	.211	.156
686G010BB	68	10	.315 x .492	.328	.219	.156
107F010MB	100	10	.315 x .492	.395	.254	.188
107G010CB	100	10	.394 x .492	.335	.223	.159
157F010NB	150	10	.394 x .492	.445	.286	.212
157G010CB	150	10	.394 x .492	.335	.223	.159
227F010NC	220	10	.394 x .630	.512	.329	.244
227G010CD	220	10	.394 x .630	.341	.227	.162
337F010ND	330	10	.394 x .787	.563	.362	.268
337G010CG	330	10	.394 x .787	.398	.265	.189
477G010DG	470	10	.512 x .787	.568	.379	.27
687F010PD	680	10	.512 x .787	.815	.524	.388
687G010DK	680	10	.512 x .984	.632	.421	.30
108F010PE	1000	10	.512 x .984	.949	.61	.452
108G010EK	1000	10	.630 x .984	1.03	.686	.489
158F010QE	1500	10	.630 x .984	1.151	.74	.548
158G010ER	1500	10	.630 x 1.200	1.213	.809	.576
228F010QF	2200	10	.630 x 1.240	1.361	.875	.648
228G010EU	2200	10	.630 x 1.440	1.371	.914	.651
338F010SH	330	10	.709 x 1.440	2.377	1.528	1.132
478F010TJ	470	10	.866 x 1.610	3.31	2.128	1.576
688F010UJ	680	10	1.000 x 1.610	4.301	2.765	2.048
109F010UK	1000	10	1.000 x 2.010	4.822	3.10	2.296
685G016HS	6.8	16	.197 x .433	.303	.202	.144
106F016KA	10	16	.197 x .433	.294	.189	.14
106G016HS	10	16	.197 x .433	.303	.202	.144
156F016KA	15	16	.197 x .433	.294	.189	.14
156G016AS	15	16	.236 x .433	.316	.211	.15
226F016LA	22	16	.236 x .433	.328	.211	.156
226G016AS	22	16	.236 x .433	.316	.211	.15
336F016LA	33	16	.236 x .433	.328	.211	.156
476F016MB	47	16	.315 x .492	.395	.254	.188
476G016BB	47	16	.315 x .492	.328	.219	.156
686F016MB	68	16	.315 x .492	.395	.254	.188
686G016CB	68	16	.394 x .492	.335	.223	.159
107F016NB	100	16	.394 x .492	.445	.286	.212
107G016CD	100	16	.394 x .630	.341	.227	.162
157F016NC	150	16	.512 x .787	.512	.329	.244
157G016CD	150	16	.394 x .630	.341	.227	.162
227F016ND	220	16	.394 x .787	.563	.362	.268
227G016CG	220	16	.394 x .787	.398	.265	.189
337F016PD	330	16	.512 x .787	.815	.524	.388
337G016DG	330	16	.512 x .787	.568	.379	.27
477F016PD	470	16	.512 x .787	.815	.524	.388
477G016DK	470	16	.512 x .984	.632	.421	.30
687F016PE	680	16	.512 x .984	.949	.61	.452
687G016EK	680	16	.630 x .984	1.03	.686	.489
108F016QE	1000	16	.630 x .984	1.151	.74	.548
108G016ER	1000	16	.630 x 1.200	1.213	.809	.576
158F016QF	1500	16	.630 x 1.240	1.361	.875	.648
158G016ET	1500	16	.630 x 1.610	1.579	1.053	.75
228F016SH	2200	16	.709 x 1.440	2.377	1.528	1.132
478F016UJ	4700	16	1.000 x 1.610	4.301	2.765	2.048
688F016UK	6800	16	1.000 x 2.010	5.015	3.224	2.388
474G025HS	.47	25	.197 x .433	.303	.202	.144
684G025HS	.68	25	.197 x .433	.303	.202	.144
105G025HS	1.0	25	.197 x .433	.303	.202	.144
155G025HS	1.5	25	.197 x .433	.303	.202	.144
225G025HS	2.2	25	.197 x .433	.303	.202	.144
335G025HS	3.3	25	.197 x .433	.303	.202	.144
475G025HS	4.7	25	.197 x .433	.303	.202	.144
685F025KA	6.8	25	.197 x .433	.294	.189	.14
685G025AS	6.8	25	.236 x .433	.316	.211	.15
106G025AS	10	25	.236 x .433	.303	.202	.144
156F025LA	15	25	.236 x .433	.328	.211	.156
156G025BB	15	25	.315 x .492	.328	.219	.156
226G025BB	22	25	.315 x .492	.328	.219	.156
336F025MB	33	25	.315 x .492	.395	.254	.188
336G025BB	33	25	.315 x .492	.328	.219	.156
476G025CB	47	25	.394 x .492	.335	.223	.159
686F025NB	68	25	.394 x .492	.445	.286	.212
686G025CD	68	25	.394 x .630	.341	.227	.162
107F025NC	100	25	.394 x .630	.512	.329	.244
107G025CG	100	25	.394 x .787	.398	.265	.189
157F025ND	150	25	.394 x .787	.563	.362	.268
157G025DG	150	25	.512 x .787	.568	.379	.27
227F025PD	220	25	.512 x .787	$0.815	$0.524	$0.388
227G025DG	220	25	.512 x .787	.568	.379	.27
337F025PE	330	25	.512 x .984	.949	.61	.452
337G025DK	330	25	.512 x .984	.632	.421	.30
477G025EK	470	25	.630 x .984	1.03	.686	.489
687F025QE	680	25	.630 x .984	1.151	.74	.548
687G025ER	680	25	.630 x 1.200	1.213	.809	.576
108F025QG	1000	25	.630 x 1.400	1.537	.988	.732
108G025EU	1000	25	.630 x 1.610	1.371	.914	.651
158F025QG	1500	25	.630 x 1.400	2.377	1.528	1.132
228F025SJ	2200	25	.709 x 1.610	3.31	2.218	1.576
338F025TJ	3300	25	.866 x 1.610	4.108	2.641	1.956
475F035KA	4.7	35	.197 x .433	.294	.189	.14
685G035AS	6.8	35	.236 x .433	.316	.211	.15
106F035LA	10	35	.236 x .433	.328	.211	.156
226F035MB	22	35	.315 x .492	.395	.254	.188
336F035NB	33	35	.394 x .492	.445	.286	.212
336G035CB	33	35	.394 x .492	.335	.223	.159
476F035NB	47	35	.394 x .492	.445	.286	.212
476G035CD	47	35	.394 x .630	.341	.227	.162
686F035NC	68	35	.394 x .630	.512	.329	.244
107F035ND	100	35	.394 x .787	.563	.362	.268
157F035PD	150	35	.512 x .787	.815	.524	.388
157G035DG	150	35	.512 x .787	.568	.379	.27
227F035PE	220	35	.512 x .984	.949	.61	.452
227G035DK	220	35	.512 x .984	.632	.421	.30
337F035QE	330	35	.630 x .984	1.151	.74	.548
337G035EK	330	35	.630 x .984	1.03	.686	.489
447F035QE	470	35	.630 x .984	1.361	.875	.648
477G035ER	470	35	.630 x 1.200	1.213	.809	.576
687F035QG	680	35	.630 x 1.400	1.537	.988	.732
687G035EU	680	35	.630 x 1.440	1.371	.914	.651
108F035SH	1000	35	.709 x 1.440	2.377	1.528	1.132
158F035SJ	1500	35	.709 x 1.610	3.31	2.128	1.576
228F035TJ	2200	35	.866 x 1.610	3.704	2.381	1.764
338F035UJ	3300	35	1.000 x 1.610	4.822	3.10	2.296
478F035UK	4700	35	1.000 x 2.010	5.67	3.645	2.70
225G050HS	2.2	50	.197 x .433	.303	.202	.144
475G050AS	4.7	50	.236 x .433	.316	.211	.15
685F050LA	6.8	50	.236 x .433	.328	.211	.156
156F050MB	15	50	.315 x .492	.395	.254	.188
156G050BB	15	50	.315 x .492	.328	.219	.156
226F050NB	22	50	.394 x .492	.445	.286	.212
336G050CD	33	50	.394 x .630	.341	.227	.162
476F050NC	47	50	.394 x .630	.512	.329	.244
686G050CG	68	50	.394 x .787	.398	.265	.189
107F050PD	100	50	.512 x .787	.815	.524	.388
107G050DG	100	50	.512 x .787	.568	.379	.27
157F050PE	150	50	.512 x .984	.949	.61	.452
227F050QE	220	50	.630 x .984	1.151	.74	.548
227G050EK	220	50	.630 x .984	1.03	.686	.489
337F050QF	330	50	.630 x 1.240	1.361	.875	.648
337G050ER	330	50	.630 x 1.200	1.213	.809	.576
477F050QG	470	50	.630 x 1.400	1.537	.988	.732
477G050ET	470	50	.630 x 1.610	1.579	1.053	.75
687F050SH	680	50	.709 x 1.440	2.377	1.528	1.132
108F050SJ	1000	50	.709 x 1.610	2.948	1.895	1.404
158F050TJ	1500	50	.866 x 1.610	4.108	2.641	1.956
228F050UJ	2200	50	1.000 x 1.610	4.822	3.10	2.296
338F050UK	3300	50	1.000 x 2.010	5.67	3.645	2.70
474F063KA	.47	63	.197 x .433	.294	.189	.14
474G063HS	.47	63	.197 x .433	.303	.202	.144
684F063KA	.68	63	.197 x .433	.294	.189	.14
684G063HS	.68	63	.197 x .433	.303	.202	.144
105F063KA	1.0	63	.197 x .433	.294	.189	.14
105G063HS	1.0	63	.197 x .433	.303	.202	.144
155F063KA	1.5	63	.197 x .433	.294	.189	.14
155G063HS	1.5	63	.197 x .433	.303	.202	.144
225F063KA	2.2	63	.197 x .433	.294	.189	.14
225G063HS	2.2	63	.197 x .433	.303	.202	.144
335F063KA	3.3	63	.197 x .433	.294	.189	.14
335G063AS	3.3	63	.236 x .433	.316	.211	.15
475F063LA	4.7	63	.236 x .433	.328	.211	.156
475G063BB	4.7	63	.315 x .492	.328	.219	.156
685F063MB	6.8	63	.315 x .492	.395	.254	.188
685G063BB	6.8	63	.315 x .492	.328	.219	.156
106F063MB	10	63	.315 x .492	.395	.254	.188
106G063BB	10	63	.315 x .492	.328	.219	.156
156F063NB	15	63	.394 x .492	.445	.286	.212
156G063CB	15	63	.394 x .492	.335	.223	.159
226F063NC	22	63	.394 x .630	.512	.329	.244
226G063CB	22	63	.394 x .492	.335	.223	.159
336F063NC	33	63	.394 x .630	.512	.329	.244
336G063CG	33	63	.394 x .787	.398	.265	.189
476F063ND	47	63	.394 x .787	.563	.362	.268
476G063CG	47	63	.394 x .787	.398	.265	.189
686F063PD	68	63	.512 x .787	.815	.524	.388
686G063DG	68	63	.512 x .787	.568	.379	.27
107F063PE	100	63	.512 x .984	.949	.61	.452
107G063DK	100	63	.512 x .984	.632	.421	.30
157F063QE	150	63	.630 x .984	1.151	.74	.548
157G063EK	150	63	.630 x .984	1.03	.686	.489
227F063QF	220	63	.630 x 1.240	1.361	.875	.648
227G063EU	220	63	.630 x 1.440	1.371	.914	.651
337F063QG	330	63	.630 x 1.400	1.537	.988	.732
337G063ET	330	63	.630 x 1.610	1.579	1.053	.75
477F063SH	470	63	.709 x 1.440	2.377	1.528	1.132
687F063SJ	680	63	.709 x 1.610	2.948	1.895	1.404
108F063TJ	1000	63	.866 x 1.610	3.704	2.381	1.764
158F063UJ	1500	63	1.000 x 1.610	4.964	3.191	2.364
228F063UK	2200	63	1.000 x 2.010	5.477	3.521	2.608

★LARGER QUANTITY PRICES ON REQUEST.

PRICES LISTED ARE FOR GUIDANCE ONLY

SPRAGUE TYPE TVA ATOM® TUBULAR ELECTROLYTIC CAPACITORS

Small, dependable dry electrolytic. Low leakage; long shelf life. Withstands high temp. (85° C); high ripple currents and high surge voltages. Metal case with thermoplastic outer insulating sleeve except as noted.

POLARIZED SINGLE UNITS

Sprague No. TVA-	µF	WV DC	Case Sizes Dia. x Lgth.	Net Each, Lots of* 1-24	25-49	50-99	100-249
1081.4	5	3	1/4 x 17/32	$0.84	$0.581	$0.477	$0.34
1082	10	3	1/4 x 17/32	.78	.535	.44	.314
1082.5	15	3	1/4 x 17/32	.84	.581	.477	.34
1084	25	3	1/4 x 17/32	.60	.406	.334	.238
1084.5	30	3	1/4 x 17/32	.93	.63	.52	.37
1089.5	130	3	5/16 x 23/32	.96	.662	.544	.388
1091.5	250	3	3/8 x 27/32	1.08	.746	.614	.437
1093	400	3	3/8 x 31/32	1.11	.764	.628	.448
1095	600	3	3/8 x 1 9/32	1.17	.809	.666	.474
1097.3	1000	3	7/16 x 1 1/32	1.74	1.203	.99	.705
1097.4	1200	3	7/16 x 1 1/32	1.74	1.203	.99	.705
1097.5	1500	3	1/2 x 1 1/32	1.77	1.233	1.014	.723
1097.7	2000	3	1/2 x 1 1/32	1.77	1.233	1.014	.723
1097.8	2200	3	1/2 x 1 13/16	1.89	1.299	1.069	.762
1097.9	2500	3	1/2 x 1 13/16	1.89	1.299	1.069	.762
1098	3000	3	3/4 x 1 21/32	2.40	1.669	1.373	.978
1099.6	10000	3	7/8 x 2 5/32	3.36	2.328	1.915	1.365
1099.80	1	6	1/4 x 17/32	2.61	1.814	1.492	1.063
1099.81	2	6	1/4 x 17/32	.84	.581	.477	.34
1099.82	3	6	1/4 x 17/32	.84	.581	.477	.34
1099.83	4	6	1/4 x 17/32	.84	.581	.477	.34
1099.86	8	6	1/4 x 17/32	.84	.581	.477	.34
1099.90	20	6	1/4 x 17/32	2.61	1.81	1.49	1.06
1100.5	75	6	5/16 x 23/32	1.17	.797	.656	.467
1100.6	90	6	5/16 x 23/32	.96	.662	.544	.388
1101.2	140	6	5/16 x 27/32	.99	.674	.554	.395
1101.5	150	6	3/8 x 27/32	1.17	.797	.656	.467
1101.7	200	6	3/8 x 27/32	1.20	.836	.688	.49
1102	250	6	3/8 x 31/32	1.20	.836	.688	.49
1102.1	300	6	3/8 x 31/32	1.23	.848	.698	.497
1102.3	400	6	3/8 x 1 9/32	1.23	.854	.703	.501
1103	500	6	3/8 x 1 17/32	1.23	.854	.703	.501
1103.4	700	6	7/16 x 1 9/32	1.35	.932	.767	.547
1104	1000	6	1/2 x 1 9/32	1.47	1.014	.834	.594
1104.1	1200	6	1/2 x 1 17/32	1.77	1.233	1.014	.723
1105	1500	6	1/2 x 1 17/32	1.29	.887	.73	.52
1105.1	1800	6	1/2 x 1 25/32	1.89	1.299	1.069	.762
1106	2000	6	1/2 x 1 25/32	1.77	1.227	1.009	.719
1106.5	2500	6	3/4 x 1 21/32	2.25	1.552	1.277	.91
1108	4000	6	7/8 x 1 29/32	2.64	1.841	1.514	1.079
1129.4	4000	10	7/8 x 1 29/32	3.81	2.64	2.18	1.55
1129.5	5000	10	1 x 2 5/32	3.51	2.45	2.01	1.44
1129.8	10000	10	1 1/8 x 2 11/16	4.47	3.11	2.56	1.82
1129.82	3	12	1/4 x 17/32	.84	.581	.477	.34
1129.86	8	12	1/4 x 17/32	.84	.581	.477	.34
1129.95	60	12	5/16 x 23/32	.96	.662	.544	.388
1129.96	75	12	5/16 x 27/32	.96	.653	.537	.383
1129.97	90	12	3/8 x 23/32	1.02	.71	.584	.416
1130.2	140	12	3/8 x 27/32	.99	.677	.557	.397
1131	250	12	3/8 x 1 9/32	1.20	.818	.673	.48
1131.1	290	12	3/8 x 1 9/32	1.23	.854	.703	.501
1131.2	390	12	3/8 x 1 17/32	1.35	.942	.774	.552
1132.5	900	12	1/2 x 1 13/16	1.74	1.203	.99	.705
1133.5	1500	12	3/4 x 1 21/32	2.40	1.669	1.373	.978
1134.5	2500	12	7/8 x 1 21/32	2.76	1.919	1.578	1.125
1135	3000	12	7/8 x 2 5/32	3.36	2.33	1.92	1.37
1136.1	5000	12	1 x 2 13/32	3.60	2.509	2.063	1.47
1147	20	16	1/4 x 23/32	1.02	.71	.584	.416
1148	25	16	1/4 x 23/32	1.02	.71	.584	.416
1149.1	35	16	5/16 x 23/32	.87	.608	.50	.356
1150	50	16	5/16 x 23/32	1.05	.725	.596	.425
1151	75	16	5/16 x 27/32	1.17	.797	.656	.467
1153	90	16	5/16 x 27/32	.99	.674	.554	.395
1160	100	16	3/8 x 27/32	1.17	.797	.656	.467
1160.3	150	16	3/8 x 31/32	1.20	.836	.688	.49
1160.4	175	16	3/8 x 31/32	1.23	.848	.698	.497
1160.6	200	16	3/8 x 1 9/32	1.23	.848	.698	.497
1161	250	16	3/8 x 1 9/32	1.23	.854	.703	.501
1161.1	300	16	3/8 x 1 17/32	1.23	.854	.703	.501
1162	500	16	7/16 x 1 17/32	1.47	1.014	.834	.594
1162.2	600	16	7/16 x 1 17/32	1.47	1.014	.834	.594
1162.3	800	16	1/2 x 1 9/16	1.29	.887	.73	.52
1163	1000	16	1/2 x 1 13/16	1.29	.887	.73	.52
1164	1200	16	1/2 x 1 13/16	1.77	1.227	1.009	.719
1175.2	1500	16	13/16 x 1 21/32	2.49	1.727	1.42	1.012
1170*	2000	16	13/16 x 1 21/32	2.07	1.432	1.178	.839
1175.3	2500	16	7/8 x 1 29/32	2.94	2.051	1.687	1.202
1175	3000	16	7/8 x 1 29/32	3.33	2.32	1.91	1.36
1175.4	4000	16	15/16 x 2 5/32	3.90	2.70	2.22	1.58
1175.5	5000	16	1 x 2 5/32	3.90	2.71	2.23	1.59
1175.6	6000	16	1 1/8 x 2 5/32	5.28	3.66	3.01	2.15
1175.7	8000	16	1 1/8 x 2 11/16	5.40	3.76	3.09	2.20
1175.8	10000	16	1 1/4 x 2 11/16	6.18	4.30	3.53	2.52
1175.11	15000	16	1 1/4 x 3 11/16	7.98	5.50	4.57	3.26
1175.13	20000	16	1 3/8 x 4 5/32	8.97	6.191	5.092	3.665
1180	150	20	3/8 x 31/32	1.23	.848	.698	.497
1190	1500	20	7/8 x 1 21/32	2.07	1.432	1.178	.839
1194	2300	20	1 x 1 21/32	3.27	2.26	1.86	1.33
1203.3	8	25	1/4 x 17/32	1.02	.71	.584	.416
1204	10	25	1/4 x 23/32	1.02	.71	.584	.416
1204.2	15	25	1/4 x 23/32	1.02	.71	.584	.416
1204.5	20	25	5/16 x 23/32	1.05	.725	.596	.425
1205	25	25	5/16 x 23/32	1.05	.725	.596	.425
1205.1	30	25	5/16 x 23/32	1.05	.725	.596	.425
1205.2	35	25	5/16 x 23/32	1.17	.797	.656	.467

POLARIZED SINGLE UNITS (CONT'D)

Sprague No. TVA-	µF	WV DC	Case Sizes Dia. x Lgth.	Net Each, Lots of* 1-24	25-49	50-99	100-249
1205.7	40	25	5/16 x 27/32	$1.17	$ .797	$ .656	$ .467
1206	50	25	5/16 x 27/32	1.17	.797	.656	.467
1206.1	75	25	3/8 x 27/32	1.20	.836	.688	.49
1207	100	25	3/8 x 31/32	1.20	.836	.688	.49
1207.5	150	25	3/8 x 1 9/32	1.23	.848	.698	.497
1207.7	200	25	3/8 x 1 17/32	1.23	.854	.703	.501
1208	250	25	7/16 x 1 9/32	1.38	.945	.777	.554
1208.5	300	25	7/16 x 1 17/32	1.38	.945	.777	.554
1208.6	350	25	7/16 x 1 17/32	1.29	.887	.73	.52
1208.7	400	25	1/2 x 1 5/16	1.29	.887	.73	.52
1208.8	450	25	1/2 x 1 9/16	1.29	.887	.73	.52
1209	500	25	1/2 x 1 9/16	1.29	.887	.73	.52
1209.2	600	25	1/2 x 1 13/16	1.29	.887	.73	.52
1211	1000	25	13/16 x 1 21/32	1.77	1.227	1.009	.719
1212	1500	25	7/8 x 1 29/32	2.07	1.432	1.178	.839
1213	2000	25	1 x 1 29/32	3.21	2.223	1.828	1.303
1213.5	2500	25	1 x 1 29/32	3.24	2.25	1.851	1.319
1214†	3000	25	1 x 2 5/32	5.37	3.739	3.075	2.191
1214.2	4000	25	1 1/8 x 2 11/16	5.40	3.757	3.09	2.202
1214.5	5000	25	1 1/8 x 2 11/16	5.43	3.772	3.102	2.211
1214.8	8000	25	1 1/4 x 3 11/16	7.17	4.996	4.109	2.928
1214.10	10000	25	1 3/8 x 3 11/16	8.16	5.634	4.681	3.336
1223	200	35	7/16 x 1 17/32	1.38	.945	.777	.554
1227	500	35	1/2 x 1 13/16	1.77	1.227	1.009	.719
1229	5500	35	1 x 3 13/32	5.37	3.739	3.075	2.191
1300	1	50	1/4 x 17/32	1.02	.71	.584	.416
1301	2	50	1/4 x 17/32	1.02	.71	.584	.416
1302	3	50	1/4 x 17/32	1.02	.71	.584	.416
1302.7	4	50	1/4 x 17/32	1.02	.71	.584	.416
1303	5	50	1/4 x 23/32	1.02	.71	.584	.416
1303.1	6	50	1/4 x 23/32	1.02	.71	.584	.416
1303.2	8	50	1/4 x 23/32	1.05	.725	.596	.425
1304	10	50	5/16 x 23/32	1.05	.725	.596	.425
1305	15	50	5/16 x 23/32	1.05	.725	.596	.425
1305.5	20	50	5/16 x 27/32	1.17	.797	.656	.467
1306	25	50	5/16 x 27/32	1.17	.797	.656	.467
1306.2	35	50	3/8 x 27/32	1.20	.836	.688	.49
1306.5	40	50	3/8 x 31/32	1.20	.836	.688	.49
1308	50	50	3/8 x 31/32	1.23	.848	.698	.497
1309.3	60	50	3/8 x 1 9/32	1.23	.848	.698	.497
1309.4	75	50	3/8 x 1 9/32	1.23	.854	.703	.501
1310	100	50	3/8 x 1 17/32	1.23	.854	.703	.501
1310.1	120	50	7/16 x 1 9/32	1.38	.945	.777	.554
1310.2	125	50	7/16 x 1 17/32	1.38	.945	.777	.554
1311	150	50	7/16 x 1 17/32	1.38	.945	.777	.554
1311.5	200	50	1/2 x 1 5/16	1.47	1.014	.834	.594
1312	250	50	1/2 x 1 5/16	1.29	.887	.73	.52
1312.1	300	50	1/2 x 1 9/16	1.29	.887	.73	.52
1312.2	350	50	1/2 x 1 13/16	1.77	1.227	.719	.602
1313	400	50	1/2 x 1 13/16	1.77	1.227	1.009	.719
1315	500	50	3/4 x 1 21/32	2.07	1.432	1.178	.839
1315.2	600	50	13/16 x 1 21/32	2.07	1.432	1.178	.839
1315.4	800	50	7/8 x 1 21/32	3.42	2.37	1.95	1.39
1316	1000	50	15/16 x 1 29/32	3.54	2.47	2.03	1.45
1318	1500	50	15/16 x 2 5/32	3.96	2.74	2.26	1.61
1318.2	2000	50	1 1/8 x 2 5/32	5.31	3.70	3.04	2.17
1318.3	2500	50	1 1/8 x 2 11/16	6.03	4.20	3.46	2.46
1318.4	3000	50	1 1/4 x 2 11/16	6.39	4.46	3.66	2.61
1318.5	4000	50	1 1/4 x 3 5/32	7.95	5.47	4.55	3.24
1318.7	5000	50	1 3/8 x 3 1/8	8.79	6.07	4.99	3.51
1318.10	8000	50	1 3/8 x 4 5/32	11.52	7.94	6.53	4.70
1319	250	60	1/2 x 1 9/16	1.77	1.227	1.009	.719
1319.5	500	75	1 x 2 21/32	3.75	2.60	2.14	1.52
1319.7	1000	75	1 x 2 21/32	4.26	2.97	2.44	1.74
1319.8†	1500	75	1 x 3 21/32	8.58	5.91	4.91	3.50
1319.9	2000	75	1 3/8 x 2 3/8	6.81	4.74	3.90	2.78
1321	16	90	3/8 x 31/32	1.20	.821	.675	.481
1333	4	100	5/16 x 23/32	1.26	.878	.722	.515
1335	6	100	5/16 x 27/32	1.32	.92	.757	.539
1337	10	100	3/8 x 27/32	1.35	.935	.769	.549
1338	15	100	3/8 x 31/32	1.35	.942	.774	.552
1339	20	100	3/8 x 1 9/32	1.50	1.041	.856	.61
1340	25	100	3/8 x 1 17/32	1.62	1.119	.92	.656
1341	30	100	3/8 x 1 17/32	1.53	1.053	.866	.617
1343	50	100	1/2 x 1 9/16	1.83	1.269	1.044	.744
1344	60	100	1/2 x 1 9/16	1.83	1.269	1.044	.744
1345	75	100	1/2 x 1 13/16	2.10	1.462	1.202	.857
1345.2	85	100	3/4 x 1 13/32	2.28	1.576	1.296	.924
1346	100	100	3/4 x 1 13/32	2.28	1.576	1.296	.924
1347	150	100	13/16 x 1 21/32	2.28	1.576	1.296	.924
1348	200	100	7/8 x 1 29/32	2.82	1.952	1.606	1.144
1349	250	100	7/8 x 1 29/32	3.63	2.52	2.07	1.48
1350	300	100	1 x 1 29/32	4.05	2.83	2.32	1.66
1376	500	100	1 1/8 x 2 5/32	5.31	3.70	3.04	2.17
1382	1500	100	1 1/4 x 3 11/16	9.81	6.75	5.56	4.00
1384	2000	100	1 3/8 x 4 5/32	11.70	8.07	6.64	4.78
1400	1	150	1/4 x 17/32	1.08	.755	.621	.443
1400.1	2	150	1/4 x 23/32	1.14	.794	.653	.465
1400.2	3	150	5/16 x 23/32	1.26	.878	.722	.515
1402	4	150	5/16 x 27/32	1.32	.92	.757	.539
1403	5	150	5/16 x 27/32	1.32	.92	.757	.539
1403.1	6	150	3/8 x 27/32	1.35	.935	.769	.548
1405	8	150	3/8 x 27/32	1.35	.935	.769	.548
1406	10	150	3/8 x 31/32	1.35	.942	.774	.552
1408	15	150	3/8 x 1 9/32	1.50	1.041	.856	.61
1409	16	150	3/8 x 1 17/32	1.50	1.041	.856	.61
1410	20	150	3/8 x 1 17/32	1.62	1.119	.92	.656
1411	25	150	7/16 x 1 9/32	1.38	.954	.784	.559
1412	30	150	7/16 x 1 17/32	1.53	1.053	.866	.617
1412.1	35	150	1/2 x 1 17/32	1.83	1.269	1.044	.744
1413	40	150	1/2 x 1 17/32	1.83	1.269	1.044	.744
1414	50	150	1/2 x 1 13/16	2.10	1.462	1.202	.857

*1-99, Kleer-Pak; 100 Up Bulk-Pack. 250 Up Bulk-Pack prices on request. *Mounting strap attached. †Single-ended with 8" flexible leads.

TYPE TVA ATOM® ELECTROLYTICS CONTINUED ON NEXT PAGE

TYPE TVA ATOM® TUBULAR ELECTROLYTIC CAPACITORS (CONT'D)

POLARIZED SINGLE UNITS (CONT'D)

Sprague No. TVA-	µF	WV DC	Case Sizes Dia. x Lgth.	Net Each, Lots of* 1-24	25-49	50-99	100-249
1415	60	150	13/16 x 1 13/32	$2.28	$1.576	$1.296	$ .924
1416	75	150	7/8 x 1 13/32	2.28	1.576	1.296	.924
1418	80	150	7/8 x 1 13/32	3.06	2.12	1.74	1.24
1420	100	150	7/8 x 1 21/32	3.30	2.30	1.89	1.35
1422	150	150	7/8 x 2 5/32	3.54	2.46	2.03	1.44
1423	200	150	1 x 2 5/32	3.99	2.77	2.28	1.63
1424*†	250	150	1 1/8 x 2 5/32	6.93	4.83	3.98	2.83
1425	300	150	1 1/8 x 2 11/16	5.31	3.70	3.04	2.18
1426.1	400	150	1 1/4 x 2 11/16	6.09	4.23	3.48	2.48
1428	500	150	1 1/4 x 3 5/32	6.72	4.67	3.85	2.74
1429	1000	150	1 3/8 x 4 5/32	10.02	6.91	5.69	4.09
1430	80	175	13/16 x 1 29/32	2.76	1.916	1.576	1.123
1434	1	200	1/4 x 2 3/32	1.14	.794	.653	.465
1435	2	200	5/16 x 2 3/32	1.26	.878	.722	.515
1436	3	200	5/16 x 2 7/32	1.32	.92	.757	.539
1437	4	200	3/8 x 2 7/32	1.35	.935	.769	.548
1438	5	200	3/8 x 2 7/32	1.35	.935	.769	.548
1439	6	200	3/8 x 3 1/32	1.35	.942	.774	.552
1440	8	200	3/8 x 1 9/32	1.50	1.041	.856	.61
1441	10	200	3/8 x 1 9/32	1.50	1.041	.856	.61
1442	15	200	7/16 x 1 9/32	1.38	.954	.784	.559
1442.1	20	200	7/16 x 1 17/32	1.53	1.053	.866	.617
1442.2	25	200	1/2 x 1 9/16	1.83	1.269	1.044	.744
1442.3	30	200	1/2 x 1 13/16	1.53	1.053	.866	.617
1442.5	40	200	13/16 x 1 13/32	2.28	1.576	1.296	.924
1443	50	200	13/16 x 1 21/32	2.28	1.576	1.296	.924
1445	100	200	7/8 x 2 5/32	3.99	2.76	2.27	1.62
1447*†	150	200	1 x 2 5/32	6.75	4.71	3.87	2.76
1480*†	200	200	1 1/8 x 2 11/16	7.80	5.38	4.47	3.18
1484	500	200	1 1/4 x 3 11/16	9.03	6.22	5.12	3.69
1500.1	2	250	3/8 x 2 3/32	1.35	.932	.767	.547
1500.2	3	250	3/8 x 2 7/32	1.35	.935	.769	.548
1501	4	250	3/8 x 3 1/32	1.35	.942	.774	.552
1502.1	6	250	3/8 x 1 9/32	1.50	1.041	.856	.61
1503	8	250	3/8 x 1 9/32	1.62	1.119	.92	.656
1504	10	250	7/16 x 1 9/32	1.38	.954	.784	.559
1505	12	250	7/16 x 1 17/32	1.53	1.053	.866	.617
1508	20	250	1/2 x 1 13/16	2.10	1.462	1.202	.857
1510	30	250	13/16 x 1 13/32	2.28	1.576	1.296	.924
1511	40	250	7/8 x 1 13/32	3.06	2.12	1.74	1.24
1512	50	250	7/8 x 1 21/32	3.21	2.23	1.83	1.31
1513	60	250	7/8 x 1 29/32	3.39	2.35	1.94	1.38
1521	85	250	7/8 x 2 5/32	3.21	2.22	1.826	1.301
1522	100	250	1 x 1 29/32	3.78	2.61	2.15	1.53
1525	150	250	1 1/8 x 2 5/32	5.13	3.57	2.94	2.09
1526	160	250	1 x 2 5/32	4.50	3.12	2.57	1.83
1528†	200	250	1 1/4 x 2 11/16	8.25	5.69	4.73	3.37
1528.2	225	250	1 x 3 5/32	5.10	3.54	2.91	2.07
1528.3	250	250	1 x 3 5/32	7.05	4.90	4.03	2.87
1528.5	300	250	1 1/4 x 3 5/32	7.35	5.07	4.21	3.00
1528.7	400	250	1 1/4 x 3 11/16	8.58	5.91	4.91	3.50
1528.8	450	250	1 3/8 x 3 11/16	8.94	6.16	5.07	3.65
1528.9	500	250	1 3/8 x 3 11/16	9.42	6.50	5.35	3.85
1529	600	250	1 3/8 x 4 5/32	11.70	8.07	6.64	4.78
1540	1	300	5/16 x 2 3/32	1.26	.878	.722	.515
1542	3	300	3/8 x 3 1/32	1.38	.963	.792	.564
1544	5	300	3/8 x 1 9/32	1.50	1.041	.856	.61
1546	8	300	7/16 x 1 17/32	1.44	.987	.811	.578
1547	10	300	7/16 x 1 17/32	1.53	1.053	.866	.617
1549	15	300	1/2 x 1 9/16	1.83	1.269	1.044	.744
1570	50	300	7/8 x 1 29/32	3.57	2.49	2.04	1.46
1573	100	300	1 1/8 x 2 5/32	5.37	3.73	3.07	2.18
1575*†	140	300	1 x 3 5/32	8.85	6.10	5.02	3.61
1576*†	150	300	1 1/4 x 2 11/16	9.42	6.50	5.35	3.85
1578*†	200	300	1 1/4 x 3 5/32	9.57	6.60	5.43	3.91
1580	300	300	1 3/8 x 3 11/16	9.33	6.44	5.30	3.81
1582	400	300	1 3/8 x 4 5/32	11.10	7.66	6.30	4.54

POLARIZED SINGLE UNITS (CONT'D)

Sprague No. TVA-	µF	WV DC	Case Sizes Dia. x Lgth.	Net Each, Lots of* 1-24	25-49	50-99	100-249
1599	1	350	5/16 x 2 7/32	$1.32	$0.92	$0.757	$0.539
1600	2	350	3/8 x 2 7/32	1.35	.935	.769	.548
1600.1	3	350	3/8 x 3 1/32	1.35	.942	.774	.552
1601	4	350	3/8 x 1 9/32	1.50	1.041	.856	.61
1602.5	5	350	3/8 x 1 17/32	1.62	1.119	.92	.656
1602.6	6	350	3/8 x 1 17/32	1.62	1.119	.92	.656
1603	8	350	7/16 x 1 17/32	1.53	1.053	.866	.617
1604	10	350	1/2 x 1 9/16	1.83	1.269	1.044	.744
1605	12	350	1/2 x 1 9/16	1.83	1.269	1.044	.744
1607	15	350	1/2 x 1 13/16	2.10	1.462	1.202	.857
1608	20	350	3/4 x 1 21/32	2.28	1.576	1.296	.924
1612	50	350	7/8 x 2 5/32	3.84	2.66	2.19	1.56
1613	60	350	15/16 x 2 5/32	3.69	2.57	2.11	1.51
1620	100	350	1 x 2 21/32	4.77	3.32	2.73	1.95
1622*	150	350	1 1/4 x 2 11/16	7.86	5.41	4.50	3.20
1623	160	350	1 x 3 21/32	6.63	4.61	3.79	2.70
1624*	200	350	1 1/4 x 3 5/32	9.75	6.72	5.53	3.98
1627	250	350	1 3/8 x 3 11/16	9.33	6.44	5.30	3.81
1628*	300	350	1 3/8 x 4 5/32	10.80	7.44	6.12	4.41
1640	1	385	3/8 x 2 7/32	1.47	1.011	.831	5.92
1647	3	400	3/8 x 1 17/32	1.62	1.119	.92	.656
1648	4	400	7/16 x 1 9/32	1.38	.954	.784	.559
1649	5	400	7/16 x 1 17/32	1.53	1.053	.866	.617
1650	6	400	1/2 x 1 5/16	1.77	1.23	1.012	.721
1651	8	400	1/2 x 1 9/16	1.83	1.269	1.044	.744
1652	10	400	1/2 x 1 13/16	1.83	1.269	1.044	.744
1658	30	400	15/16 x 1 21/32	3.54	2.47	2.03	1.45
1659	40	400	15/16 x 1 29/32	3.81	2.65	2.18	1.56
1661	60	400	1 x 2 13/32	3.21	2.226	1.831	1.305
1665	150	400	1 1/4 x 3 5/32	5.31	3.70	3.043	2.168
1666	200	400	1 1/4 x 3 11/16	8.07	5.569	4.626	3.297
1700	1	450	3/8 x 2 7/32	1.35	.935	.769	.548
1701	2	450	3/8 x 1 9/32	1.50	1.041	.856	.61
1701.1	3	450	7/16 x 1 9/32	1.77	1.23	1.012	.721
1702	4	450	7/16 x 1 17/32	1.53	1.053	.866	.617
1703	5	450	1/2 x 1 5/16	1.77	1.23	1.012	.721
1704	8	450	1/2 x 1 13/16	2.10	1.462	1.202	.857
1705	10	450	1/2 x 1 13/16	2.28	1.576	1.296	.924
1706	12	450	3/4 x 1 21/32	2.28	1.576	1.296	.924
1709	20	450	13/16 x 2 5/32	3.75	2.61	2.14	1.53
1710	25	450	15/16 x 1 29/32	3.93	2.72	2.24	1.60
1711	30	450	1 x 1 29/32	4.02	2.80	2.30	1.64
1712	40	450	15/16 x 2 13/32	4.08	2.84	2.34	1.66
1713	50	450	1 1/8 x 2 5/32	5.55	3.85	3.17	2.26
1714	60	450	1 1/8 x 2 5/32	5.73	3.98	3.27	2.33
1716	80	450	1 x 3 21/32	5.40	3.76	3.09	2.20
1718	100	450	1 1/4 x 3 5/32	7.95	5.47	4.55	3.24
1719*	150	450	1 3/8 x 3 11/16	10.74	7.41	6.10	4.39
1719.2	160	450	1 3/8 x 3 11/16	10.11	6.98	5.74	4.13
1720*	200	450	1 3/8 x 4 5/32	11.28	7.79	6.41	4.61
1800	4	475	5/8 x 1 21/32	3.03	2.10	1.73	1.23
1802.1	12	475	3/4 x 1 29/32	2.19	1.525	1.254	.894
1803.1	16	475	7/8 x 1 21/32	3.69	2.57	2.11	1.51
1890	1	500	1/2 x 1 5/32	3.12	2.16	1.78	1.27
1895	3	500	5/8 x 1 17/32	3.63	2.53	2.08	1.48
1901	5	500	3/4 x 1 5/32	3.48	2.42	1.99	1.42
1902	8	500	3/4 x 1 21/32	3.93	2.73	2.24	1.60
1903	10	500	3/4 x 1 21/32	4.05	2.82	2.32	1.65
1904	12	500	7/8 x 1 29/32	3.39	2.352	1.935	1.379
1905	16	500	7/8 x 2 5/32	4.47	3.12	2.56	1.83
1906	20	500	7/8 x 2 5/32	4.53	3.14	2.58	1.84
1907	30	500	1 x 1 29/32	4.80	3.35	2.75	1.96
1908	40	500	1 x 2 13/32	5.40	3.76	3.09	2.20
1960	4	600	13/16 x 2 3/8	7.68	5.29	4.39	3.13
1962	8	600	1 1/16 x 2 7/8	7.50	5.16	4.29	3.06
1963	10	600	1 1/16 x 3 3/16	8.43	5.82	4.83	3.44
1965	16	600	1 1/16 x 4 3/16	9.42	6.50	5.35	3.85
1966	20	600	1 1/16 x 3 7/8	9.90	6.82	5.61	4.04

WE THINK YOU'LL LIKE OUR SERVICE . . .

LET US SERVE YOU!

*1-99, Kleer-Pak; 100 Up Bulk-Pack. 250 Up Bulk-Pack prices on request. *Mounting strap attached. †Single ended with two 8-inch flexible leads.

TYPE TVA ATOM® ELECTROLYTICS CONTINUED ON NEXT PAGE

PRICES LISTED ARE FOR GUIDANCE ONLY

TYPE 36D POWERLYTIC® ALUMINUM ELECTROLYTIC CAPACITORS

Especially suitable for replacement applications. Maximum space economy at operating temperatures up to 85° C. Low ESR and leakage currents. Extremely long shelf life. Uses most reliable seal developed for aluminum electrolytic capacitors. Pressure-type safety vents employing silicone rubber are used on all cases. Capacitors listed have low-insert terminals; change last character of model no. from A to **B** for high-insert or A to **C** for solder-lug terminals, price on request.

3 WVDC

Sprague Number	Cap., µF	*
36D103G003AA2A	10000	AA1
36D203G003AB2A	20000	AB1
36D303G003AC2A	30000	AC1
36D363G003AD2A	36000	AD1
36D413G003AE2A	41000	AE1
36D463G003AF2A	46000	AF1
36D473G003BB2A	47000	BB1
36D703G003BC2A	70000	BC1
36D803G003CB2A	80000	CB1
36D823G003BD2A	82000	BD1
36D943G003BE2A	94000	BE1
36D104G003BF2A	100000	BF1
36D124G003CC2A	120000	CC1
36D144G003CD2A	140000	CD1
36D164G003CE2A	160000	CE1
36D174G003DC2A	170000	DC1
36D184G003CF2A	180000	CF1
36D204G003DD2A	200000	DD1
36D234G003DE2A	230000	DE1
36D274G003DF2A	270000	DF1

6 WVDC

Sprague Number	Cap., µF	*
36D702G006AA2A	7000	AA1
36D143G006AB2A	14000	AB1
36D213G006AC2A	21000	AC1
36D253G006AD2A	25000	AD1
36D293G006AE2A	29000	AE1
36D323G006AF2A	32000	AF1
36D333G006BB2A	33000	BB1
36D503G006BC2A	50000	BC1
36D573G006CB2A	57000	CB1
36D583G006BD2A	58000	BD1
36D663G006BE2A	66000	BE1
36D753G006BF2A	75000	BF1
36D863G006CC2A	86000	CC1
36D104G006CD2A	100000	CD1
36D114G006CE2A	110000	CE1
36D124G006DC2A	120000	DC1
36D144G006DD2A	140000	DD1
36D164G006DE2A	160000	DE1
36D194G006DF2A	190000	DF1

10 WVDC

Sprague Number	Cap., µF	*
36D602G010AA2A	6000	AA1
36D123G010AB2A	12000	AB1
36D183G010AC2A	18000	AC1
36D213G010AD2A	21000	AD1
36D243G010AE2A	24000	AE1
36D273G010AF2A	27000	AF1
36D283G010BB2A	28000	BB1
36D423G010BC2A	42000	BC1
36D483G010CB2A	48000	CB1
36D493G010BD2A	49000	BD1
36D563G010BE2A	56000	BE1
36D633G010BF2A	63000	BF1
36D723G010CC2A	72000	CC1
36D843G010CD2A	84000	CD1
36D963G010CE2A	96000	CE1
36D104G010CF2A	100000	CF1
36D104G010DC2A	100000	DC1
36D124G010DD2A	120000	DD1
36D144G010DE2A	140000	DE1
36D164G010DF2A	160000	DF1

15 WVDC

Sprague Number	Cap., µF	*
36D462G015AA2A	4600	AA1
36D922G015AB2A	9200	AB1
36D133G015AC2A	13000	AC1
36D163G015AD2A	16000	AD1
36D183G015AE2A	18000	AE1
36D203G015AF2A	20000	AF1
36D213G015BB2A	21000	BB1
36D313G015BC2A	31000	BC1
36D363G015CB2A	36000	CB1
36D373G015BD2A	37000	BD1
36D423G015BE2A	42000	BE1
36D473G015BF2A	47000	BF1
36D543G015CC2A	54000	CC1
36D633G015CD2A	63000	CD1
36D723G015CE2A	72000	CE1
36D803G015DC2A	80000	DC1
36D813G015CF2A	81000	CF1
36D933G015DD2A	93000	DD1
36D104G015DE2A	100000	DE1
36D124G015DF2A	120000	DF1

25 WVDC

Sprague Number	Cap., µF	*
36D272G025AA2A	2700	AA1
36D552G025AB2A	5500	AB1
36D822G025AC2A	8200	AC1
36D962G025AD2A	9600	AD1

25 WVDC (Cont'd.)

Sprague Number	Cap., µF	*
36D113G025AE2A	11000	AE1
36D123G025AF2A	12000	AF1
36D183G025BC2A	18000	BC1
36D213G025CB2A	21000	CB1
36D223G025BD2A	22000	BD1
36D253G025BE2A	25000	BE1
36D283G025BF2A	28000	BF1
36D323G025CC2A	32000	CC1
36D383G025CD2A	38000	CD1
36D433G025CE2A	43000	CE1
36D473G025DC2A	47000	DC1
36D483G025CF2A	48000	CF1
36D553G025DD2A	55000	DD1
36D633G025DE2A	63000	DE1
36D713G025DF2A	71000	DF1

30 WVDC

Sprague Number	Cap., µF	*
36D202G030AA2A	2000	AA1
36D402G030AB2A	4000	AB1
36D602G030AC2A	6000	AC1
36D722G030AD2A	7200	AD1
36D832G030AE2A	8300	AE1
36D932G030AF2A	9300	AF1
36D952G030BB2A	9500	BB1
36D143G030BC2A	14000	BC1
36D163G030BD2A	16000	BD1
36D193G030BE2A	19000	BE1
36D213G030BF2A	21000	BF1
36D243G030CC2A	24000	CC1
36D283G030CD2A	28000	CD1
36D323G030CE2A	32000	CE1
36D363G030DC2A	36000	DC1
36D373G030CF2A	37000	CF1
36D423G030DD2A	42000	DD1
36D483G030DE2A	48000	DE1
36D543G030DF2A	54000	DF1

40 WVDC

Sprague Number	Cap., µF	*
36D182G040AA2A	1800	AA1
36D362G040AB2A	3600	AB1
36D552G040AC2A	5500	AC1
36D642G040AD2A	6400	AD1
36D732G040AE2A	7300	AE1
36D832G040AF2A	8300	AF1
36D842G040BB2A	8400	BB1
36D123G040BC2A	12000	BC1
36D143G040BD2A	14000	BD1
36D163G040BE2A	16000	BE1
36D193G040BF2A	19000	BF1
36D213G040CC2A	21000	CC1
36D253G040CD2A	25000	CD1
36D283G040CE2A	28000	CE1
36D313G040DC2A	31000	DC1
36D323G040CF2A	32000	CF1
36D373G040DD2A	37000	DD1
36D423G040DE2A	42000	DE1

50 WVDC

Sprague Number	Cap., µF	*
36D132G050AA2A	1300	AA1
36D262G050AB2A	2600	AB1
36D392G050AC2A	3900	AC1
36D462G050AD2A	4600	AD1
36D522G050AE2A	5200	AE1
36D592G050AF2A	5900	AF1
36D602G050BB2A	6000	BB1
36D902G050BC2A	9000	BC1
36D103G050BD2A	10000	BD1
36D123G050BE2A	12000	BE1
36D133G050BF2A	13000	BF1
36D153G050CC2A	15000	CC1
36D183G050CD2A	18000	CD1
36D203G050CE2A	20000	CE1
36D223G050DC2A	22000	DC1
36D233G050CF2A	23000	CF1
36D263G050DD2A	26000	DD1
36D303G050DE2A	30000	DE1
36D343G050DF2A	34000	DF1

75 WVDC

Sprague Number	Cap., µF	*
36D851G075AA2A	850	AA2
36D172G075AB2A	1700	AB2
36D252G075AC2A	2500	AC2
36D302G075AD2A	3000	AD2
36D342G075AE2A	3400	AE2
36D382G075AF2A	3800	AF2
36D392G075BB2A	3900	BB2
36D592G075BC2A	5900	BC2
36D672G075CB2A	6700	CB2
36D692G075BD2A	6900	BD2
36D782G075BE2A	7800	BE2
36D882G075BF2A	8800	BF2
36D103G075CC2A	10000	CC2
36D113G075CD2A	11000	CD2
36D133G075CE2A	13000	CE2
36D143G075DC2A	14000	DC2

75 WVDC (Cont'd.)

Sprague Number	Cap., µF	*
36D153G075CF2A	15000	CF2
36D173G075DD2A	17000	DD2
36D203G075DE2A	20000	DE2
36D223G075DF2A	22000	DF2

100 WVDC

Sprague Number	Cap., µF	*
36D451G100AA2A	450	AA2
36D901G100AB2A	900	AB2
36D132G100AC2A	1300	AC2
36D152G100AD2A	1500	AD2
36D182G100AE2A	1800	AE2
36D202G100AF2A	2000	AF2
36D302G100BC2A	3000	BC2
36D352G100CB2A	3500	CB2
36D362G100BD2A	3600	BD2
36D402G100BE2A	4000	BE2
36D452G100BF2A	4500	BF2
36D532G100CC2A	5300	CC2
36D612G100CD2A	6100	CD2
36D702G100CE2A	7000	CE2
36D782G100CF2A	7800	CF2
36D782G100DC2A	7800	DC2
36D912G100DD2A	9100	DD2
36D103G100DE2A	10000	DE2
36D113G100DF2A	11000	DF2

150 WVDC

Sprague Number	Cap., µF	*
36D301F150AA2A	300	AA3
36D601F150AB2A	600	AB3
36D901F150AC2A	900	AC3
36D112F150AD2A	1100	AD3
36D122F150AE2A	1200	AE3
36D132F150AF2A	1300	AF3
36D142F150BB2A	1400	BB3
36D212F150BC2A	2100	BC3
36D242F150BD2A	2400	BD3
36D272F150BE2A	2700	BE3
36D312F150BF2A	3100	BF3
36D362F150CC2A	3600	CC3
36D422F150CD2A	4200	CD3
36D472F150CE2A	4700	CE3
36D532F150CF2A	5300	CF3
36D532F150DC2A	5300	DC3
36D622F150DD2A	6200	DD3
36D702F150DE2A	7000	DE3
36D782F150DF2A	7800	DF3

200 WVDC

Sprague Number	Cap., µF	*
36D251F200AA2A	250	AA3
36D431F200AB2A	430	AB3
36D641F200AC2A	640	AC3
36D771F200AD2A	770	AD3
36D851F200AE2A	850	AE3
36D951F200AF2A	950	AF3
36D142F200BC2A	1400	BC3
36D162F200CB2A	1600	CB3
36D172F200BD2A	1700	BD3
36D192F200BE2A	1900	BE3
36D212F200BF2A	2100	BF3
36D252F200CC2A	2500	CC3
36D292F200CD2A	2900	CD3
36D332F200CE2A	3300	CE3
36D372F200CF2A	3700	CF3
36D372F200DC2A	3700	DC3
36D432F200DD2A	4300	DD3
36D482F200DE2A	4800	DE3
36D552F200DF2A	5500	DF3

250 WVDC

Sprague Number	Cap., µF	*
36D171F250AA2A	170	AA3
36D351F250AB2A	350	AB3
36D531F250AC2A	530	AC3
36D631F250AD2A	630	AD3
36D701F250AE2A	700	AE3
36D781F250AF2A	780	AF3
36D801F250BB2A	800	BB3
36D122F250BC2A	1200	BC3
36D132F250CB2A	1300	CB3
36D142F250BD2A	1400	BD3
36D152F250BE2A	1500	BE3
36D172F250BF2A	1700	BF3
36D202F250CC2A	2000	CC3
36D242F250CD2A	2400	CD3
36D272F250CE2A	2700	CE3
36D302F250CF2A	3000	CF3
36D302F250DC2A	3000	DC3
36D352F250DD2A	3500	DD3
36D402F250DE2A	4000	DE3
36D452F250DF2A	4500	DF3

TYPE 36D CONTINUED ON THE FOLLOWING PAGE

TYPE 36D ELECTROLYTIC CAPACITORS (CONT'D)

300 WVDC

Sprague Number	Cap., µF	*
36D121F300AA2A	120	AA3
36D241F300AB2A	240	AB3
36D371F300AC2A	370	AC3
36D451F300AD2A	450	AD3
36D501F300AE2A	500	AE3
36D551F300AF2A	550	AF3
36D821F300BC2A	820	BC3
36D951F300BD2A	950	BD3
36D112F300BE2A	1100	BE3
36D122F300BF2A	1200	BF3
36D142F300CC2A	1400	CC3
36D162F300CD2A	1600	CD3
36D182F300CE2A	1800	CE3
36D212F300CF2A	2100	CF3
36D212F300DC2A	2100	DC3
36D242F300DD2A	2400	DD3
36D272F300DE2A	2700	DE3
36D312F300DF2A	3100	DF3

350 WVDC

Sprague Number	Cap., µF	*
36D950F350AA2A	95	AA3
36D191F350AB2A	190	AB3
36D291F350AC2A	290	AC3
36D361F350AD2A	360	AD3
36D391F350AE2A	390	AE3
36D421F350BB2A	420	BB3
36D441F350AF2A	440	AF3
36D651F350BC2A	650	BC3

350 WVDC (Cont'd.)

Sprague Number	Cap., µF	*
36D751F350CB2A	750	CB3
36D781F350BD2A	780	BD3
36D881F350BE2A	880	BE3
36D102F350BF2A	1000	BF3
36D112F350CC2A	1100	CC3
36D132F350CD2A	1300	CD3
36D152F350CE2A	1500	CE3
36D162F350DC2A	1600	DC3
36D172F350CF2A	1700	CF3
36D192F350DD2A	1900	DD3
36D222F350DE2A	2200	DE3
36D252F350DF2A	2500	DF3

400 WVDC

Sprague Number	Cap., µF	*
36D650F400AA2A	65	AA3
36D121F400AB2A	120	AB3
36D191F400AC2A	190	AC3
36D231F400AD2A	230	AD3
36D271F400AE2A	270	AE3
36D291F400BB2A	290	BB3
36D301F400AF2A	300	AF3
36D421F400BC2A	420	BC3
36D491F400CB2A	490	CB3
36D531F400BD2A	530	BD3
36D611F400BE2A	610	BE3
36D681F400BF2A	680	BF3
36D791F400CC2A	790	CC3
36D911F400CD2A	910	CD3

400 WVDC (Cont'd.)

Sprague Number	Cap., µF	*
36D102F400CE2A	1000	CE3
36D102F400DC2A	1000	DC3
36D112F400CF2A	1100	CF3
36D122F400DD2A	1200	DD3
36D142F400DE2A	1400	DE3
36D162F400DF2A	1600	DF3

450 WVDC

Sprague Number	Cap., µF	*
36D500F450AA2A	50	AA3
36D101F450AB2A	100	AB3
36D141F450AC2A	140	AC3
36D171F450AD2A	170	AD3
36D191F450AE2A	190	AE3
36D211F450AF2A	210	AF3
36D221F450BB2A	220	BB3
36D331F450BC2A	330	BC3
36D381F450CB2A	380	CB3
36D391F450BD2A	390	BD3
36D441F450BE2A	440	BE3
36D491F450BF2A	490	BF3
36D571F450CC2A	570	CC3
36D661F450CD2A	660	CD3
36D761F450CE2A	760	CE3
36D851F450CF2A	850	CF3
36D861F450DC2A	860	DC3
36D102F450DD2A	1000	DD3
36D112F450DE2A	1100	DE3
36D122F450DF2A	1200	DF3

*CASE SIZES AND PRICES

* Code	Size, Inches Dia. x Lgth.	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
AA1	1⅜ x 2⅛	$ 4.44	$ 3.70	$2.12	$1.92	$1.78
AA2	1⅜ x 2⅜	4.53	3.78	2.16	1.96	1.81
AA3	1⅜ x 2⅛	4.89	4.08	2.33	2.12	1.96
AB1	1⅜ x 3⅛	5.22	4.35	2.49	2.26	2.09
AB2	1⅜ x 3⅛	5.49	4.58	2.62	2.38	2.20
AB3	1⅜ x 3⅛	6.09	5.08	2.90	2.64	2.44
AC1	1⅜ x 4⅛	5.73	4.78	2.73	2.48	2.29
AC2	1⅜ x 4⅛	6.24	5.20	2.97	2.70	2.50
AC3	1⅜ x 4⅛	7.26	6.05	3.46	3.15	2.90
AD1	1⅜ x 4⅝	6.54	5.45	3.12	2.83	2.62
AD2	1⅜ x 4⅝	7.14	5.95	3.40	3.09	2.86
AD3	1⅜ x 4⅝	7.80	6.50	3.72	3.38	3.12
AE1	1⅜ x 5⅛	6.99	5.83	3.33	3.03	2.80
AE2	1⅜ x 5⅛	7.71	6.43	3.68	3.34	3.08
AE3	1⅜ x 5⅛	8.52	7.10	4.06	3.69	3.41
AF1	1⅜ x 5⅝	7.38	6.15	3.52	3.20	2.95
AF2	1⅜ x 5⅝	8.07	6.73	3.85	3.50	3.23
AF3	1⅜ x 5⅝	9.00	7.50	4.29	3.90	3.60
BB1	2 x 3⅛	8.04	6.70	3.83	3.48	3.22
BB2	2 x 3⅛	8.79	7.33	4.19	3.81	3.52
BB3	2 x 3⅛	10.02	8.35	4.78	4.34	4.01
BC1	2 x 4⅛	9.57	7.98	4.56	4.15	3.83
BC2	2 x 4⅛	10.53	8.78	5.02	4.56	4.21
BC3	2 x 4⅛	11.79	9.83	5.62	5.11	4.72
BD1	2 x 4⅝	11.37	9.48	5.42	4.93	4.55
BD2	2 x 4⅝	11.52	9.60	5.49	4.99	4.61
BD3	2 x 4⅝	13.20	11.00	6.29	5.72	5.28
BE1	2 x 5⅛	11.07	9.23	5.28	4.80	4.43
BE2	2 x 5⅛	12.45	10.38	5.94	5.40	4.98
BE3	2 x 5⅛	14.46	12.05	6.89	6.27	5.78

* Code	Size, Inches Dia. x Lgth.	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
BF1	2 x 5⅝	$11.64	$ 9.70	$ 5.55	$ 5.04	$ 4.66
BF2	2 x 5⅝	13.35	11.13	6.36	5.79	5.34
BF3	2 x 5⅝	15.45	12.88	7.37	6.70	6.18
CB1	2½ x 3⅛	10.17	8.48	4.85	4.41	4.07
CB2	2½ x 3⅛	11.82	9.85	5.63	5.12	4.73
CB3	2½ x 3⅛	13.32	11.10	6.35	5.77	5.33
CC1	2½ x 4⅛	13.68	11.40	6.52	5.93	5.47
CC2	2½ x 4⅛	14.88	12.40	7.09	6.45	5.95
CC3	2½ x 4⅛	17.67	14.73	8.42	7.66	7.07
CD1	2½ x 4⅝	14.37	11.98	6.85	6.23	5.75
CD2	2½ x 4⅝	15.99	13.33	7.62	6.93	6.40
CD3	2½ x 4⅝	19.20	16.00	9.15	8.32	7.78
CE1	2½ x 5⅛	15.42	12.85	7.35	6.68	6.17
CE2	2½ x 5⅛	17.88	14.90	8.52	7.75	7.15
CE3	2½ x 5⅛	21.15	17.63	10.08	9.17	8.46
CF1	2½ x 5⅝	16.35	13.63	7.79	7.09	6.54
CF2	2½ x 5⅝	19.68	16.40	9.38	8.53	7.87
CF3	2½ x 5⅝	23.37	19.48	11.14	10.13	9.35
DC1	3 x 4⅛	19.17	15.98	9.14	8.31	7.67
DC2	3 x 4⅛	19.80	16.50	9.44	8.58	7.92
DC3	3 x 4⅛	23.37	19.48	11.14	10.13	9.35
DD1	3 x 4⅝	19.17	15.98	9.14	8.31	7.67
DD2	3 x 4⅝	21.84	18.20	10.41	9.46	8.74
DD3	3 x 4⅝	26.25	21.88	12.51	11.38	10.50
DE1	3 x 5⅛	20.70	17.25	9.87	8.97	8.28
DE2	3 x 5⅛	25.23	21.03	12.03	10.93	10.09
DE3	3 x 5⅛	30.21	25.18	14.40	13.09	12.08
DF1	3 x 5⅝	23.64	19.70	11.27	10.24	9.46
DF2	3 x 5⅝	26.67	22.23	12.71	11.56	10.67
DF3	3 x 5⅝	32.01	26.68	15.26	13.87	12.80

WRITE US FOR INFORMATION AND PRICING ON ALL NEW OR UNLISTED ITEMS. NO SPECIAL ORDER NUMBERS NECESSARY, JUST USE THE MANUFACTURER'S MODEL NUMBERS.

PRICES LISTED ARE FOR GUIDANCE ONLY

TYPE 36 DX POWERLYTIC® ALUMINUM ELECTROLYTIC CAPACITORS

Similar to the type 36D, but with extended capacitance ratings (higher capacitance, smaller cases) required in new designs. Capacitors listed have outer plastic-film insulation; for bare case, change 14th digit of part number from **2** to **0**. Capacitors listed also have low-insert terminals; for high-insert or solder-lug terminals, change last character of part number from **A** to **B** or **C**, respectively.

Sprague Number	Cap., µF	★
10 WVDC		
36DX902G010AA2A	9000	AA1
36DX183G010AB2A	18,000	AB1
36DX273G010AC2A	27,000	AC1
36DX413G010AF2A	41,000	AF1
36DX583G010BC2A	58,000	BC1
36DX883G010BF2A	88,000	BF1
36DX104G010CC2A	100,000	CC1
36DX154G010CF2A	150,000	CF1
36DX154G010DC2A	150,000	DC1
36DX234G010DF2A	230,000	DF1
36DX394G010DJ2A	390,000	DJ1
15 WVDC		
36DX752G015AA2A	7500	AA1
36DX153G015AB2A	15,000	AB1
36DX223G015AC2A	22,000	AC1
36DX343G015AF2A	34,000	AF1
36DX503G015BC2A	50,000	BC1
36DX753G015BF2A	75,000	BF1
36DX833G015CC2A	83,000	CC1
36DX124G015CF2A	120,000	CF1
36DX124G015DC2A	120,000	DC1
36DX184G015DF2A	180,000	DF1
36DX304G015DJ2A	300,000	DJ1
25 WVDC		
36DX452G025AA2A	4500	AA1
36DX902G025AB2A	9000	AB1
36DX133G025AC2A	13,000	AC1
36DX203G025AF2A	20,000	AF1
36DX303G025BC2A	30,000	BC1
36DX453G025BF2A	45,000	BF1
36DX503G025CC2A	50,000	CC1
36DX753G025CF2A	75,000	CF1
36DX753G025DC2A	75,000	DC1
36DX114G025DF2A	110,000	DF1
36DX194G025DJ2A	190,000	DJ1

Sprague Number	Cap., µF	★
30 WVDC		
36DX402G030AA2A	4000	AA1
36DX802G030AB2A	8000	AB1
36DX123G030AC2A	12,000	AC1
36DX183G030AF2A	18,000	AF1
36DX263G030BC2A	26,000	BC1
36DX393G030BF2A	39,000	BF1
36DX443G030CC2A	44,000	CC1
36DX663G030CF2A	66,000	CF1
36DX663G030DC2A	66,000	DC1
36DX973G030DF2A	97,000	DF1
36DX164G030DJ2A	160,000	DJ1
40 WVDC		
36DX292G040AA2A	2900	AA1
36DX582G040AB2A	5800	AB1
36DX872G040AC2A	8700	AC1
36DX133G040AF2A	13,000	AF1
36DX203G040BC2A	20,000	BC1
36DX303G040BF2A	30,000	BF1
36DX343G040CC2A	34,000	CC1
36DX513G040CF2A	51,000	CF1
36DX513G040DC2A	51,000	DC1
36DX763G040DF2A	76,000	DF1
36DX124G040DJ2A	120,000	DJ1
50 WVDC		
36DX242G050AA2A	2400	AA1
36DX482G050AB2A	4800	AB1
36DX722G050AC2A	7200	AC1
36DX113G050AF2A	11,000	AF1
36DX163G050BC2A	16,000	BC1
36DX243G050BF2A	24,000	BF1
36DX273G050CC2A	27,000	CC1
36DX403G050CF2A	40,000	CF1
36DX413G050DC2A	41,000	DC1
36DX613G050DF2A	61,000	DF1
36DX104G050DJ2A	100,000	DJ1
75 WVDC		
36DX142G075AA2A	1400	AA2
36DX282G075AB2A	2800	AB2
36DX422G075AC2A	4200	AC2
36DX632G075AF2A	6300	AF2
36DX103G075BC2A	10,000	BC2
36DX153G075BF2A	15,000	BF2
36DX173G075CC2A	17,000	CC2
36DX253G075CF2A	25,000	CF2
36DX253G075DC2A	25,000	DC2
36DX373G075DF2A	37,000	DF2
36DX603G075DJ2A	60,000	DJ2
100 WVDC		
36DX851G100AA2A	850	AA2
36DX172G100AB2A	1700	AB2
36DX262G100AC2A	2600	AC2
36DX382G100AF2A	3800	AF2
36DX582G100BC2A	5800	BC2
36DX872G100BF2A	8700	BF2

Sprague Number	Cap., µF	★
100 WVDC (CONT'D)		
36DX982G100CC2A	9800	CC2
36DX153G100CF2A	15,000	CF2
36DX153G100DC2A	15,000	DC2
36DX213G100DF2A	21,000	DF2
36DX363G100DJ2A	36,000	DJ2
200 WVDC		
36DX301F200AA2A	300	AA3
36DX591F200AB2A	590	AB3
36DX851F200AC2A	850	AC3
36DX122F200AF2A	1200	AF3
36DX142F200BB2A	1400	BB1
36DX202F200BC2A	2000	BC3
36DX292F200BF2A	2900	BF3
36DX342F200CC2A	3400	CC3
36DX492F200CF2A	4900	CF3
36DX742F200DF2A	7400	DF3
36DX123F200DJ2A	12,000	DJ3
250 WVDC		
36DX251F250AA2A	250	AA3
36DX501F250AB2A	500	AB3
36DX741F250AC2A	740	AC3
36DX112F250AF2A	1100	AF3
36DX122F250BB2A	1200	BB1
36DX172F250BC2A	1700	BC3
36DX252F250BF2A	2500	BF3
36DX292F250CC2A	2900	CC3
36DX422F250CF2A	4200	CF3
36DX632F250DF2A	6300	DF3
36DX103F250DJ2A	10,000	DJ3
350 WVDC		
36DX131F350AA2A	130	AA3
36DX261F350AB2A	260	AB3
36DX381F350AC2A	380	AC3
36DX581F350AF2A	580	AF3
36DX611F350BB2A	610	BB1
36DX881F350BC2A	880	BC3
36DX132F350BF2A	1300	BF3
36DX152F350CC2A	1500	CC3
36DX222F350CF2A	2200	CF3
36DX332F350DF2A	3300	DF3
36DX512F350DJ2A	5100	DJ3
450 WVDC		
36DX800F450AA2A	80	AA3
36DX161F450AB2A	160	AB3
36DX231F450AC2A	230	AC3
36DX351F450AF2A	350	AF3
36DX381F450BB2A	380	BB1
36DX541F450BC2A	540	BC3
36DX801F450BF2A	800	BF3
36DX931F450CC2A	930	CC3
36DX132F450CF2A	1300	CF3
36DX202F450DF2A	2000	DF3
36DX312F450DJ2A	3100	DJ3

★CASE SIZES AND PRICES

Code	Size, Inches Dia. x Lgth.	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
AA1	1⅜ x 2⅛	$ 4.53	$ 3.78	$ 2.16	$ 1.96	$ 1.81
AA2	1⅜ x 2⅛	4.92	4.10	2.35	2.13	1.97
AA3	1⅜ x 2⅛	5.28	4.40	2.52	2.29	2.11
AB1	1⅜ x 3⅛	5.70	4.75	2.72	2.47	2.28
AB2	1⅜ x 3⅛	6.15	5.13	2.93	2.67	2.46
AB3	1⅜ x 3⅛	6.45	5.38	3.08	2.80	2.58
AC1	1⅜ x 4⅛	6.63	5.53	3.16	2.87	2.65
AC2	1⅜ x 4⅛	7.83	6.53	3.73	3.39	3.13
AC3	1⅜ x 4⅛	8.07	6.73	3.85	3.50	3.23
AF1	1⅜ x 5⅝	9.00	7.50	4.29	3.90	3.60
AF2	1⅜ x 5⅝	10.65	8.88	5.08	4.62	4.26
AF3	1⅜ x 5⅝	9.84	8.20	4.69	4.26	3.94
BB1	2 x 3⅛	11.49	9.58	5.48	4.98	4.60
BC1	2 x 4⅛	11.73	9.78	5.59	5.08	4.69
BC2	2 x 4⅛	14.55	12.13	6.94	6.31	5.82
BC3	2 x 4⅛	14.28	11.90	6.81	6.19	5.71

Code	Size, Inches Dia. x Lgth.	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
BF1	2 x 5⅝	$15.03	$12.53	$ 7.16	$ 6.51	$ 6.01
BF2	2 x 5⅝	18.75	15.63	8.94	8.13	7.50
BF3	2 x 5⅝	18.45	15.38	8.80	8.00	7.38
CC1	2½ x 4⅛	17.46	14.55	8.32	7.57	6.98
CC2	2½ x 4⅛	21.12	17.60	10.07	9.15	8.45
CC3	2½ x 4⅛	22.83	19.03	10.88	9.89	9.13
CF1	2½ x 5⅝	22.20	18.50	10.58	9.62	8.88
CF2	2½ x 5⅝	29.04	24.20	13.84	12.58	11.62
CF3	2½ x 5⅝	29.76	24.80	14.19	12.90	11.90
DF1	3 x 5⅝	32.22	26.85	15.36	13.96	12.89
DF2	3 x 5⅝	40.77	33.98	19.43	17.67	16.31
DF3	3 x 5⅝	41.22	34.35	19.65	17.86	16.49
DJ1	3 x 8⅝	53.01	44.18	25.27	22.97	21.20
DJ2	3 x 8⅝	66.93	55.78	31.90	29.00	26.77
DJ3	3 x 8⅝	65.70	54.75	31.32	28.47	26.28

SPACE DOES NOT PERMIT LISTING OF ALL RELATED COMPONENTS.

WRITE FOR INFORMATION ON UNLISTED ITEMS.

SPRAGUE Electrolytic Capacitors

TYPE 39D POWERLYTIC® TUBULAR ELECTROLYTIC CAPACITORS

Type 39D electrolytics supplement the original type 36D Powerlytics by offering lower capacitance values in a small case size. Ideal for applications requiring the greatest possible capacitance for a given compact case, such as transistorized apparatus. All have end seals of an improved molded phenolic, an outer insulation of flexible plastic, and a pressure-sensitive safety vent. Welds at all critical anode and cathode terminals eliminate riveted or pressure connections, assuring freedom from open circuits even during operation in the microvolt or millivolt signal range. Operating temperature, up to +85° C.

Sprague Number	Cap., μF	WV DC	Size *	Net Each, Lots of 1-24	25-49	50-99	100-499
39D407G003EE4	400	3	A	$2.25	$1.12	$0.98	$0.73
39D907G003EJ4	900	3	B	2.31	1.16	1.01	.75
39D138G003EL4	1,300	3	C	2.36	1.18	1.03	.77
39D148G003GE4	1,400	3	G	2.52	1.26	1.10	.82
39D188G003FJ4	1,800	3	D	2.52	1.26	1.10	.82
39D218G003HE4	2,100	3	K	2.73	1.37	1.20	.89
39D278G003FL4	2,700	3	E	2.76	1.38	1.21	.90
39D298G003GJ4	2,900	3	H	2.78	1.39	1.22	.90
39D308G003JE4	3,000	3	P	2.79	1.39	1.22	.91
39D368G003FP4	3,600	3	F	2.79	1.39	1.22	.91
39D428G003HJ4	4,200	3	L	2.91	1.46	1.27	.95
39D438G003GL4	4,300	3	I	2.92	1.46	1.28	.95
39D578G003GP4	5,700	3	J	3.05	1.52	1.33	.99
39D608G003JJ4	6,000	3	Q	3.06	1.53	1.34	1.00
39D858G003HP4	8,500	3	N	3.31	1.65	1.45	1.08
39D908G003JL4	9,000	3	R	3.45	1.72	1.51	1.12
39D109G003HS4	10,000	3	O	3.69	1.85	1.62	1.20
39D129G003JP4	12,000	3	S	3.76	1.88	1.64	1.22
39D159G003JS4	15,000	3	T	4.27	2.13	1.87	1.39
39D189G003JT4	18,000	3	U	4.66	2.33	2.04	1.51
99D307G006EE4	300	6	A	2.25	1.12	.98	.73
39D607G006EJ4	600	6	B	2.31	1.16	1.01	.75
39D907G006EL4	900	6	C	2.36	1.18	1.03	.77
39D108G006GE4	1,000	6	G	2.52	1.26	1.10	.82
39D128G006FJ4	1,200	6	D	2.52	1.26	1.10	.82
39D158G006HE4	1,500	6	K	2.73	1.37	1.20	.89
39D198G006FL4	1,900	6	E	2.76	1.38	1.21	.90
39D208G006GJ4	2,000	6	H	2.78	1.39	1.22	.90
39D218G006JE4	2,100	6	P	2.79	1.39	1.22	.91
39D258G006FP4	2,500	6	F	2.79	1.39	1.22	.91
39D308G006GL4	3,000	6	I	2.92	1.46	1.28	.95
39D408G006GP4	4,000	6	J	3.05	1.52	1.33	.99
39D428G006JJ4	4,200	6	Q	3.06	1.53	1.34	1.00
39D608G006HP4	6,000	6	N	3.31	1.65	1.45	1.08
39D638G006JL4	6,300	6	R	3.45	1.72	1.51	1.12
39D758G006HS4	7,500	6	O	3.69	1.85	1.62	1.20
39D858G006JP4	8,500	6	S	3.76	1.88	1.64	1.22
39D109G006JS4	10,000	6	T	4.27	2.13	1.87	1.39
39D129G006JT4	12,000	6	U	4.66	2.33	2.04	1.51
39D257G010EE4	250	10	A	2.25	1.12	.98	.73
39D507G010EJ4	500	10	B	2.31	1.16	1.01	.75
39D807G010EL4	800	10	C	2.36	1.18	1.03	.77
39D857G010GE4	850	10	G	2.52	1.26	1.10	.82
39D108G010FJ4	1,000	10	D	2.52	1.26	1.10	.82
39D128G010HE4	1,200	10	K	2.73	1.37	1.20	.89
39D168G010FL4	1,600	10	E	2.76	1.38	1.21	.90
39D178G010GJ4	1,700	10	H	2.78	1.39	1.22	.90
39D218G010FP4	2,100	10	F	2.79	1.39	1.22	.91
39D258G010GL4	2,500	10	I	2.92	1.46	1.28	.95
39D348G010GP4	3,400	10	J	3.05	1.52	1.33	.99
39D358G010JJ4	3,500	10	Q	3.06	1.53	1.34	1.00
39D508G010HP4	5,000	10	N	3.31	1.65	1.45	1.08
39D528G010JL4	5,200	10	R	3.45	1.72	1.51	1.12
39D638G010HS4	6,300	10	O	3.69	1.85	1.62	1.20
39D718G010JP4	7,100	10	S	3.76	1.88	1.64	1.22
39D888G010JS4	8,800	10	T	4.27	2.13	1.87	1.39
39D109G010JT4	10,000	10	U	4.66	2.33	2.04	1.51
39D207G015EE4	200	15	A	2.25	1.12	.98	.73
39D407G015EJ4	400	15	B	2.31	1.16	1.01	.75
39D607G015EL4	600	15	C	2.36	1.18	1.03	.77
39D807G015FJ4	800	15	D	2.52	1.26	1.10	.82
39D957G015HE4	950	15	K	2.73	1.37	1.20	.89
39D128G015FL4	1,200	15	E	2.76	1.38	1.21	.90
39D138G015GJ4	1,300	15	H	2.78	1.39	1.22	.90
39D168G015FP4	1,600	15	F	2.79	1.39	1.22	.91
39D198G015GL4	1,900	15	I	2.92	1.46	1.28	.95
39D258G015GP4	2,500	15	J	3.05	1.52	1.33	.99
39D268G015JJ4	2,600	15	Q	3.06	1.53	1.34	1.00
39D388G015HP4	3,800	15	N	3.31	1.65	1.45	1.08
39D408G015JL4	4,000	15	R	3.45	1.72	1.51	1.12
39D478G015HS4	4,700	15	O	3.69	1.85	1.62	1.20
39D538G015JP4	5,300	15	S	3.76	1.88	1.64	1.22
39D668G015JS4	6,600	15	T	4.27	2.13	1.87	1.39
39D808G015JT4	8,000	15	U	4.66	2.33	2.04	1.51
39D107G025EE4	100	25	A	2.25	1.12	.98	.73
39D207G025EJ4	200	25	B	2.31	1.16	1.01	.75
39D357G025EL4	350	25	C	2.36	1.18	1.03	.77
39D457G025FJ4	450	25	D	2.52	1.26	1.10	.82
39D507G025HE4	500	25	K	2.73	1.37	1.20	.89
39D707G025FL4	700	25	E	2.76	1.38	1.21	.90
39D757G025GJ4	750	25	H	2.78	1.39	1.22	.90
39D807G025JE4	800	25	P	2.79	1.39	1.22	.91
39D957G025FP4	950	25	F	2.79	1.39	1.22	.91
39D108G025GL4	1,000	25	I	2.92	1.46	1.28	.95
39D118G025HJ4	1,100	25	L	2.91	1.46	1.27	.95
39D158G025GP4	1,500	25	J	3.05	1.52	1.33	.99
39D168G025JJ4	1,600	25	Q	3.06	1.53	1.34	1.00
39D178G025HL4	1,700	25	M	3.17	1.59	1.39	1.03
39D228G025HP4	2,200	25	N	3.31	1.65	1.45	1.08
39D248G025JL4	2,400	25	R	3.45	1.72	1.51	1.12
39D288G025HS4	2,800	25	O	3.69	1.85	1.62	1.20
39D328G025JP4	3,200	25	S	3.76	1.88	1.64	1.22
39D408G025JS4	4,000	25	T	4.27	2.13	1.87	1.39
39D478G025JT4	4,700	25	U	4.66	2.33	2.04	1.51
39D756G030EE4	75	30	A	2.25	1.12	.98	.73
39D157G030EJ4	150	30	B	2.31	1.16	1.01	.75
39D257G030EL4	250	30	C	2.36	1.18	1.03	.77
39D357G030FJ4	350	30	D	2.52	1.26	1.10	.82
39D407G030HE4	400	30	K	2.73	1.37	1.20	.89
39D507G030FL4	500	30	E	2.76	1.38	1.21	.90
39D607G030JE4	600	30	P	2.79	1.39	1.22	.91
39D707G030FP4	700	30	F	2.79	1.39	1.22	.91
39D857G030GL4	850	30	I	2.92	1.46	1.28	.95
39D118G030GP4	1,100	30	J	3.05	1.52	1.33	.99
39D128G030HL4	1,200	30	M	3.17	1.59	1.39	1.03
39D178G030HP4	1,700	30	N	3.31	1.65	1.45	1.08
39D188G030JL4	1,800	30	R	3.45	1.72	1.51	1.12
39D218G030HS4	2,100	30	O	3.69	1.85	1.62	1.20
39D248G030JP4	2,400	30	S	3.76	1.88	1.64	1.22
39D308G030JS4	3,000	30	T	4.27	2.13	1.87	1.39
39D368G030JT4	3,600	30	U	4.66	2.33	2.04	1.51
39D756G040EE4	75	40	A	2.25	1.12	.98	.73
39D157G040EJ4	150	40	B	2.31	1.16	1.01	.75
39D207G040EL4	200	40	C	2.36	1.18	1.03	.77
39D257G040GE4	250	40	G	2.52	1.26	1.10	.82
39D307G040FJ4	300	40	D	2.52	1.26	1.10	.82
39D357G040HE4	350	40	K	2.73	1.37	1.20	.89
39D457G040FL4	450	40	E	2.76	1.38	1.21	.90
39D507G040GJ4	500	40	H	2.78	1.39	1.22	.90
39D607G040FP4	600	40	F	2.79	1.39	1.22	.91
39D757G040GL4	750	40	I	2.92	1.46	1.28	.95
39D108G040GP4	1,000	40	J	3.05	1.52	1.33	.99
39D118G040HL4	1,100	40	M	3.17	1.59	1.39	1.03
39D158G040HP4	1,500	40	N	3.31	1.65	1.45	1.08
39D168G040JL4	1,600	40	R	3.45	1.72	1.51	1.12
39D198G040HS4	1,900	40	O	3.69	1.85	1.62	1.20
39D218G040JP4	2,100	40	S	3.76	1.88	1.64	1.22
39D268G040JS4	2,600	40	T	4.27	2.13	1.87	1.39
39D328G040JT4	3,200	40	U	4.66	2.33	2.04	1.51
39D506G050EE4	50	50	A	2.25	1.12	.98	.73
39D107G050EJ4	100	50	B	2.31	1.16	1.01	.75
39D157G050EL4	150	50	C	2.36	1.18	1.03	.77
39D207G050FJ4	200	50	D	2.52	1.26	1.10	.82
39D257G050HE4	250	50	K	2.73	1.37	1.20	.89
39D357G050FL4	350	50	E	2.76	1.38	1.21	.90
39D457G050FP4	450	50	F	2.79	1.39	1.22	.91
39D507G050GL4	500	50	I	2.92	1.46	1.28	.95
39D707G050GP4	700	50	J	3.05	1.52	1.33	.99
39D757G050JJ4	750	50	Q	3.06	1.53	1.34	1.00
39D807G050HL4	800	50	M	3.17	1.59	1.39	1.03
39D138G050HS4	1,300	50	O	3.69	1.85	1.62	1.20
39D158G050JP4	1,500	50	S	3.76	1.88	1.64	1.22
39D198G050JS4	1,900	50	T	4.27	2.13	1.87	1.39
39D238G050JT4	2,300	50	U	4.66	2.33	2.04	1.51
39D306G075EE4	30	75	A	2.25	1.12	.98	.73
39D756G075EJ4	75	75	B	2.31	1.16	1.01	.75
39D107G075EL4	100	75	C	2.36	1.18	1.03	.77
39D157G075FJ4	150	75	D	2.52	1.26	1.10	.82
39D207G075FL4	200	75	E	2.76	1.38	1.21	.90
39D257G075JE4	250	75	P	2.79	1.39	1.22	.91
39D307G075FP4	300	75	F	2.79	1.39	1.22	.91
39D357G075GL4	350	75	I	2.92	1.46	1.28	.95
39D457G075GP4	450	75	J	3.05	1.52	1.33	.99
39D507G075HL4	500	75	M	3.17	1.59	1.39	1.03
39D707G075HP4	700	75	N	3.31	1.65	1.45	1.08
39D757G075JL4	750	75	R	3.45	1.72	1.51	1.12
39D857G075HS4	850	75	O	3.69	1.85	1.62	1.20
39D108G075JP4	1,000	75	S	3.76	1.88	1.64	1.22
39D128G075JS4	1,200	75	T	4.27	2.13	1.87	1.39
39D158G075JT4	1,500	75	U	4.66	2.33	2.04	1.51
39D156F100EE4	15	100	A	2.25	1.12	.98	.73
39D356F100EJ4	35	100	B	2.31	1.16	1.01	.75
39D556F100EL4	55	100	C	2.36	1.18	1.03	.77
39D606F100GE4	60	100	G	2.52	1.26	1.10	.82
39D756F100FJ4	75	100	D	2.52	1.26	1.10	.82
39D906F100HE4	90	100	K	2.73	1.37	1.20	.89
39D117F100FL4	110	100	E	2.76	1.38	1.21	.90
39D127F100GJ4	120	100	H	2.78	1.39	1.22	.90
39D137F100JE4	130	100	P	2.79	1.39	1.22	.91
39D157F100FP4	150	100	F	2.79	1.39	1.22	.91
39D187F100HJ4	180	100	L	2.91	1.46	1.27	.95
39D197F100GL4	190	100	I	2.92	1.46	1.28	.95
39D257F100GP4	250	100	J	3.05	1.52	1.33	.99
39D267F100JJ4	260	100	Q	3.06	1.53	1.34	1.00
39D287F100HL4	280	100	M	3.17	1.59	1.39	1.03
39D377F100HP4	370	100	N	3.31	1.65	1.45	1.08
39D397F100JL4	390	100	R	3.45	1.72	1.51	1.12
39D467F100HS4	460	100	O	3.69	1.85	1.62	1.20
39D527F100JP4	520	100	S	3.76	1.88	1.64	1.22
39D657F100JS4	650	100	T	4.27	2.13	1.87	1.39
39D787F100JT4	780	100	U	4.66	2.33	2.04	1.51
39D106F150EE4	10	150	A	2.29	1.14	1.00	.74
39D256F150EJ4	25	150	B	2.36	1.18	1.03	.77
39D406F150EL4	40	150	C	2.41	1.20	1.05	.78
39D506F150FJ4	50	150	D	2.58	1.29	1.13	.84
39D606F150HE4	60	150	K	2.79	1.39	1.22	.91
39D806F150FL4	80	150	E	2.82	1.41	1.23	.92
39D856F150GJ4	85	150	H	2.84	1.42	1.24	.92
39D886F150JE4	88	150	P	2.86	1.43	1.25	.93
39D107F150FP4	100	150	F	2.85	1.43	1.25	.93
39D127F150GL4	120	150	I	2.99	1.49	1.31	.97
39D177F150GP4	170	150	D	3.13	1.57	1.37	1.02

TYPE 39D CONTINUED ON THE FOLLOWING PAGE

PRICES LISTED ARE FOR GUIDANCE ONLY

SPRAGUE Electrolytic Capacitors

TYPE 39D POWERLYTIC® TUBULAR ELECTROLYTIC CAPACITORS (CONT'D)

Sprague Number	Cap., µF	WV DC	Size *	Net Each, Lots of 1-24	25-49	50-99	100-499
39D197F150HL4	190	150	M	$3.25	$1.63	$1.42	$1.06
39D257F150HP4	250	150	N	3.40	1.70	1.49	1.11
39D267F150JL4	260	150	R	3.55	1.78	1.55	1.15
39D317F150HS4	310	150	O	3.80	1.90	1.66	1.23
39D357F150JP4	350	150	S	3.83	1.92	1.68	1.25
39D447F150JS4	440	150	T	4.41	2.20	1.93	1.43
39D537F150JT4	530	150	U	4.82	2.41	2.11	1.57
39D905F200EE4	9	200	A	2.29	1.14	1.00	.74
39D156F200EJ4	15	200	B	2.36	1.18	1.03	.77
39D256F200EL4	25	200	C	2.41	1.20	1.05	.78
39D306F200GE4	30	200	G	2.58	1.29	1.13	.84
39D356F200FJ4	35	200	D	2.58	1.29	1.13	.84
39D406F200HE4	40	200	K	2.79	1.39	1.22	.91
39D556F200FL4	55	200	E	2.82	1.41	1.23	.92
39D606F200GJ4	60	200	H	2.84	1.42	1.24	.92
39D756F200FP4	75	200	F	2.85	1.43	1.25	.93
39D806F200HJ4	80	200	L	2.98	1.49	1.30	.97
39D906F200GL4	90	200	I	2.99	1.49	1.31	.97
39D127F200GP4	120	200	J	3.13	1.57	1.37	1.02
39D137F200HL4	130	200	M	3.25	1.63	1.42	1.06
39D177F200HP4	170	200	N	3.40	1.70	1.49	1.11
39D187F200JL4	180	200	R	3.55	1.78	1.55	1.15
39D227F200HS4	220	200	O	3.80	1.99	1.66	1.23
39D257F200JP4	250	200	S	3.83	1.92	1.68	1.25
39D317F200JS4	310	200	T	4.41	2.20	1.93	1.43
39D377F200JT4	370	200	U	4.82	2.41	2.11	1.57
39D705F250EE4	7	250	A	2.29	1.14	1.00	.74
39D156F250EJ4	15	250	B	2.36	1.18	1.03	.77
39D206F250EL4	20	250	C	2.41	1.20	1.05	.78
39D306F250FJ4	30	250	D	2.58	1.29	1.13	.84
39D356F250HE4	35	250	K	2.79	1.39	1.22	.91
39D456F250FL4	45	250	E	2.82	1.41	1.23	.92
39D506F250JE4	50	250	P	2.86	1.43	1.25	.93
39D606F250FP4	60	250	F	2.85	1.43	1.25	.93
39D706F250GL4	70	250	I	2.99	1.49	1.31	.97
39D956F250GP4	95	250	J	3.13	1.57	1.37	1.02
39D107F250HL4	100	250	M	3.25	1.63	1.42	1.06
39D147F250HP4	140	250	N	3.40	1.70	1.49	1.11
39D157F250JL4	150	250	R	3.55	1.78	1.55	1.15
39D187F250HS4	180	250	O	3.80	1.90	1.66	1.23
39D207F250JP4	200	250	S	3.83	1.92	1.68	1.25
39D257F250JS4	250	250	T	4.41	2.20	1.93	1.43
39D307F250JT4	300	250	U	4.82	2.41	2.11	1.57
39D505F300EE4	5	300	A	2.29	1.14	1.00	.74
39D106F300EJ4	10	300	B	2.36	1.18	1.03	.77
39D156F300EL4	15	300	C	2.41	1.20	1.05	.78
39D206F300FJ4	20	300	D	2.58	1.29	1.13	.84
39D256F300HE4	25	300	K	2.79	1.39	1.22	.91
39D306F300FL4	30	300	E	2.82	1.41	1.23	.92
39D127F300HS4	120	300	O	3.80	1.90	1.66	1.23
39D137F300JP4	130	300	S	3.83	1.92	1.68	1.25
39D177F300JS4	170	300	T	4.41	2.20	1.93	1.43
39D207F300JT4	200	300	U	4.82	2.41	2.11	1.57
39D406F300FP4	40	300	F	$2.85	$1.43	$1.25	$0.93
39D506F300GL4	50	300	I	2.99	1.49	1.31	.97
39D656F300GP4	65	300	J	3.13	1.57	1.37	1.02
39D756F300HL4	75	300	M	3.25	1.63	1.42	1.06
39D107F300HP4	100	300	N	3.40	1.70	1.49	1.11
39D405F350EE4	4	350	A	2.29	1.14	1.00	.74
39D805F350EJ4	8	350	B	2.36	1.18	1.03	.77
39D126F350EL4	12	350	C	2.41	1.20	1.05	.78
39D156F350FJ4	15	350	D	2.58	1.29	1.13	.84
39D206F350FL4	20	350	E	2.82	1.41	1.23	.92
39D256F350GJ4	25	350	H	2.84	1.42	1.24	.92
39D306F350FP4	30	350	F	2.85	1.43	1.25	.93
39D406F350GL4	40	350	I	2.99	1.49	1.31	.97
39D506F350GP4	50	350	J	3.13	1.57	1.37	1.02
39D606F350HL4	60	350	M	3.25	1.63	1.42	1.06
39D806F350HP4	80	350	N	3.40	1.70	1.49	1.11
39D107F350HS4	100	350	O	3.80	1.90	1.66	1.23
39D117F350JP4	110	350	S	3.83	1.92	1.68	1.25
39D137F350JS4	130	350	T	4.41	2.20	1.93	1.43
39D167F350JT4	160	350	U	4.82	2.41	2.11	1.57
39D205F400EE4	2	400	A	2.29	1.14	1.00	.74
39D505F400EJ4	5	400	B	2.36	1.18	1.03	.77
39D106F400FJ4	10	400	D	2.58	1.29	1.13	.84
39D156F400FL4	15	400	E	2.82	1.41	1.23	.92
39D206F400FP4	20	400	F	2.85	1.43	1.25	.93
39D256F400GL4	25	400	I	2.99	1.49	1.31	.97
39D356F400GP4	35	400	J	3.13	1.57	1.37	1.02
39D406F400HL4	40	400	M	3.25	1.63	1.42	1.06
39D556F400HP4	55	400	N	3.40	1.70	1.49	1.11
39D656F400HS4	65	400	O	3.80	1.90	1.66	1.23
39D756F400JP4	75	400	S	3.83	1.92	1.68	1.25
39D906F400JS4	90	400	T	4.41	2.20	1.93	1.43
39D117F400JT4	110	400	U	4.82	2.41	2.11	1.57
39D105F450EE4	1	450	A	2.29	1.14	1.00	.74
39D305F450EJ4	3	450	B	2.36	1.18	1.03	.77
39D505F450EL4	5	450	C	2.41	1.20	1.05	.78
39D106F450FL4	10	450	E	2.82	1.41	1.23	.92
39D156F450FP4	15	450	F	2.85	1.43	1.25	.93
39D206F450GL4	20	450	I	2.99	1.49	1.31	.97
39D256F450GP4	25	450	J	3.13	1.57	1.37	1.02
39D356F450HP4	35	450	N	3.40	1.70	1.49	1.11
39D456F450HS4	45	450	O	3.80	1.90	1.66	1.23
39D506F450JP4	50	450	S	3.83	1.92	1.68	1.25
39D656F450JS4	65	450	T	4.41	2.20	1.93	1.43
39D756F450JT4	75	450	U	4.82	2.41	2.11	1.57

***SIZE**

Size in inches (dia. x lg.): **A**, 3/16 x 1 1/4; **B**, 3/16 x 1 3/4; **C**, 3/16 x 2 1/4; **D**, 1 1/16 x 1 3/4; **E**, 1 1/16 x 2 1/4; **F**, 1 1/16 x 2 3/4; **G**, 1 3/16 x 1 1/4; **H**, 1 3/16 x 1 3/4; **I**, 1 3/16 x 2 1/4; **J**, 1 3/16 x 2 3/4; **K**, 1 5/16 x 1 1/4; **L**, 1 5/16 x 1 3/4; **M**, 1 5/16 x 2 1/4; **N**, 1 5/16 x 2 3/4; **O**, 1 5/16 x 3 1/4; **P**, 1 1/16 x 1 1/4; **Q**, 1 1/16 x 1 3/4; **R**, 1 1/16 x 2 1/4; **S**, 1 1/16 x 2 3/4; **T**, 1 1/16 x 3 1/4; **U**, 1 1/16 x 3 3/4.

TYPE SD DIPPED TANTALEX® SOLID-TANTALUM CAPACITORS

High stability, tantalum capacitors show very little capacitance change, even at outer limits of operating temperature range of −55° C to +85° C. Low dissipation factor permits higher ripple currents. Capacitance tolerance, ±10%.

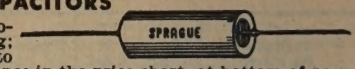
Sprague Number	Cap., µF	Rated Volts	★ Code
SD4-109	10	4	AA1
SD4-129	12	4	AA1
SD4-569	56	4	AB1
SD4-829	82	4	AC1
SD4-1009	100	4	AC1
SD4-1809	180	4	AD1
SD4-2209	220	4	AD1
SD6-6R89	6.8	6	AA1
SD6-8R29	8.2	6	AA1
SD6-339	33	6	AB1
SD6-399	39	6	AB1
SD6-479	47	6	AB1
SD6-569	56	6	AC1
SD6-689	68	6	AC1
SD6-1209	120	6	AD1
SD6-1509	150	6	AD1
SD6-2709	270	6	AE1
SD6-3309	330	6	AE1
SD10-4R79	4.7	10	AA1
SD10-5R69	5.6	10	AA1
SD10-229	22	10	AB1
SD10-279	27	10	AB1
SD10-339	33	10	AC1
SD10-399	39	10	AC1
SD10-829	82	10	AD1
SD10-1009	100	10	AD1
SD10-1809	180	10	AE1
SD10-2209	220	10	AE1
SD15-3R39	3.3	15	AA1
SD15-3R99	3.9	15	AA1
SD15-159	15	15	AB1
SD15-189	18	15	AB1
SD15-229	22	15	AC1
SD15-569	56	15	AD1
SD15-689	68	15	AD1
SD15-1209	120	15	AE1
SD15-1509	150	15	AE1
SD20-2R79	2.7	20	AA1
SD20-109	10	20	AB1
SD20-129	12	20	AB1
SD20-159	15	20	AC1
SD20-189	18	20	AC1
SD20-399	39	20	AD1
SD20-479	47	20	AD1
SD20-829	82	20	AE1
SD20-1009	100	20	AE1
SD25-1R29	1.2	25	AA1
SD25-1R59	1.5	25	AA1
SD25-1R89	1.8	25	AA1
SD25-2R29	2.2	25	AA1
SD25-5R69	5.6	25	AB1
SD25-6R89	6.8	25	AB1
SD25-8R29	8.2	25	AB1
SD25-109	10	25	AC1
SD25-129	12	25	AC1
SD25-279	27	25	AD1
SD25-339	33	25	AD1
SD25-569	56	25	AE1
SD25-689	68	25	AE1
SD35-R109	.1	35	AA1
SD35-R129	.12	35	AA1
SD35-R159	.15	35	AA1
SD35-R189	.18	35	AA1
SD35-R229	.22	35	AA1
SD35-R279	.27	35	AA1
SD35-R339	.33	35	AA1
SD35-R399	.39	35	AA1
SD35-R479	.47	35	AA1
SD35-R569	.56	35	AA1
SD35-R689	.68	35	AA1
SD35-R829	.82	35	AA1
SD35-19	1.0	35	AA1
SD35-1R29	1.2	35	AB1
SD35-1R59	1.5	35	AB1
SD35-1R89	1.8	35	AB1
SD35-2R29	2.2	35	AB1
SD35-2R79	2.7	35	AB1
SD35-3R39	3.3	35	AB1
SD35-3R99	3.9	35	AB1
SD35-4R79	4.7	35	AB1
SD35-5R69	5.6	35	AC1
SD35-6R89	6.8	35	AC1
SD35-8R29	8.2	35	AD1
SD35-109	10	35	AD1
SD35-129	12	35	AD1
SD35-159	15	35	AD1
SD35-189	18	35	AD1
SD35-229	22	35	AD1
SD35-279	27	35	AE1
SD35-339	33	35	AE1
SD35-399	39	35	AE1
SD35-479	47	35	AE1
SD50-R109	.1	50	AA2
SD50-R129	.12	50	AA2
SD50-R159	.15	50	AA2
SD50-R189	.18	50	AA2
SD50-R229	.22	50	AA2
SD50-R279	.27	50	AA2
SD50-R339	.33	50	AA2
SD50-R399	.39	50	AA2
SD50-R479	.47	50	AA2
SD50-R569	.56	50	AA2
SD50-R689	.68	50	AA2
SD50-R829	.82	50	AA2
SD50-19	1.0	50	AA2
SD50-1R29	1.2	50	AB2
SD50-1R59	1.5	50	AB2
SD50-1R89	1.8	50	AB2
SD50-2R29	2.2	50	AB2
SD50-2R79	2.7	50	AB2
SD50-3R39	3.3	50	AB2
SD50-3R99	3.9	50	AB3
SD50-4R79	4.7	50	AB3
SD50-5R69	5.6	50	AD2
SD50-6R89	6.8	50	AD2
SD50-8R29	8.2	50	AD2
SD50-109	10	50	AD2
SD50-129	12	50	AD2
SD50-159	15	50	AD2
SD50-189	18	50	AE2
SD50-229	22	50	AE2

★ SIZE/PRICE CODES

Size/ Price Code	Size, Ins. D x L	Net Each, Lots of 1-99	100-499	500 Up
AA1	3/16 x 3/8	$0.53	$0.30	$0.23
AA2	3/16 x 3/8	.56	.32	.25
AB1	15/64 x 7/16	.91	.52	.40
AB2	15/64 x 7/16	.98	.56	.43
AB3	15/64 x 7/16	1.26	.72	.56
AC1	15/64 x 29/64	1.19	.68	.53
AD1	23/64 x 21/32	3.89	2.22	1.72
AD2	23/64 x 21/32	3.99	2.28	1.77
AE1	1 3/32 x 3/4	7.53	4.30	3.33
AE2	1 3/32 x 3/4	7.63	4.36	3.38

SPRAGUE Tantalum Capacitors

TYPE 150D SOLID ELECTROLYTE TANTALEX® CAPACITORS



True miniaturization with characteristics previously unobtainable in electrolytics. Solid electrolyte cannot leak or corrode; hermetically sealed. **Temperature Range:** 85° C without derating; to 125° C with derating. **Ordering Information:** Select capacitance and read across chart to voltage desired. Suffix on number (A, B, R or S) refers to size; find this key and your capacitance in the price chart, at bottom of page.

TYPE 150D ±10% TOLERANCE CAPACITANCE VALUES AVAILABLE

Cap., µF	Sprague Prefix†	Suffix for WVDC of: 6	10	15	20	35	50	60	75	100	125
.0047	150D472X	.....	.....	.....	9020A*	9035A*	9050A*	9060A*	9075A*	9100A*	9125A*
.0056	150D562X	.....	.....	.....	9020A	9035A	9050A	9060A	9075A	9100A	9125A
.0068	150D682X	.....	.....	.....	9020A*	9035A*	9050A*	9060A*	9075A*	9100A*	9125A*
.0082	150D822X	.....	.....	.....	9020A	9035A	9050A	9060A	9075A	9100A	9125A
.01	150D103X	.....	.....	.....	9020A*	9035A*	9050A*	9060A*	9075A*	9100A*	9125A*
.012	150D123X	.....	.....	.....	9020A	9035A	9050A	9060A	9075A	9100A	9125A
.015	150D153X	.....	.....	.....	9020A*	9035A*	9050A*	9060A*	9075A*	9100A*	9125A*
.018	150D183X	.....	.....	.....	9020A	9035A	9050A	9060A	9075A	9100A	9125A
.022	150D223X	.....	.....	.....	9020A*	9035A*	9050A*	9060A*	9075A*	9100A*	9125A*
.027	150D273X	.....	.....	.....	9020A	9035A	9050A	9060A	9075A	9100A	9125A
.033	150D333X	.....	.....	.....	9020A*	9035A*	9050A*	9060A*	9075A*	9100A*	9125A*
.039	150D393X	.....	.....	.....	9020A	9035A	9050A	9060A	9075A	9100A	9125A
.047	150D473X	.....	.....	.....	9020A*	9035A*	9050A*	9060A*	9075A*	9100A*	9125A*
.056	150D563X	.....	.....	.....	9020A	9035A	9050A	9060A	9075A	9100A	9125A
.068	150D683X	.....	.....	.....	9020A*	9035A*	9050A*	9060A*	9075A*	9100A*	9125A*
.082	150D823X	.....	.....	.....	9020A	9035A	9050A	9060A	9075A	9100A	9125A
.1	150D104X	.....	.....	.....	9020A*	9035A*	9050A*	9060A*	9075A*	9100A*	9125A*
.12	150D124X	.....	.....	.....	9020A	9035A	9050A	9060A	9075A	9100A	9125A
.15	150D154X	.....	.....	.....	9020A*	9035A*	9050A*	9060A*	9075A*	9100A*	9125A*
.18	150D184X	.....	.....	.....	9020A	9035A	9050A	9060A	9075A	9100A	9125A
.22	150D224X	9006A*	9010A*	9015A*	9020A*	9035A*	9050A*	9060A*	9075A*	9100A*	9125A*
.27	150D274X	9006A	9010A	9015A	9020A	9035A	9050A	9060A	9075A	9100A	9125A
.33	150D334X	9006A*	9010A*	9015A*	9020A*	9035A*	9050A*	9060A*	9075A*	9100A*	9125A*
.39	150D394X	9006A	9010A	9015A	9020A	9035A	9050A	9060A	9075A	9100A	9125A
.47	150D474X	9006A*	9010A*	9015A*	9020A*	9035A*	9050A*	9060A*	9075A*	9100A*	9125A*
.56	150D564X	9006A	9010A	9015A	9020A	9035A	9050A	9060A	9075A	9100A	9125B
.68	150D684X	9006A*	9010A*	9015A*	9020A*	9035A*	9050A*	9060A*	9075A*	9100B*	9125B*
.82	150D824X	9006A	9010A	9015A	9020A	9035A	9050A	9060B	9075B	9100B	9125B
1.0	150D105X	9006A*	9010A*	9015A*	9020A*	9035A*	9050A*	9060B*	9075B*	9100B*	9125B*
1.2	150D125X	9006A	9010A	9015A	9020A	9035B	9050B	9060B	9075B	9100B	9125B
1.5	150D155X	9006A*	9010A*	9015A*	9020A*	9035B*	9050B*	9060B*	9075B*	9100B*	9125B*
1.8	150D185X	9006A	9010A	9015A	9020A	9035B	9050B	9060B	9075B	9100B	9125B
2.2	150D225X	9006A*	9010A*	9015A*	9020A*	9035B*	9050B*	9060B*	9075B*	9100B*	9125B*
2.7	150D275X	9006A	9010A	9015A	9020B	9035B	9050B	9060B	9075B	9100B	.....
3.3	150D335X	9006A*	9010A*	9015A*	9020B*	9035B*	9050B*	9060B*	9075B*	9100R*	.....
3.9	150D395X	9006A	9010A	9015B	9020B	9035B	9050B	9060B	9075B	9100R	.....
4.7	150D475X	9006A*	9010A*	9015B*	9020B*	9035B*	9050B*	9060R*	9075R*	9100R*	.....
5.6	150D565X	9006A	9010B	9015B	9020B	9035B	9050R	9060R	9075R	9100R	.....
6.8	150D685X	9006A*	9010B*	9015B*	9020B*	9035B*	9050R*	9060R*	9075R*	9100R*	.....
8.2	150D825X	9006B	9010B	9015B	9020B	9035R	9050R	9060R	9075R	.....	.....
10	150D106X	9006B*	9010B*	9015B*	9020B*	9035R*	9050R*	9060R*	9075R*	.....	.....
12	150D126X	9006B	9010B	9015B	9020B	9035R	9050R	9060S	9075S	.....	.....
15	150D156X	9006B*	9010B*	9015B*	9020B*	9035R*	9050R*	9060S*	9075S*	.....	.....
18	150D186X	9006B	9010B	9015B	9020R	9035R	9050R	9060S	.....	.....	.....
22	150D226X	9006B*	9010B*	9015B*	9020R*	9035R*	9050S*	9060S*	.....	.....	.....
27	150D276X	9006B	9010B	9015R	9020R	9035S	.....	.....	.....	.....	.....
33	150D336X	9006B*	9010B*	9015R*	9020R*	9035S*	.....	.....	.....	.....	.....
39	150D396X	9006B	9010B	9015R	9020R	9035S	.....	.....	.....	.....	.....
40	150D406X	.....	9010B*	.....	.....	.....	.....	.....	.....	.....	.....
47	150D476X	9006B*	9010R*	9015R*	9020R*	9035S*	.....	.....	.....	.....	.....
56	150D566X	9006B	9010R	9015R	9020S	.....	.....	.....	.....	.....	.....
60	150D606X	9006B*	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	150D686X	9006R*	9010R*	9015R*	9020S*	.....	.....	.....	.....	.....	.....
82	150D826X	9006R	9010R	9015S	9020S	.....	.....	.....	.....	.....	.....
100	150D107X	9006R*	9010R*	9015S*	9020S*	.....	.....	.....	.....	.....	.....
120	150D127X	9006R*	9010R*	9015S	.....	.....	.....	.....	.....	.....	.....
150	150D157X	9006R*	9010S*	9015S*	.....	.....	.....	.....	.....	.....	.....
180	150D187X	9006R*	9010S	.....	.....	.....	.....	.....	.....	.....	.....
220	150D227X	9006S*	9010S*	.....	.....	.....	.....	.....	.....	.....	.....
270	150D277X	9006S*	.....	.....	.....	.....	.....	.....	.....	.....	.....
330	150D337X	9006S*	.....	.....	.....	.....	.....	.....	.....	.....	.....

PRICE CHART AND ORDERING INFORMATION FOR TYPE 150D CAPACITORS

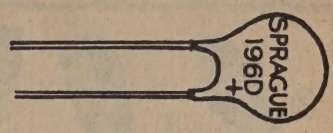
When ordering, show full number (as above for ±10% tol.) for value desired (e.g., 150D224X**9006A**). Items noted (*) available in ±20% tol.; to order, change first digit in suffix to **0** (e.g., 150D224X**0**006A). For ±5% tol., for 6 to 50 volts double ±20% tol. unit prices, for 60 to 125 volts triple ±20% tol. unit prices; to order, change first digit in suffix to **5** (e.g., 150D224X5006A). For bare metal case (size as listed below), add final digit **0** (150D224X9006A**0**). For plastic film sleeve (add .010″ dia. x .036″ lg. for all units), use final digit **2** (150D224X9006A**2**).

WV DC	Case Size	Size, In. Dia. x Lgth.	±10% Tolerance (X9), Net Each, Lots of 1-24	25-49	50-99	100-499	500-999	±3% Tolerance (X0), Net Each, Lots of 1-24	25-49	50-99	100-499	500-999
6, 10, 15 or 20	A	.135 x .286	$ 1.33	$ 0.93	$ 0.67	$ 0.53	$ 0.41	$ 1.28	$ 0.90	$ 0.64	$ 0.51	$ 0.40
	B	.185 x .474	2.85	2.00	1.43	1.14	.88	2.80	1.96	1.40	1.20	.87
	R	.289 x .686	9.50	6.65	4.75	3.80	2.95	9.35	6.55	4.68	3.74	2.90
	S	.351 x .786	19.00	13.30	9.50	7.60	5.89	18.85	13.20	9.43	7.54	5.84
35	A	.135 x .286	1.33	.93	.67	.53	.41	1.28	.90	.64	.51	.40
	B	.185 x .474	2.85	2.00	1.43	1.14	.88	2.80	1.96	1.40	1.20	.87
	R	.289 x .686	9.50	6.65	4.75	3.80	2.95	9.35	6.55	4.68	3.74	2.90
	S	.351 x .786	19.00	13.30	9.50	7.60	5.89	18.85	13.20	9.43	7.54	5.84
50	A	.135 x .286	1.43	1.00	.72	.57	.44	1.38	.97	.69	.55	.43
	B	.185 x .474	3.30	2.31	1.65	1.32	1.02	3.25	2.28	1.63	1.30	1.01
	R	.289 x .686	11.65	8.16	5.83	4.66	3.61	11.50	8.05	5.75	4.60	3.57
	S	.351 x .786	19.75	13.83	9.88	7.90	6.12	19.60	13.72	9.80	7.84	6.08
60 or 75	A	.135 x .286	2.58	1.81	1.29	1.03	.80	2.48	1.74	1.24	.99	.77
	B	.185 x .474	5.00	3.50	2.50	2.00	1.55	4.90	3.43	2.45	1.96	1.52
	R	.289 x .686	15.35	10.75	7.68	6.14	4.76	15.15	10.61	7.58	6.06	4.70
	S	.351 x .786	26.25	18.38	13.13	10.50	8.14	25.95	18.17	12.98	10.38	8.05
100	A	.135 x .286	4.53	3.17	2.27	1.81	1.40	4.33	3.03	2.17	1.73	1.34
	B	.185 x .474	7.45	5.22	3.73	2.98	2.31	7.20	5.04	3.60	2.88	2.23
	R	.289 x .686	18.45	12.92	9.23	7.38	5.72	17.95	12.57	8.98	7.18	5.57
125	A	.135 x .286	6.35	4.45	3.18	2.54	1.97	5.35	3.75	2.68	2.14	1.66
	B	.185 x .474	8.80	6.16	4.40	3.52	2.73	7.80	5.46	3.90	3.12	2.42

PRICES LISTED ARE FOR GUIDANCE ONLY

TYPE 196D DIPPED TANTALEX® SOLID-TANTALUM CAPACITORS

Epoxy-dipped coating economically provides good electrical and mechanical protection. High stability, very little capacitance change; low dissipation factor permits higher ripples. Radial leads for mounting on PC boards. **Operating Temperature:** −55° C to +85° C. **Tolerance:** ±10%; ±20% available as noted. **Case Size and Leads:** Last three characters indicate case sizes and leads. Case Size: **H**, .175″ dia. x .375″ h.; **J**, .225″ dia. x .425″ h.; **K**, .225″ dia. x .450″ h.; **L**, .450″ dia. x .500″ h.; **M**, .600″ dia. x .800″ h.; **P**, .400″ dia. x .650″ h.; **T**, .400″ dia. x .750″ h. Numbers ending with **A1** have straight leads with .125″ spacing; **A3** indicates straight leads with .250″ spacing. Numbers ending with **E4** have "Hockeystick" leads with .250″ spacing. For short "Hockeystick" pin leads (.187″ l.; .250″ spacing) change A1 or E4 to **E3**. For short "Hairpin Crimped" leads (.187″ l.; .250″ pacing) change A3 to **B3**.



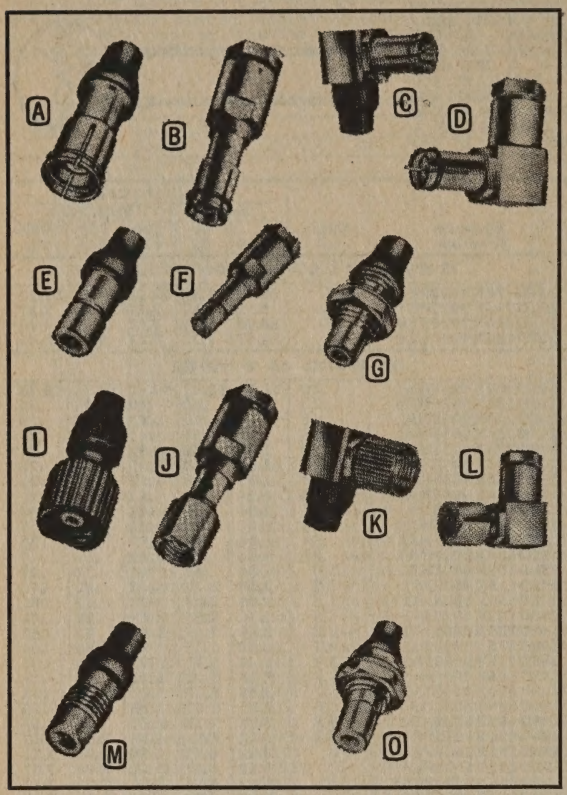
Sprague Number	Cap., µF	Net Each, Lots of: 5-Pak 1-49	5-Pak 50-99	Bulk Pack 100-499	Bulk Pack 500-999	Bulk Pack 1000-Up
4 WVDC, 5.3 V SURGE						
196D106X9004HA1*	10	$1.04	$0.53	$0.42	$0.33	$0.25
196D126X9004HA1	12	1.04	.53	.42	.33	.25
196D476X9004JA1*	47	2.56	1.29	1.03	.80	.61
196D566X9004JA1	56	2.56	1.29	1.03	.80	.61
196D826X9004KA1	82	2.71	1.36	1.09	.85	.65
196D107X9004KA1*	100	2.70	1.35	1.08	.84	.64
196D187X9004PE4	180	9.12	4.57	3.66	2.84	2.17
196D227X9004PE4*	220	9.10	4.55	3.64	2.82	2.15
6 WVDC, 8 V SURGE						
196D685X9006HA1*	6.8	$1.04	$0.53	$0.42	$0.33	$0.25
196D825X9006HA1	8.2	1.04	.53	.42	.33	.25
196D336X9006JA1*	33	2.56	1.29	1.03	.80	.61
196D396X9006JA1	39	2.56	1.29	1.03	.80	.61
196D476X9006JA1*	47	2.56	1.29	1.03	.80	.61
196D566X9006KA1	56	2.71	1.36	1.09	.85	.65
196D686X9006KA1*	68	2.71	1.36	1.09	.85	.65
196D127X9006PE4	120	9.12	4.57	3.66	2.84	2.15
196D157X9006PE4*	150	9.12	4.57	3.66	2.84	2.15
196D277X9006TE4	270	18.63	9.33	7.47	5.80	4.42
196D337X9006TE4*	330	18.63	9.33	7.47	5.80	4.42
10 WVDC, 13 V SURGE						
196D475X9010HA1*	4.7	$1.04	$0.53	$0.42	$0.33	$0.25
196D565X9010HA1	5.6	1.04	.53	.42	.33	.25
196D226X9010JA1*	22	2.56	1.29	1.03	.80	.61
196D276X9010JA1	27	2.56	1.29	1.03	.80	.61
196D336X9010KA1*	33	2.71	1.36	1.09	.85	.65
196D396X9010KA1	39	2.71	1.36	1.09	.85	.65
196D826X9010PE4	82	9.12	4.57	3.66	2.84	2.17
196D107X9010PE4*	100	9.12	4.57	3.66	2.84	2.17
196D187X9010TE4	180	18.63	9.33	7.47	5.80	4.42
196D227X9010TE4*	220	18.63	9.33	7.47	5.80	4.42
15 WVDC, 20 V SURGE						
196D335X9015HA1*	3.3	$1.04	$0.53	$0.42	$0.33	$0.25
196D395X9015HA1	3.9	1.04	.53	.42	.33	.25
196D156X9015JA1*	15	2.56	1.29	1.03	.80	.61
196D186X9015JA1	18	2.56	1.29	1.03	.80	.61
196D226X9015KA1*	22	2.71	1.36	1.09	.85	.65
196D566X9015PE4	56	9.12	4.57	3.66	2.84	2.17
196D686X9015PE4*	68	9.12	4.57	3.66	2.84	2.17
196D127X9015TE4	120	18.63	9.33	7.47	5.80	4.42
196D157X9015TE4*	150	18.63	9.33	7.47	5.80	4.42
20 WVDC, 26 V SURGE						
196D275X9020HA1	2.7	$1.04	$0.53	$0.42	$0.33	$0.25
196D106X9020JA1*	10	2.56	1.29	1.03	.80	.61
196D126X9020JA1	12	2.56	1.29	1.03	.80	.61
196D156X9020KA1*	15	2.71	1.36	1.09	.85	.65
196D396X9020PE4	39	9.12	4.57	3.66	2.84	2.17
196D476X9020PE4*	47	9.12	4.57	3.66	2.84	2.17
196D826X9020TE4	82	18.63	9.33	7.47	5.80	4.42
196D107X9020TE4*	100	18.63	9.33	7.47	5.80	4.42
25 WVDC, 32 V SURGE						
196D125X9025HA1	1.2	$1.04	$0.53	$0.42	$0.33	$0.25
196D155X9025HA1*	1.5	1.04	.53	.42	.33	.25
196D185X9025HA1	1.8	1.04	.53	.42	.33	.25
196D225X9025HA1*	2.2	1.04	.53	.42	.33	.25
196D565X9025JA1	5.6	2.56	1.29	1.03	.80	.61
196D685X9025JA1*	6.8	2.56	1.29	1.03	.80	.61
196D825X9025JA1	8.2	2.56	1.29	1.03	.80	.61
196D106X9025KA1*	10	2.71	1.36	1.09	.85	.65
196D126X9025KA1	12	2.71	1.36	1.09	.85	.65
25 WVDC, 32 V SURGE (CONTINUED)						
196D276X9025PE4	27	$9.12	$4.57	$3.66	$2.84	$2.17
196D336X9025PE4*	33	9.12	4.57	3.66	2.84	2.17
196D566X9025TE4	56	18.63	9.33	7.47	5.80	4.42
196D686X9025TE4*	68	18.63	9.33	7.47	5.80	4.42
35 WVDC, 46 V SURGE						
196D104X9035HA1*	.10	$1.04	$0.53	$0.42	$0.33	$0.25
196D124X9035HA1	.12	1.04	.53	.42	.33	.25
196D154X9035HA1*	.15	1.04	.53	.42	.33	.25
196D184X9035HA1	.18	1.04	.53	.42	.33	.25
196D224X9035HA1*	.22	1.04	.53	.42	.33	.25
196D274X9035HA1	.27	1.04	.53	.42	.33	.25
196D334X9035HA1*	.33	1.04	.53	.42	.33	.25
196D394X9035HA1	.39	1.04	.53	.42	.33	.25
196D474X9035HA1*	.47	1.04	.53	.42	.33	.25
196D564X9035HA1	.56	1.04	.53	.42	.33	.25
196D684X9035HA1*	.68	1.04	.53	.42	.33	.25
196D824X9035HA1	.82	1.04	.53	.42	.33	.25
196D105X9035HA1*	1.0	1.04	.53	.42	.33	.25
196D125X9035JA1	1.2	2.56	1.29	1.03	.80	.61
196D155X9035JA1*	1.5	2.56	1.29	1.03	.80	.61
196D185X9035JA1	1.8	2.56	1.29	1.03	.80	.61
196D225X9035JA1*	2.2	2.56	1.29	1.03	.80	.61
196D275X9035JA1	2.7	2.56	1.29	1.03	.80	.61
196D335X9035JA1*	3.3	2.56	1.29	1.03	.80	.61
196D395X9035JA1	3.9	2.56	1.29	1.03	.80	.61
196D475X9035JA1*	4.7	2.56	1.29	1.03	.80	.61
196D565X9035KA1	5.6	2.71	1.36	1.09	.85	.65
196D685X9035KA1*	6.8	2.71	1.36	1.09	.85	.65
196D825X9035PE4	8.2	9.12	4.57	3.66	2.84	2.17
196D106X9035PE4*	10	9.12	4.57	3.66	2.84	2.17
196D126X9035PE4	12	9.12	4.57	3.66	2.84	2.17
196D156X9035PE4*	15	9.12	4.57	3.66	2.84	2.17
196D186X9035PE4	18	9.12	4.57	3.66	2.84	2.17
196D226X9035PE4*	22	9.12	4.57	3.66	2.84	2.17
196D276X9035TE4	27	18.63	9.33	7.47	5.80	4.42
196D336X9035TE4*	33	18.63	9.33	7.47	5.80	4.42
196D396X9035TE4	39	18.63	9.33	7.47	5.80	4.42
196D476X9035TE4*	47	18.63	9.33	7.47	5.80	4.42
50 WVDC, 65 V SURGE						
196D104X9050HA1*	.10	$1.19	$0.60	$0.48	$0.38	$0.29
196D124X9050HA1	.12	1.19	.60	.48	.38	.29
196D154X9050HA1*	.15	1.19	.60	.48	.38	.29
196D184X9050HA1	.18	1.19	.60	.48	.38	.29
196D224X9050HA1*	.22	1.19	.60	.48	.38	.29
196D274X9050HA1	.27	1.19	.60	.48	.38	.29
196D334X9050HA1*	.33	1.19	.60	.48	.38	.29
196D394X9050HA1	.39	1.19	.60	.48	.38	.29
196D474X9050HA1*	.47	1.19	.60	.48	.38	.29
196D564X9050HA1	.56	1.19	.60	.48	.38	.29
196D684X9050HA1*	.68	1.19	.60	.48	.38	.29
196D824X9050HA1	.82	1.19	.60	.48	.38	.29
196D105X9050HA1*	1.0	1.19	.60	.48	.38	.29
196D125X9050JA1	1.2	3.01	1.51	1.21	.94	.72
196D155X9050JA1*	1.5	3.01	1.51	1.21	.94	.72
196D185X9050JA1	1.8	3.01	1.51	1.21	.94	.72
196D225X9050JA1*	2.2	3.01	1.51	1.21	.94	.72
196D275X9050JA1	2.7	3.01	1.51	1.21	.94	.72
196D335X9050JA1*	3.3	3.01	1.51	1.21	.94	.72
196D395X9050KA1	3.9	3.16	1.59	1.27	.99	.75
196D475X9050KA1*	4.7	3.16	1.59	1.27	.99	.75
196D565X9050PE4	5.6	11.27	5.65	4.52	3.51	2.68
196D685X9050PE4*	6.8	11.27	5.65	4.52	3.51	2.68
196D825X9050PE4	8.2	11.27	5.65	4.52	3.51	2.68
196D106X9050PE4*	10	11.27	5.65	4.52	3.51	2.68
196D126X9050PE4	12	11.27	5.65	4.52	3.51	2.68
196D156X9050PE4*	15	11.27	5.65	4.52	3.51	2.68
196D186X9050TE4	18	19.38	9.71	7.77	6.03	4.60
196D226X9050TE4*	22	19.38	9.71	7.77	6.03	4.60

*±20% tolerance available. Change 9th character in number to **0** (196D106X0004HA1) and deduct **1c** per each price break-out for H, J and K case sizes and **2c** per each price break-out for P and T case sizes.

OUR STOCKS ARE FULLY UP TO DATE WITH ALL THE LATEST PRODUCTS.

ASK ABOUT NEW OR UNLISTED ITEMS.

SUBMINAX 27 SERIES CONNECTORS

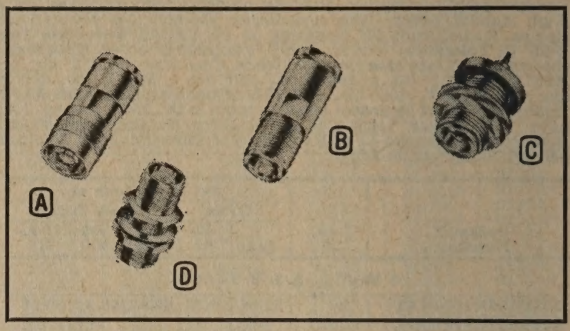


Connectors have constant 50 or 75 ohm impedance, voltage rating of 500 volts peak, and a frequency limit of 10 GHz. The snap-on type is designed for frequent fast mating and limited space; the screw-on type is for vibration type applications or where maintaining contact is essential.

Amphenol No.	MIL No.	Fig.	Description	Imp. Ohms	RG/U Cable
SNAP-ON TYPE					
27-1	.....	A	Plug	50	174, 179
27-13	.....	A	Plug	75	180, 195
27-30*	.....	B	Plug	50	178, 196
27-6	.....	C	Angle Plug	50	174, 179
27-18	.....	C	Angle Plug	75	180, 195
27-33*	.....	D	Angle Plug	50	178, 196
27-2	.....	E	Jack	50	174, 179
27-31*	.....	F	Jack	50	178, 196
27-4	.....	G	Blkhd. Jack	50	174, 179
27-3	.....	....	Blkhd. Recpt.	50	.....
27-15	.....	....	Blkhd. Recpt.	75	.....
SCREW-ON TYPE					
27-7	.....	I	Plug	50	174, 179
27-106*	.....	J	Plug	50	174, 179
27-19	.....	I	Plug	75	180, 195
27-34*	.....	J	Plug	50	178, 196
27-104*	UG1460/U	J	Plug	50	178, 196
27-26	.....	K	Angle Plug	50	174, 179
27-25	.....	K	Angle Plug	75	180, 195
27-37*	.....	L	Angle Plug	50	178, 196
27-8	.....	M	Jack	50	174, 179
27-105*	UG1467/U	N	Jack	50	174, 179
27-20	.....	M	Jack	75	180, 195
27-10	.....	O	Blkhd. Jack	50	174, 179
27-103*	UG1468/U	P	Blkhd. Jack	50	174, 179
27-22	.....	O	Blkhd. Jack	75	180, 195
27-9	.....	....	Blkhd. Recpt.	50	.....
27-12†	.....	....	Blkhd. Recpt.	50	.....
27-101	UG1619/U	....	Blkhd. Recpt.	50	.....
27-21	.....	....	Blkhd. Recpt.	75	.....

*Field serviceable. †Hermetically sealed.

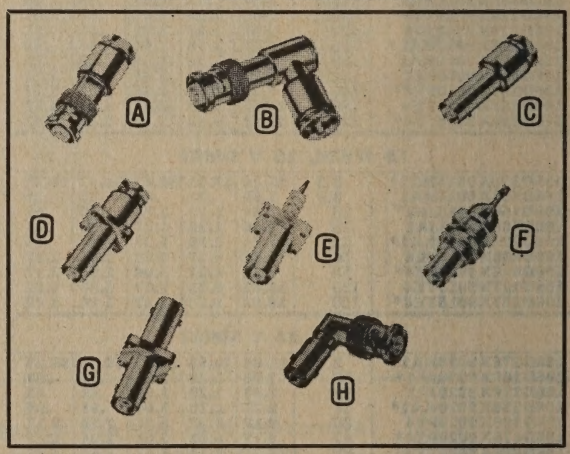
TRIAX SERIES CONNECTORS



Connectors for use with triaxial cables used in transmission line applications for maximum RF shielding and minimum noise radiation. Impedance is rated at 50 ohms, but the connectors can be used with 75 ohm cables if matching is not critical. Connector mating ends have different threads and will not intermate. Frequency limit is 10 GHz. and voltage rating is 1900-5000 volts, depending on cable being used.

Amphenol No.	Threads	Fig.	Description	RG/U Cable
53250	7/8-20	A	Plug	8
53175	7/8-20	A	Plug	11
53150	1 1/16-24	A	Plug	58A
53100	1 1/16-24	A	Plug	59
52975	7/8-20	B	Jack	11
34375	1 1/16-24	B	Jack	58A
34450	1 1/16-24	C	Blkhd. Recpt.	.....
34475	7/8-20	C	Blkhd. Recpt.	.....
53225	1 1/16-24	D	Blkhd. Adapter	.....

MHV SERIES CONNECTORS



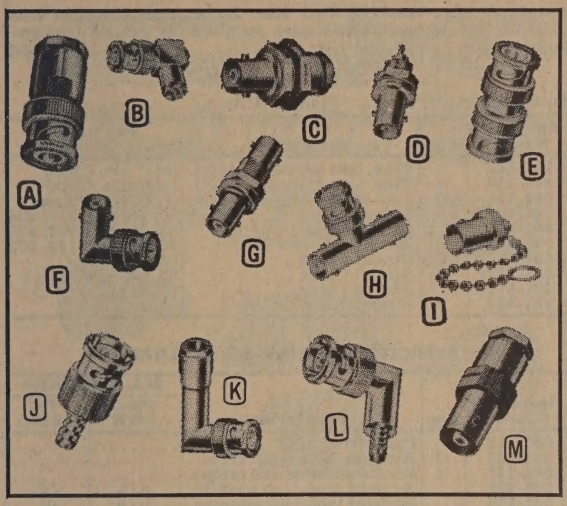
Bayonet-lock coupling coax connectors are small, high voltage types which may be used up to 5000 volts peak at frequencies up to 50 MHz. Impedance is non-constant. Similar to the BNC Series, but will not intermate.

Amphenol No.	MIL No.	Fig.	Description	RG/U Cable
29100	.....	A	Plug	55, 58, 141
28000	UG932/U	A	Plug	59, 62, 71
27975	UG932A/U	A	Plug	140, 210
28100	.....	B	Angle Plug	55, 58, 141
27075	UG1016A/U	C	Jack	59, 62, 71
27000	UG931/U	E	Panel Recpt.	.....
10400	.....	F	Blkhd. Recpt.	.....
27025	.....	F	Blkhd. Recpt.	.....
28400	.....	F	Blkhd. Recpt.	.....
12650	.....	G	Panel Adapter	.....
10425	.....	H	Angle Adapter	.....

SEE FOLLOWING PAGES FOR PRICING

PRICES LISTED ARE FOR GUIDANCE ONLY

BNC CONNECTORS

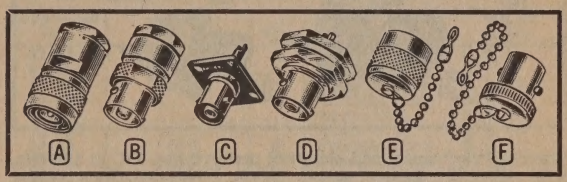


Bayonet coupling coax connectors designed for RG-58, RG-59 and other cable as indicated. Use to 10,000 MHz, 500 V maximum.

Amphenol No.	MIL No.	Fig.	Description	Imp. Ohms	RG Cable
31-002	UG88/U	A	Plug	.....	55, 58
31-012	UG260/U	A	Plug	.....	59, 62, 71
31-018	UG88B/U	A	Plug	.....	55, 58
31-021	UG260A/U	A	Plug	.....	59, 62, 71
31-202	UG88C/U	A	Plug	50	55, 58
31-212	UG260B/U	A	Plug	.....	59, 62, 71
31-4326	M39012	J	Plug	.....	55, 142, 223
31-3301	M39012	A	Plug	.....	55, 58, 141
31-4320	M39012	J	Plug	.....	58, 141, 303
31-4321	M39012	J	Plug	.....	59, 62, 140
31-3302	M39012	A	Plug	.....	59, 62, 140
31-4322	M39012	J	Plug	.....	71
31-3303	M39012	A	Plug	.....	122, 180
31-204	UG913/U	B	Angle Plug	.....	55, 58
31-850	.....	B	Angle Plug	.....	59, 62, 71
31-3365	M39012	K	Angle Plug	.....	55, 142
31-3361	M39012	L	Angle Plug	.....	55, 55A, 58
31-3364	M39012	K	Angle Plug	.....	58, 141
31-005	UG89/U	....	Jack	.....	55, 58
31-015	UG261/U	....	Jack	.....	59, 62, 71
31-019	UG89A/U	....	Jack	.....	55, 58
31-022	UG261A/U	....	Jack	.....	59, 62, 71
31-205	UG89B/U	....	Jack	50	55, 58
31-215	UG261B/U	....	Jack	.....	59, 62, 71
31-4333	M39012	....	Jack	.....	55, 142, 223
31-3319	M39012	M	Jack	.....	55, 58, 141
31-4327	M39012	....	Jack	.....	58, 141, 303
31-4328	M39012	....	Jack	.....	59, 62, 140
31-3320	M39012	M	Jack	.....	59, 62, 71
31-3321	M39012	M	Jack	.....	122, 180
31-001	UG291/U	....	Panel Jack	.....	55, 58
31-011	UG262/U	....	Panel Jack	.....	59, 62, 71
31-020	UG291A/U	....	Panel Jack	.....	55, 58
31-201	UG291B/U	....	Panel Jack	50	55, 58
31-211	UG262B/U	....	Panel Jack	.....	59, 62, 71
31-3333	M39012	....	Panel Jack	.....	55, 58, 141
31-3334	M39012	....	Panel Jack	.....	59, 62, 71
31-3335	M39012	....	Panel Jack	.....	122, 180
31-206	UG909/U	C	Blkhd. Jack	50	55, 58
31-207	UG910/U	C	Blkhd. Jack	.....	59, 62, 71
31-4341	M39012	....	Blkhd. Jack	.....	55, 142, 223
31-3347	M39012	C	Blkhd. Jack	.....	55, 58, 141
31-4343	M39012	....	Blkhd. Jack	.....	59, 62, 140
31-3348	M39012	C	Blkhd. Jack	.....	59, 62, 71
31-4346	M39012	....	Blkhd. Jack	.....	122
31-003	UG290/U	....	Panel Recpt.	.....	.....
31-105	.....	....	Panel Recpt.	.....	.....
31-203	UG290A/U	....	Panel Recpt.	50	.....
31-817	UG447/U	....	Panel Recpt.	.....	.....
31-842	.....	....	Panel Recpt.	.....	.....
4500	UG185/U	....	Panel Recpt.	.....	.....
31-3377	M39012	....	Panel Recpt.	.....	.....
31-222	UG1098/U	....	Angle Recpt.	50	.....
31-016	UG254A/U	D	Blkhd. Recpt.	.....	.....
31-102	UG657/U	D	Blkhd. Recpt.	.....	.....
31-221	UG1094/U	D	Blkhd. Recpt.	50	.....
31-236	UG625B/U	D	Blkhd. Recpt.	50	.....
31-3375	M39012	D	Blkhd. Recpt.	.....	.....
31-4238	M39012	D	Blkhd. Recpt.	.....	.....
31-3376	M39012	D	Blkhd. Recpt.	.....	.....
31-4237	M39012	D	Blkhd. Recpt.	.....	.....

Amphenol No.	MIL No.	Fig.	Description	Imp. Ohms	RG Cable
31-218	UG491A/U	E	Adapter	50	.....
31-219	UG914/U	E	Adapter	50	.....
31-009	UG306/U	F	Angle Adapter	.....	.....
31-209	UG306A/U	F	Angle Adapter	50	.....
31-220	UG492A/U	G	Blkhd. Adapter	50	.....
47000	UG414/U	G	Blkhd. Adapter	.....	.....
31-008	UG274/U	H	"T" Adapter	.....	.....
31-208	UG274A/U	H	"T" Adapter	50	.....
31-006	CW123/U	....	Cap & Chain	.....	.....
31-007	CW155/U	....	Cap & Chain	.....	.....
31-017	CW159/U	....	Cap & Chain	.....	.....
31-026	M39012	....	Cap & Chain	.....	.....
31-027	CW155A/U	....	Cap & Chain	.....	.....
31-210	CW282/U	I	Cap & Chain	.....	.....

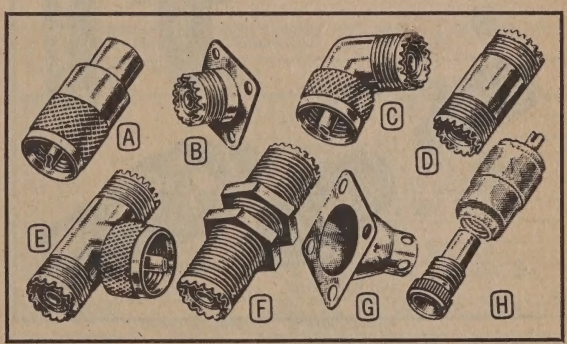
SERIES 82 TYPE C COAXIAL CONNECTORS



Low VSWR to 10,000 MHz, 1,500 V peak. Also used with cables other than 50 ohms. Meets applicable portions of MIL-C-3989.

Amphenol No.	UG/U No.	Fig.	Description	RG Cable
82-530	573A	A	Plug	8, 9
82-532	628A	A	Plug	8, 9A
82-534	709A	A	Plug	55, 58
82-531	710A	...	Angle Plug	8, 9
82-503	572	B	Panel Jack	8, 9
82-504	568	C	Panel Recpt.	.....
82-515	634	D	Blkhd. Recpt.	.....
82-535	567A	....	Angle Adapter	.....
82-512	MX-1142	E	Male Cap & Chain	.....
82-513	MX-1143	F	Female Cap & Chain	.....

SERIES 83 UHF TYPE COAXIAL CONNECTORS

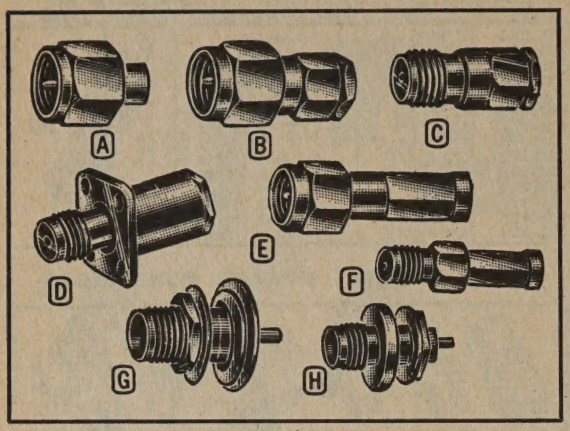


Small, single contact, general purpose connectors of non-constant impedance. Meet military specifications.

Amphenol No.	UG/U No.	Fig.	Description	RG/U Cable
83-1SP	PL259	A	Plug	8, 11
83-1SPN	PL259A	A	Plug	8, 11
83-750	111	A	Plug	59, 62
83-850	.....	A	Plug	11
83-851	.....	A	Plug	8
83-59	.....	.....	Angle Plug	8, 11
83-1R	SO239	B	Panel Recpt.	.....
83-716	.....	B	Panel Recpt.	.....
83-798	SO239A	.....	Panel Recpt.	.....
83-1F	363	F	Straight Adapter	.....
83-1J	PL258	D	Straight Adapter	.....
83-1AP	646	C	Angle Adapter	.....
83-1T	.....	E	"T" Adapter	.....
83-168	176	H	Reducing Adapter	59, 62, 71
83-185	175	H	Reducing Adapter	55, 58
83-1H	106	G	Hood	8, 11
83-1HP	372	G	Hood	8, 11
83-765	177	G	Hood	55, 58
83-877	.....	.....	Double Male Adpt.	.....
83-878	.....	.....	Single Hole Recpt.	.....

SEE FOLLOWING PAGES FOR PRICING

SERIES SMA SEMI-PRECISION 3mm HIGH FREQUENCY CONNECTORS



Excellent mechanical and electrical performance, DC to 18 GHz, even after 100 mating cycles. "Thin Wall" beryllium copper bodies have .00452" interface mating cross-section. Coupling nut torque can be twice that of other SMA designs. Easy assembly requires only a simple, low-cost tool kit; crimp style uses standard BNC/TNC Crimper No. 227-350.

Amphenol No. 901-2500 Tool Kit—Jacket and dielectric trim tools for precise cable preparation required for electric performance specified. Net Each, Lots 1–24 ..... **$14.90**

PLUGS AND JACKS

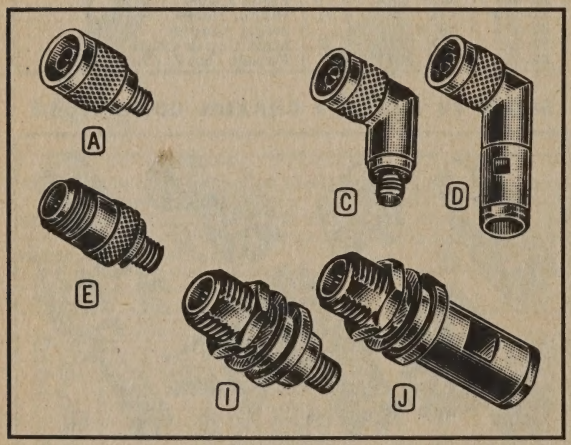
Solder attachment, except: *Clamp; †Crimp.

Amphenol Number	Fig.	Description	For RG/U Cable
901-113	A	Plug, less contact & insul.	.141" dia. Cujak
901-105	B	Plug with contact & insul.	.141" dia. Cujak
901-106	C	Jack with contact & insul.	.141" dia. Cujak
901-103*	....	Straight plug	55, 58, 141, 142, 223
901-104*	....	Straight jack	55, 58, 141, 142, 223
901-121*	D	Panel jack	55, 58, 141, 142, 223
901-101†	E	Straight plug	55, 142, 223
901-102†	F	Straight jack	55, 143, 223
901-109†	....	Straight plug	58, 141, 303
901-110	....	Straight jack	58, 141, 303

RECEPTACLES & WITHIN-SERIES ADAPTERS

Amphenol Number	Fig.	Description	Std. Wave Ratio Max. SWR	Std. Wave Ratio To f(GHz)
901-112	....	Panel receptacle	.....	.....
901-116	G	Rear-mt. bulkhead recept.	.....	.....
901-117	H	Front-mt. bulkhead recept.	.....	.....
901-118	....	Straight plug-plug adapter	1.15	.01
901-119	....	Straight jack-jack adapter	1.15	.01
901-120	....	Bulkhead jack-jack adapter	1.15	.01

TYPE N MIL-C-39012 CONNECTORS

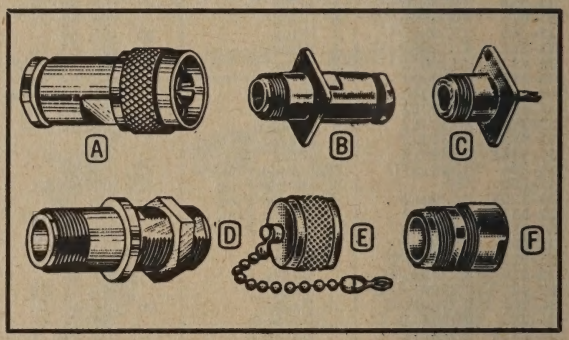


Medium size, weather proof, threaded coupling units for use up-to microwave frequencies. Designed to meet MIL-C-39012. They have crimpable fully captivated contacts, cable retention equal to the strength of the cable braid and utilize the same series of crimpable tools as the Amphenol BNC/TNC MIL type. Frequency range 0–10,000 MHz. 1500 V peak voltage.

Amphenol Number	UG/U No.	Fig.	MIL No. M39012/	Imped. Ohms	RG/U Cable
82-340	1681	A	Mil crimp 01-0007	50	8, 9, 213
82-332	1682	A	Mil crimp 01-0008	50	214
82-5375	.....	A	Mil crimp	50	142, 223
82-336	1708	C	Mil crimp 05-0003	50	8, 9, 213, 214
82-5374	.....	C	Mil crimp	50	223
82-337	1688	E	Mil crimp 02-0008	50	8, 9, 213, 214
82-333	1689	E	Mil crimp 02-0009	50	.....
82-335	1701	I	Mil crimp 03-0005	50	8, 9, 213, 214
82-5373	.....	I	Mil crimp	50	142, 223

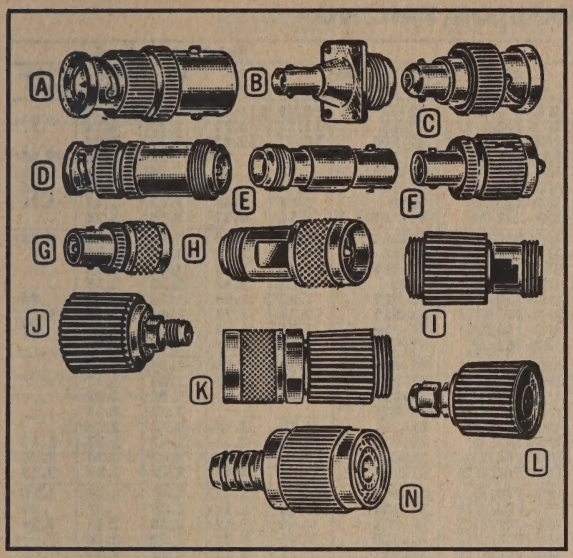
SEE FOLLOWING PAGES FOR PRICING AND BETWEEN SERIES ADAPTERS

TYPE N COAXIAL CONNECTORS



Impedance matched to 50 or 70-ohm cables. 50-ohm connectors **will not** mate with 75-ohm connectors. Frequency range, 0–10,000 MHz. 500 V maximum. Threaded coupling.

Amphenol No.	UG/U No.	Fig.	Description	Imped. Ohms	RG/U Cable
82-61	21B	A	Plug	50	8, 9, 10
82-84	94A	A	Plug	70	11, 12, 13
82-86	18B	A	Plug	50	5, 6, 21
82-96	21C	A	Plug	50	8, 9, 10
82-104	167A	....	Plug	50	17, 18
82-202	21D	A	Plug	50	8, 9, 10
82-203	18C	A	Plug	50	5, 6, 21
34000	536	A	Plug	50	58, 141
82-835	.....	....	Angle Plug	50	8, 9, 10, 87A
82-63	23B	B	Jack	50	8, 9, 10
82-89	95A	B	Jack	70	11, 12, 13
82-209	23D	B	Jack	50	8, 9, 10
82-62	22B	B	Panel Jack	50	8, 9, 10
82-67	160A	....	Blkhd. Jack	50	8, 9, 10
82-93	160B	....	Blkhd. Jack	50	8, 9, 10
82-24	58	C	Panel Recpt.	50	.....
82-97	58A	C	Panel Recpt.	50	.....
82-112	.....	C	Panel Recpt.	70	.....
82-811	680	....	Blkhd. Recpt.	50	.....
82-65	29A	D	Adapter	50	.....
82-100	57B	D	Adapter	50	.....
82-101	29B	D	Adapter	50	.....
82-64	27A	....	Angle Adapter	50	.....
82-98	27B	....	Angle Adapter	50	.....
82-213	27C	....	Angle Adapter	50	.....
82-66	30	....	Blkhd. Adapter	50	.....
82-36	107A	....	"T" Adapter	50	.....
82-99	28A	....	"T" Adapter	50	.....
82-102	107B	....	"T" Adapter	50	.....
82-106	MX913	E	Cap & Chain	.....	.....



BETWEEN SERIES ADAPTERS

APC, BNC, C, HN, MB, N, SMA, TNC, UHF

Amphenol No.	UG/U No.	Fig.	Mates with				Imp., Ohms
			Plug	Recpt.	Plug	Recpt.	
83175	635	A	.....	BNC	C	.....	50
83200	636A	A	BNC	.....	.....	C	50
8900	309	B	BNC	.....	.....	HN	50
47250	.....	C	BNC	.....	.....	MB	50
47275	.....	C	.....	BNC	MB	.....	50
31-216	201A	D	BNC	.....	.....	N	.....
31-217	349A	D	.....	BNC	N	.....	.....
31-830	201	D	BNC	.....	.....	N	.....
2800*	.....	D	BNC	.....	N	.....	50
2975	349	D	.....	BNC	N	.....	50
4900	.....	D	.....	BNC	.....	N	50
5225	1034	D	.....	BNC	.....	N	50
5850‡	.....	D	BNC	.....	N	.....	50
21850†	.....	D	BNC	.....	N	.....	50
79025	.....	E	.....	BNC	TNC	.....	50
79675	.....	E	BNC	.....	.....	TNC	50
31-028	273	F	BNC	.....	.....	UHF	.....
2900	255	F	.....	BNC	UHF	.....	50
12025	.....	F	BNC	.....	.....	UHF	50
82-508	564	G	C	.....	.....	N	50
82-540	565A	G	.....	C	N	.....	50
4400	146	H	.....	N	UHF	.....	.....
14000	83	H	N	.....	.....	UHF	.....
26700	318	H	.....	N	.....	UHF	.....
131-1025	.....	I	APC-7		.....	N	50
131-1026	.....	....	APC-7		.....	BNC	50
131-1027	.....	....	APC-7		.....	OSM	50
131-1028	.....	J	APC-7		.....	SMA	50
131-1035	.....	K	APC-7		N	.....	50
131-1036	.....	....	APC-7		TNC	.....	50
131-1037	.....	....	APC-7		BNC	.....	50
131-1038	.....	L	APC-7		SMA	.....	50

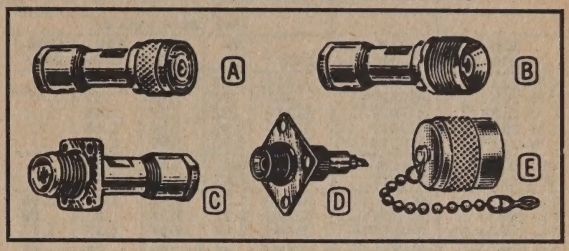
*Angle, flange mount. †Bulkhead mount. ‡Pressurized, bulkhead mount.

QUICK-CRIMP TNC SERIES CONNECTORS

Exclusive design has optional crimp or solder center contact. Maintains constant impedance even when center contact is crimped. Non-impedance match connector when used with cables other than 50 ohms. VSWR is identical to standard solder type TNC connectors, 1.25 to 1, over frequency range to 10,000 MHz.

Amphenol No.	Fig.	Description	RG/U Cable
36825	N	Plug	58, 58A, 58C, 141

TYPE HN COAXIAL CONNECTORS



Medium size, high voltage, 50-ohm constant impedance connectors with threaded coupling. Meets applicable sections of MIL-C-3643. Low VSWR to 10,000 MHz. 1,500 V maximum.

Amphenol No.	UG/U No.	Fig.	Description	RG/U Cable
82-38	59A	A	Straight Plug	8, 9, 10
82-111	495A	A	Straight Plug	17, 18
82-804	59B	A	Straight Plug	8, 9, 10
82-816	.....	A	Straight Plug	54A
82-833	.....	.....	Angle Plug	8, 9, 10
82-856	.....	.....	Angle Plug	8, 9, 10
82-39	60A	B	Straight Jack	8, 9, 10
82-814	60B	B	Straight Jack	8, 9, 10, 87
82-92	496	D	Panel Recpt.	.....
82-805	560	D	Panel Recpt.	.....
82-91	212A	.....	Angle Adapter	.....
82-130	.....	E	Cap & Chain	....

RF CRIMPING TOOLS

227-900 227-944

Attach connectors to cables quickly and easily. Crimping force automatically controlled. Meets MIL specifications.

Amphenol No.	Connector Series	For use with RG/U cable
227-900	27 Shield Only	174, 179, 187, 188
227-901		180, 195
227-902		Adapter for 27-14 connector
227-913		Adapter for 27-4, 27-8, 27-10
227-914		Adapter for 27-16, 27-20, 27-22
227-1221-57	N Shield and Contact	55, 58, 141, 142, 223, 303, 400
227-1221-59		59, 62, 140, 210
227-1221-29		5, 6, 21, 143, 212, 222, 304
227-1221-25		8, 9, 11, 87A, 149, 165, 213, 214, 216, 225, 393
227-1221-09	BNC & TNC Shield and Contact	122, 174, 179, 180, 187, 188, 195. Essex 21-597
227-1221-11		55, 58, 141, 142, 223, 303, 400
227-1221-13		59, 62, 140, 210
227-1221-15		71
227-1221-11	MHV Shield Only	55, 58, 141, 142, 223, 303, 400
227-1221-11	UHF Shield Only	55, 58, 141, 142, 223, 303, 400
227-1221-13		59, 62, 140, 210
227-1221-23		8, 11, 149, 213
227-1221-09	SMA Shield Only	122, 174, 179, 180, 187, 188, 195
227-1221-11		55, 58, 141, 142, 223, 303, 400
227-944		Frame only for all 227-1221 die sets

OUR STOCKS ARE COMPLETE AND UP TO DATE

AMPHENOL RF CONNECTOR PRICING

MIL No.	Amphenol No.	Net Each, Lots of 1-24	25-99	100-499	500-999	1000-2499
CW-123	31-006	$ 1.71	$ 1.33	$ 1.09	$ 0.94	....
CW-155	31-007	.95	.74	.60	.52	....
CW-155A	31-027	1.24	.97	.79	.68	....
CW-159	31-017	2.64	2.06	1.68	1.45	....
CW-282	31-210	2.58	2.02	1.65	1.42	....
MX-913	82-106	1.82	1.42	1.16	1.00	....
MX-1142	82-512	2.97	2.31	1.89	1.63	....
PL-258	83-1J	1.95	1.52	1.24	1.07	$0.99
PL-259	83-1SP	1.78	1.39	1.14	.98	.88
PL-259A	83-1SPN	3.40	2.66	2.17	1.87	1.73
SO-239	83-1R	1.07	.84	.68	.59	.55
SO-239A	83-798	2.26	1.76	1.44	1.24	1.12
.....	27-1	2.22	1.73	1.42	1.22	1.14
.....	27-2	2.24	1.75	1.43	1.23	1.16
.....	27-3	2.38	1.86	1.52	1.31	1.24
.....	27-4	3.59	2.80	2.29	1.97	1.86
.....	27-6	5.70	4.44	3.63	3.13	2.92
.....	27-8	2.60	2.03	1.66	1.43	1.34
.....	27-9	2.58	2.02	1.65	1.42	1.34
.....	27-10	4.46	3.48	2.84	2.45	2.29
.....	27-12	13.92	10.86	8.87	7.65	....
.....	27-13	6.30	4.91	4.01	3.46	3.20
.....	27-14	....	7.63	6.23	5.37	....
.....	27-15	4.50	3.51	2.87	2.47	2.32
.....	27-16	....	4.43	3.62	3.12	....
.....	27-18	8.97	7.00	5.72	4.93	....
.....	27-19	4.88	3.81	3.11	2.68	2.52
.....	27-20	9.28	7.24	5.92	5.10	....
.....	27-21	4.22	3.29	2.69	2.32	2.19
.....	27-22	6.28	4.90	4.00	3.45	3.28
.....	27-25	9.01	7.03	5.74	4.95	4.65
.....	27-26	5.44	4.25	3.47	2.99	2.80
.....	27-27	....	7.84	6.40	5.52	....
.....	27-30	7.92	6.18	5.05	4.35	....
.....	27-31	13.40	10.45	8.54	7.36	....
.....	27-32	....	6.59	5.38	4.64	....
.....	27-33	10.96	8.55	6.98	6.02	....
.....	27-34	10.01	7.81	6.38	5.50	5.14
.....	27-35	....	10.92	8.92	7.69	....
UG1619/U	27-101	3.79	2.95	2.41	2.08	....
UG1463/U	27-102	....	12.06	9.85	8.49	....
UG1469/U	27-103	15.09	11.77	9.62	8.29	....
UG1460/U	27-104	14.21	11.09	9.06	7.81	....
UG1467/U	27-105	13.58	10.59	8.65	7.46	7.03
.....	27-106	14.78	11.53	9.42	8.12	....
UG1464/U	27-108	7.63	5.95	4.86	4.19	3.99
UG18B/U	82-86	6.01	4.69	3.83	3.30	....
UG18C/U	82-203	6.68	5.21	4.26	3.27	....
UG21B/U	82-61	3.42	2.67	2.18	1.88	1.72
UG21C/U	82-96	3.91	3.05	2.49	2.15	1.95
UG-21D/U	82-202	3.15	2.46	2.01	1.73	1.58
UG-22B/U	82-62	4.73	3.69	3.02	2.60	....
UG-23B/U	82-63	4.20	3.28	2.68	2.31	....
UG-23D/U	82-209	3.51	2.74	2.24	1.93	....
UG-27A/U	82-64	9.70	7.57	6.18	5.33	....
UG-27B/U	82-98	9.10	7.10	5.80	5.00	....
UG-27C/U	82-213	7.88	6.15	5.02	4.33	....
UG-28A/U	82-99	12.54	9.78	7.99	6.89	....
UG-29A/U	82-65	5.22	4.08	3.33	2.87	....
UG-29B/U	82-101	4.84	3.78	3.09	2.66	....
UG-30/U	82-66	8.86	6.92	5.65	4.87	....
UG-57B/U	82-100	6.37	4.97	4.06	3.50	....
UG-58/U	82-24	2.73	2.13	1.74	1.50	1.35
UG-58A/U	82-97	2.97	2.31	1.89	1.63	....
UG-59A/U	82-38	10.47	8.17	6.67	5.75	....
UG-59B/U	82-804	10.67	8.32	6.80	5.86	....
UG-60A/U	82-39	12.27	9.57	7.82	6.74	....
UG-60B/U	82-814	14.67	11.45	9.35	8.06	....
UG-83/U	14000	7.59	5.92	4.84	4.17	....
UG-88/U	31-002	1.75	1.36	1.11	.96	.87
UG-88B/U	31-018	1.89	1.48	1.21	1.04	.94
UG-88C/U	31-202	1.53	1.19	.97	.84	.75
UG-89/U	31-005	3.17	2.47	2.02	1.74	1.57
UG-89A/U	31-019	2.33	1.82	1.48	1.28	....
UG-89B/U	31-205	1.89	1.48	1.21	1.04	....
UG-94A/U	82-84	5.13	4.00	3.27	2.82	....
UG-95A/U	82-89	6.17	4.81	3.93	3.39	....
UG-96A/U	82-90	....	....	5.19	4.47	....
UG-106/U	83-1H	1.55	1.21	.99	.85	....
UG-107A/U	82-36	16.49	12.87	10.51	9.06	....
UG-107B/U	82-102	12.90	10.07	8.22	7.09	....
UG-111/U	83-750	2.28	1.78	1.45	1.25	1.14
UG-146/U	4400	6.72	5.24	4.28	3.69	....

MIL No.	Amphenol No.	Net Each, Lots of 1-24	25-99	100-499	500-999	1000-2499
UG-160A/U	82-67	$10.79	$ 8.42	$ 6.88	$ 5.93	....
UG-160B/U	82-93	11.17	8.72	7.12	6.14	....
UG-167A/U	82-104	16.27	12.69	10.37	8.94	....
UG-175/U	83-185	.36	.28	.23	.20	$0.18
UG-176/U	83-168	.38	.30	.24	.21	.19
UG-177/U	83-765	1.09	.85	.70	.60	.55
UG-185/U	4500	3.40	2.66	2.17	1.87	1.71
UG-201/U	31-830	5.88	4.59	3.75	3.23	....
UG-201A/U	31-216	4.55	3.55	2.90	2.50	2.33
UG-212A/U	82-91	28.61	22.32	18.24	15.72	....
UG-254A/U	31-016	11.61	9.06	7.40	6.38	....
UG-255/U	2900	4.33	3.38	2.76	2.38	....
UG-260/U	31-012	1.98	1.55	1.26	1.09	.99
UG-260A/U	31-021	2.20	1.72	1.40	1.21	1.11
UG-260B/U	31-212	1.75	1.36	1.11	.96	.87
UG-261/U	31-015	2.88	2.24	1.83	1.58	....
UG-261A/U	31-022	2.80	2.19	1.79	1.54	....
UG-261B/U	31-215	2.42	1.89	1.54	1.33	....
UG-262/U	31-011	4.04	3.15	2.58	2.22	....
UG-262A/U	31-023	....	....	3.81	3.27	....
UG-262B/U	31-211	4.30	3.35	2.74	2.36	....
UG-273/U	31-028	2.86	2.23	1.82	1.57	1.43
UG-274/U	31-008	5.53	4.32	3.53	3.04	2.76
UG-274A/U	31-208	5.17	4.03	3.29	2.84	2.59
UG-290/U	31-003	2.33	1.82	1.48	1.28	1.16
UG-290A/U	31-203	1.66	1.29	1.06	.91	.84
UG-291/U	31-001	4.39	3.42	2.80	2.41	2.19
UG-291A/U	31-020	4.11	3.21	2.62	2.26	....
UG-291B/U	31-201	4.42	3.45	2.82	2.43	....
UG-306/U	31-009	5.39	4.20	3.43	2.96	2.70
UG-306A/U	31-209	4.90	3.82	3.12	2.69	....
UG-309/U	8900	18.40	14.36	11.73	10.11	....
UG-318U/	26700	10.90	8.51	6.95	5.99	....
UG-349/U	2975	10.30	8.04	6.57	5.66	....
UG-349A/U	31-217	5.62	4.39	3.58	3.09	....
UG-363/U	83-1F	5.48	4.27	3.49	3.01	2.76
UG-372/U	83-1HP	1.58	1.24	1.01	.87	....
UG-414/U	47000	5.44	4.25	3.47	2.99	....
UG-447/U	31-817	2.95	2.30	1.88	1.62	1.45
UG-491A/U	31-218	3.97	3.10	2.53	2.18	1.98
UG-492A/U	31-220	4.59	3.58	2.92	2.52	2.29
UG-495A/U	82-111	27.90	21.77	17.78	15.33	....
UG-496/U	82-92	7.68	5.99	4.90	4.22	....
UG-536/U	34000	6.37	4.97	4.06	3.50	....
UG-560/U	82-805	10.65	8.31	6.79	5.85	....
UG-564/U	82-508	9.21	7.19	5.87	5.06	....
UG-565A/U	82-540	14.40	11.23	9.18	7.91	....
UG-567A/U	82-535	24.41	19.04	15.56	13.41	....
UG-568/U	82-504	5.79	4.52	3.69	3.18	....
UG-572/U	82-503	10.17	7.94	6.48	5.59	....
UG-573A/U	82-530	7.04	5.50	4.49	3.87	....
UG-593/U	35500	....	....	5.91	5.09	....
UG-625B/U	31-236	1.24	.97	.79	.68	.62
UG-628A/U	82-532	12.96	10.11	8.26	7.12	....
UG-634/U	82-515	12.39	9.67	7.90	6.81	....
UG-635/U	83175	15.58	12.16	9.93	8.56	....
UG-636A/U	83200	14.91	11.63	9.50	8.19	....
UG-646/U	83-1AP	3.19	2.49	2.03	1.75	1.60
UG-657/U	31-102	2.42	1.89	1.54	1.33	1.20
UG-680/U	82-811	7.28	5.68	4.64	4.00	3.65
UG-709A/U	82-534	6.81	5.31	4.34	3.74	....
UG-710A/U	82-531	14.16	11.05	9.02	7.78	....
UG-909/U	31-206	3.53	2.75	2.25	1.94	1.77
UG-910/U	31-207	3.79	2.95	2.41	2.08	....
UG-913/U	31-204	6.19	4.83	3.94	3.40	3.09
UG-914/U	31-219	2.51	1.96	1.60	1.38	1.28
UG-941A/U	82-204	....	....	5.22	4.51	....
UG-1034/U	5225	13.23	10.32	8.43	7.27	....
UG-1094/U	31-221	1.18	.92	.75	.65	.60
UG-1098/U	31-222	6.41	5.00	4.08	3.52	3.20
.....	31-026	1.78	1.39	1.14	.98	....
.....	31-105	3.29	2.57	2.10	1.81	....
.....	31-842	4.11	3.21	2.62	2.26	....
.....	31-850	7.03	5.48	4.48	3.86	....
.....	82-112	6.79	5.30	4.33	3.73	....
.....	82-130	3.66	2.85	2.33	2.01	....
.....	82-332	6.22	4.86	3.97	3.42	....
.....	82-333	7.63	5.95	4.86	4.19	....
.....	82-334	....	....	10.15	8.92	....
.....	82-335	15.87	12.38	10.12	8.72	....
.....	82-336	20.68	16.13	13.18	11.36	....
.....	82-337	7.52	5.86	4.79	4.13	....
.....	82-340	5.73	4.47	3.65	3.15	....
.....	82-816	10.50	8.19	6.69	5.77	....

Continued on the following page

COMPLETE LINE OF RF CONNECTORS FOR PROMPT DELIVERY.

ASK FOR UNLISTED OR NON-STOCK ITEMS, AVAILABLE ON SPECIAL ORDER.

PRICES LISTED ARE FOR GUIDANCE ONLY

AMPHENOL RF CONNECTOR PRICING (CONTINUED)

MIL No.	Amphenol No.	Net Each, Lots of 1-24	25-99	100-499	500-999	1000-2499
.....	82-833	$16.87	$13.16	$10.75	$ 9.27	....
.....	82-835	10.88	8.49	6.94	5.98	....
.....	82-5370	5.06	3.95	3.22	2.78	$2.58
.....	82-5371	....	....	3.57	3.13	....
.....	82-5373	9.50	7.41	6.06	5.22	....
.....	82-5374	13.23	10.32	8.43	7.27	....
.....	82-5375	4.75	3.71	3.03	2.61	....
.....	82-5379	....	....	11.31	9.88	....
.....	83-1T	4.77	3.72	3.04	2.62	2.42
.....	83-59	7.57	5.91	4.83	4.16	....
.....	83-716	17.67	13.79	11.26	9.71	....
.....	83-850	13.30	10.38	8.48	7.31	....
.....	83-851	8.10	6.32	5.16	4.45	....
.....	83-877	2.75	2.14	1.75	1.51	1.39
.....	83-878	1.47	1.15	.94	.81	....

MIL No.	Amphenol No.	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249
.....	131-1025	126.55	102.76	$90.50	$82.81	$76.69
.....	131-1026	122.82	99.72	87.81	80.36	74.42
.....	131-1027	126.31	102.58	90.35	82.67	76.55
.....	131-1028	115.58	93.83	82.63	75.62	70.02
.....	131-1035	122.82	99.72	87.81	80.36	74.42
.....	131-1036	126.55	102.76	90.50	82.81	76.69
.....	131-1037	126.55	102.76	90.50	82.81	76.69
.....	131-1038	121.29	98.50	86.72	79.38	73.49

MIL No.	Amphenol No.	Net Each, Lots of 1-24	25-99	100-499	500-999	1000-2499
.....	227-900	$ 89.44	.....	.....	.....	.....
.....	227-901	89.44	.....	.....	.....	.....
.....	227-902	19.50	.....	.....	.....	.....
.....	227-913	8.84	.....	.....	.....	.....
.....	227-914	6.24	.....	.....	.....	.....
.....	227-944	117.52	.....	.....	.....	.....
.....	227-1221-09	50.44	.....	.....	.....	.....
.....	227-1221-11	50.44	.....	.....	.....	.....
.....	227-1221-13	50.44	.....	.....	.....	.....
.....	227-1221-15	50.44	.....	.....	.....	.....
.....	227-1221-23	50.44	.....	.....	.....	.....
.....	227-1221-25	50.44	.....	.....	.....	.....
.....	227-1221-29	50.44	.....	.....	.....	.....
.....	227-1221-57	50.44	.....	.....	.....	.....
.....	227-1221-59	50.44	.....	.....	.....	.....
.....	901-101	7.10	$ 5.54	$4.52	$3.90	....
.....	901-102	7.08	5.52	4.51	3.89	....
.....	901-103	9.50	7.41	6.06	5.22	....
.....	901-104	8.65	6.75	5.51	4.75	....
.....	901-105	6.83	5.33	4.35	3.75	....
.....	901-106	6.88	5.37	4.38	3.78	....
.....	901-107	....	11.63	9.50	8.19	....
.....	901-109	6.77	5.28	4.32	3.72	....
.....	901-110	5.77	4.50	3.68	3.17	....
.....	901-112	7.26	5.67	4.63	3.99	....
.....	901-113	4.93	3.85	3.14	2.71	....
.....	901-116	8.35	6.52	5.32	4.59	....

MIL No.	Amphenol No.	Net Each, Lots of 1-24	25-99	100-499	500-999	1000-2499
.....	901-117	$ 9.70	$ 7.57	$ 6.18	$ 5.33	....
.....	901-118	9.45	7.37	6.02	5.19	....
.....	901-119	7.84	6.12	5.00	4.31	....
.....	901-120	9.79	7.64	6.24	5.38	....
.....	901-121	13.72	10.71	8.75	7.54	....
.....	901-122	....	9.19	7.51	6.47	....
.....	2800	28.94	22.58	18.44	15.90	....
.....	4900	11.72	9.14	7.47	6.44	....
.....	5850	35.74	27.89	22.78	19.64	....
.....	10400	13.12	10.24	8.36	7.21	....
.....	10425	25.10	19.58	16.00	13.79	....
.....	12025	5.75	4.49	3.67	3.16	....
.....	12650	9.86	7.70	6.29	5.42	....
.....	21850	18.76	14.64	11.96	10.31	....
UG-931/U	27000	3.33	2.60	2.12	1.83	$1.67
.....	27025	5.88	4.59	3.75	3.23	....
UG-1016A/U	27075	7.33	5.72	4.67	4.03	....
UG-932A/U	27975	4.57	3.56	2.91	2.51	....
UG-932/U	28000	3.88	3.02	2.47	2.13	1.94
.....	28100	11.63	9.07	7.41	6.39	....
.....	28400	14.27	11.13	9.09	7.84	....
.....	29100	5.53	4.32	3.53	3.04	....
.....	34375	24.46	19.08	15.59	13.44	....
.....	34450	19.06	14.87	12.15	10.47	....
.....	34475	26.24	20.48	16.73	14.42	....
.....	36650	3.33	2.60	2.12	1.83	....
.....	36675	22.17	17.30	14.13	12.18	....
.....	36775	2.37	1.85	1.51	1.30	1.21
.....	36800	2.60	2.03	1.66	1.43	....
.....	36825	3.46	2.70	2.20	1.90	....
.....	36875	2.55	1.99	1.62	1.40	1.30
.....	47250	12.61	9.84	8.04	6.93	....
.....	47275	11.39	8.89	7.26	6.26	....
.....	52975	42.57	33.21	27.13	23.39	....
.....	53100	21.62	16.87	13.78	11.88	....
.....	53150	19.86	15.49	12.66	10.91	....
.....	53175	29.50	23.02	18.80	16.21	....
.....	53225	45.70	35.66	29.13	25.11	....
.....	53250	29.37	22.92	18.72	16.14	....
.....	68150	4.11	3.21	2.62	2.26	2.11
.....	68175	2.37	1.85	1.51	1.30	1.21
.....	79025	11.72	9.14	7.47	6.44	....
.....	79675	9.63	7.51	6.14	5.29	....
.....	95575	....	....	7.12	6.23	....
.....	95600	10.61	8.28	6.76	5.83	....
.....	95625	11.52	8.99	7.34	6.33	....
.....	95700	6.97	5.44	4.44	3.83	....
.....	95725	5.66	4.42	3.61	3.11	....
.....	95750	6.10	4.76	3.89	3.35	....
.....	97775	....	....	13.86	11.99	....

COMPLETE LINE OF RF CONNECTORS FOR PROMPT DELIVERY.

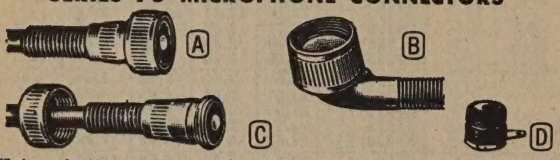
ASK FOR UNLISTED OR NON-STOCK ITEMS, AVAILABLE ON SPECIAL ORDER.

THREADED COUPLING SERIES 91

Mounting hole, 11/16" diameter; maximum 1/8" thick panel. Three contacts, except (*), 4 contacts; (†), 6 contacts. Black phenolic dielectric chrome plated brass shells.

Amphenol No.	Description	Net Each, Lots of 1-49	50-99	100-249	250-499	500-999*
91-CCC3	Cap and chain	$1.71	$1.42	$1.24	$1.07	$0.91
91-MC3F	Female jack	3.43	2.85	2.48	2.12	1.80
91-MC3F1	Female plug	3.50	2.92	2.53	2.16	1.84
91-MC3M	Male plug	3.27	2.73	2.37	2.03	1.72
91-MC3M1	Male jack	3.43	2.85	2.48	2.12	1.80
91-MC4F	Female jack*	3.50	2.92	2.53	2.16	1.84
91-MC4F1	Female plug*	3.50	2.92	2.53	2.16	1.84
91-MC4M	Male plug*	3.24	2.70	2.35	2.01	1.70
91-MC4M1	Male jack*	3.39	2.82	2.46	2.09	1.79
91-MC6F	Female jack†	3.94	3.28	2.85	2.45	2.07
91-MC6M	Male plug†	2.94	2.46	2.13	1.82	1.56
91-PC3F	Female recept.	2.69	2.24	1.94	1.65	1.41
91-PC6F	Female rcpt.†	2.94	2.46	2.13	1.82	1.56
91-PC3M	Male recept.	2.20	1.83	1.59	1.36	1.16
91-PC4F	Female rcpt.*	2.49	2.08	1.81	1.54	1.31
91-PC4M	Male recept.*	2.24	1.86	1.62	1.38	1.17
91-PC6M	Male recept.†	2.27	1.89	1.64	1.40	1.19

SERIES 75 MICROPHONE CONNECTORS

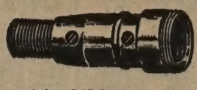


Unique button contact and threaded coupling permit plug conversion to jack by removal of coupling ring. Receptacles mount in .385" holes when grounding, .500" holes for ungrounded two circuit operation.

Amphenol No. 80-	Description	Fig.	Net Each, Lots of 1-49	50-99	100-249	250-499	500-999*
75-CCC1*	Cap and chain	....	$1.63	$1.35	$1.18	$1.01	$0.86
75-MC1F	Straight plug	A	1.88	1.56	1.35	1.16	.99
75-MC1FA	Angle plug	B	4.74	3.95	3.43	2.94	2.49
75-MC1M	Cable jack	C	1.34	1.12	.98	.84	.70
75-MC1P	Phone pl. adpt.	....	1.49	1.24	1.08	.92	.78
75-PC1M	Chassis recept.	D	1.60	1.33	1.16	.99	.84

*May also be used with Series 80 connectors.

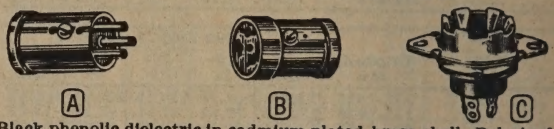
SERIES 80 MICROPHONE CONNECTORS



All mount in 5/8" hole. Maximum panel thickness for receptacles is 11/16". Single contacts, except (*), 2 contacts. Chrome finish.

Amphenol No.	Description	Net Each, Lots of 1-49	50-99	100-249	250-499	500-999*
80-C	Female recept.	$1.72	$1.43	$1.25	$1.07	$0.90
80-M	Male plug	2.42	2.02	1.74	1.49	1.28
80-MC2F	Female jack*	2.73	2.28	1.97	1.69	1.43
80-MC2F1	Female plug*	3.43	2.86	2.49	2.13	1.81
80-MC2M	Male plug*	2.50	2.08	1.81	1.54	1.31
80-MC2M1	Male jack*	2.58	2.15	1.86	1.59	1.36
80-PC2F	Female rcpt.*	1.92	1.59	1.38	1.19	1.01
80-PC2M	Male recept.*	1.83	1.53	1.34	1.14	.96

MINIATURE CABLE CONNECTORS



Black phenolic dielectric in cadmium plated brass shell. Polarized contact spacing. Plugs and receptacles take cables up to 1/4" dia. Panel receptacle mounts in 7/8" hole with two 6-32 screw holes on 1 1/4" centers. Series 91 also available in short shell. Prices on request.

SERIES 91 PLUGS (FIG. A)

Amphenol No.	Contacts	Net Each, Lots of 1-49	50-99	100-249	250-499	500-999*
91-MPM-3L	3	$1.98	$1.64	$1.42	$1.22	$1.05
91-MPM-4L	4	1.71	1.42	1.24	1.07	.91
91-MPM-5L	5	2.02	1.68	1.46	1.24	1.06
91-MPM-6L	6	1.41	1.18	1.03	.89	.74

SERIES 91 RECEPTACLES (FIG. B)

91-MPF-3L	3	$2.02	$1.68	$1.46	$1.24	$1.06
91-MPF-4L	4	1.86	1.56	1.36	1.16	.98
91-MPF-5L	5	2.24	1.86	1.70	1.38	1.17
91-MPF-6L	6	2.57	2.14	1.86	1.59	1.36

PANEL RECEPTACLES (FIG. C)

Amphenol No.	Contacts	Net Each, Lots of 1-49	50-99	100-249	250-999	1000-2499*
78-PCG3	3	$1.35	$1.13	$0.99	$0.85	$0.72
78-PCG4	4	1.62	1.34	1.17	1.02	.85
78-PCG5	5	1.97	1.63	1.42	1.23	1.03
78-PCG6	6	2.08	1.74	1.52	1.33	1.12

SERIES 91T MINIATURE CABLE-TO-PANEL CONNECTORS

Approximately 33% smaller than above Series 91. Provide high density, low cost, top quality interconnections for microphones, recorders, two-way radios, industrial controls and data processing. Threaded coupling lock design.

No. of Contacts	CABLE PLUGS Straight: Amphenol Number	Net Each, Lots of 1-49	50-99	100-249	CABLE PLUGS Right Angle: Amphenol Number	Net Each, Lots of 1-49	50-99	100-249	PANEL RECEPTACLES: Amphenol Number	Net Each, Lots of 1-49	50-99	100-249
2	91-T-3200-1	.....	$2.98	$2.49	91-T-3200-6	.....	$3.71	$3.09	91-T-3203-9	.....	$1.53	$1.28
3	91-T-3260-1	$3.47	2.84	2.36	91-T-3260-6	.....	3.82	3.18	91-T-3263-9	$1.81	1.47	1.23
4	91-T-3300-1	3.47	2.84	2.36	91-T-3300-6	.....	3.92	3.27	91-T-3303-9	1.87	1.53	1.28
5	91-T-3360-1	3.54	2.89	2.42	91-T-3360-6	.....	3.99	3.33	91-T-3363-9	2.04	1.66	1.39
6	91-T-3400-1	3.89	3.17	2.65	91-T-3400-6	$4.89	4.01	3.34	91-T-3403-9	2.06	1.68	1.41
7	91-T-3475-1	3.93	3.21	2.68	91-T-3475-6	5.08	4.16	3.47	91-T-3478-9	2.22	1.82	1.51
12	91-T-3635	6.54	5.34	4.46	91-T-3635-6	9.26	7.58	6.31	91-T-3638-9	4.99	4.08	3.40

★LARGER QUANTITY PRICES ON REQUEST

FOR INDUSTRIAL ELECTRONIC EQUIPMENT AND PARTS, WE CAN SUPPLY ALL YOUR REQUIREMENTS,

OFFERING COMPLETE LINE WITH UP-TO-DATE STOCK, FAST DELIVERY AND INDUSTRIAL QUANTITY CONVENIENCE. AS NEW PRODUCTS ARE DEVELOPED, WE WILL OBTAIN THEM FOR YOUR IMMEDIATE AVAILABILITY.

WRITE FOR FULL INFORMATION ON NEW OR UNLISTED ITEMS.

BUNKER RAMO AMPHENOL MS Connectors

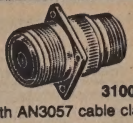
3108B

3108A

3106B

3106A

3102A


3101A

3100A

Meet current MIL-C-5015 specifications; interchangeable with units made to meet previous specs. **Finish:** Cadmium-plated aluminum with olive drab chromate conversion coating; non-reflective, corrosion-resistant. **Inserts:** Molded diallyl phthalate; offers dimensional stability, high insulation resistance, high arc resistance. **Contacts:** Non-rotating, silver-plated; pre-tinned solder pockets. **Coupling Rings:** Made from solid aluminum bar stock. Other MS/AN connectors for potting and pressurizing are available; write for complete literature.

Type 3100A: Wall receptacle with mounting flange; with AN3057 cable clamp.
Type 3101A: Cable receptacle. Provides for detachable splice in cable or conduit.
Type 3102A: Box receptacle that mounts on chassis or panel. For open type wiring.
Type 3106A: Straight plug with solid back shell.
Type 3106B: Same but with split back shell.
Type 3108A: Angle plug. Solid back shell.
Type 3108B: Same, but with split back shell.

Note: For W, X, Y or Z polarization, add 5¢ to price shown.

Insert	Net Each, Lots of 1-9* Shell Style						
	3100A	3101A	3102A	3106A	3106B	3108A	3108B
8S-01P	$12.21	$11.30	$ 6.75	$ 7.77	.....	.....	.....
8S-01S	12.21	11.30	6.75	7.77	.....	.....	.....
10S-02P	12.64	10.24	4.75	11.03	.....	.....	.....
10S-02S	12.83	10.48	4.98	11.11	.....	.....	.....
10SL-03P	4.89	6.53	3.75	.....	.....	.....	.....
10SL-03S	.....	.....	.....	5.57	.....	$ 9.77	$ 7.20
10SL-04P	4.59	6.24	3.45	.....	.....	.....	.....
10SL-04S	.....	.....	.....	5.28	.....	9.48	6.91
12-05P	6.02	6.75	3.75	6.04	.....	11.01	6.42
12-05S	6.42	7.24	4.26	6.50	.....	11.52	6.95
12S-03P	4.42	5.20	2.41	4.04	.....	9.93	5.40
12S-03S	4.47	5.26	2.55	4.32	.....	9.97	5.44
12S-06P	27.51	29.12	23.59	26.96	.....	38.15	29.36
12S-06S	29.32	30.57	25.12	28.81	.....	39.99	31.08
12SL-844S	.....	.....	.....	11.87	.....	17.88	.....
14S-01P	4.67	5.71	3.12	4.67	$5.69	9.77	5.26
14S-01S	4.81	5.85	3.14	4.81	5.71	9.83	5.40
14S-02P	5.20	5.69	3.10	4.65	5.67	9.73	5.22
14S-02S	5.65	6.02	3.34	5.00	6.00	9.97	5.65
14S-04P	8.71	10.64	5.42	8.71	10.52	18.52	9.81
14S-04S	8.87	11.03	5.81	8.87	10.99	18.92	10.13
14S-05P	5.20	6.18	3.51	5.20	6.12	10.18	5.69
14S-05S	5.40	6.46	3.79	5.40	6.42	10.44	5.87
14S-06P	5.40	6.46	3.79	5.40	6.42	10.44	5.87
14S-06S	5.44	6.57	3.85	5.44	6.48	10.56	6.02
14S-07P	4.67	5.71	3.12	4.67	5.69	9.77	5.26
14S-07S	4.81	5.85	3.14	4.81	5.71	9.83	5.40
14S-09P	4.45	5.44	2.75	4.45	5.42	9.52	5.00
14S-09S	4.47	5.65	2.81	4.47	5.44	9.54	5.16
16-07P	7.87	8.06	5.00	7.42	.....	14.11	9.22
16-07S	9.03	9.28	6.12	8.71	.....	15.23	10.36
16-09P	7.40	7.65	4.47	7.02	.....	13.66	8.75
16-09S	8.28	8.59	5.51	7.91	.....	14.44	9.63
16-10P	6.46	6.59	3.85	6.02	.....	11.97	7.63
16-10S	7.20	7.36	4.55	6.81	.....	12.66	8.32
16-11P	6.75	6.95	3.85	6.34	.....	12.87	8.03
16-11S	7.48	7.81	4.75	7.24	.....	13.77	8.87
16-12P	7.71	7.91	4.87	7.38	.....	13.81	9.03
16-12S	8.77	9.03	5.89	8.30	.....	14.99	10.16
16-13P	28.37	28.84	23.59	27.79	.....	39.24	30.57
16-13S	32.93	33.32	27.86	32.14	.....	43.52	35.20
16S-01P	6.00	6.48	3.81	5.40	6.91	12.60	6.46
16S-01S	6.59	7.04	4.42	6.00	7.40	13.19	7.02
16S-04P	5.89	6.42	3.51	5.20	6.95	13.25	6.38
16S-04S	6.12	6.75	3.63	5.51	7.24	13.56	6.57
16S-05P	5.67	6.12	3.41	5.00	6.57	12.19	6.02
16S-05S	5.71	6.30	3.63	5.20	6.67	12.32	6.18
16S-06P	11.15	12.21	7.14	10.13	12.91	23.98	12.09
16S-06S	11.15	12.21	7.14	10.13	12.91	23.98	12.09
16S-08P	5.85	6.40	3.75	5.22	6.73	12.34	6.30
16S-08S	6.02	6.57	3.85	5.42	6.95	12.62	6.48
18-01P	7.38	8.32	5.16	7.04	8.48	14.40	8.75
18-01S	8.06	9.03	5.69	7.81	9.07	15.01	9.44
18-03P	6.57	7.65	4.10	6.32	7.81	14.40	8.16
18-03S	8.16	9.22	5.57	7.81	9.34	15.97	9.67
18-04P	6.00	6.91	3.75	5.67	7.02	12.89	7.36
18-04S	6.48	7.36	4.04	6.12	7.40	13.48	7.85
18-05P	6.38	7.40	3.75	6.02	7.48	14.17	7.91
18-05S	7.26	8.26	4.55	6.81	8.30	15.09	8.77
18-08P	7.38	8.32	5.16	7.07	8.48	14.40	8.75
18-08S	7.87	8.75	5.65	7.63	9.03	14.93	9.32
18-09P	7.87	8.87	5.20	7.42	9.03	15.64	9.42
18-09S	8.56	9.50	5.85	8.06	9.63	16.29	10.13
18-10P	7.20	8.06	4.81	6.81	8.26	14.15	8.52
18-10S	7.87	8.75	5.65	7.63	9.03	14.93	9.32
18-11P	7.20	8.06	4.81	6.81	8.26	14.15	8.52
18-11S	7.38	8.32	5.16	7.04	8.48	14.40	8.75
18-12P	6.67	7.63	4.34	6.42	7.81	13.64	8.06
18-12S	7.20	8.06	4.81	6.81	8.26	14.15	8.52
18-13P	14.01	15.78	9.58	13.42	16.13	27.67	16.76
18-13S	15.78	17.66	11.15	15.23	17.97	29.36	18.52
18-16P	7.26	8.26	4.55	6.81	8.30	15.09	8.77
18-16S	8.56	9.50	5.85	8.06	9.63	16.29	10.13
18-19P	9.97	11.01	7.81	9.73	11.09	17.01	11.44
18-19S	8.26	9.07	5.85	7.85	9.28	15.17	9.54
18-20P	7.24	8.16	4.47	6.77	8.28	14.99	8.75
18-20S	7.65	8.71	5.00	7.26	8.77	15.46	9.22

Insert	Net Each, Lots of 1-9* Shell Style						
	3100A	3101A	3102A	3106A	3106B	3108A	3108B
18-22P	$ 6.57	$ 7.65	$ 4.10	$ 6.32	$ 7.81	$ 14.40	$ 8.16
18-22S	7.24	8.16	4.47	6.77	8.28	14.99	8.75
18-29P	12.64	14.36	7.93	11.85	14.44	26.25	15.27
18-29S	12.65	14.36	7.93	11.85	14.44	26.25	15.27
18-420P	22.45	26.06	21.19	28.84	31.95	43.25	32.10
18-420S	25.63	27.79	22.88	30.49	33.36	44.94	34.03
20-03P	7.91	8.54	4.87	8.77	9.93	17.15	10.44
20-03S	10.42	10.97	7.38	11.18	12.42	20.41	12.91
20-04P	7.40	7.99	4.67	8.28	9.32	15.74	9.77
20-04S	8.52	9.05	5.71	9.32	10.40	16.80	10.89
20-06P	12.99	13.97	7.69	14.40	16.52	29.16	17.62
20-06S	13.30	14.21	7.77	14.87	16.76	29.36	17.70
20-07P	7.40	7.99	4.67	8.28	9.32	15.74	9.77
20-07S	8.12	8.59	5.40	8.87	9.93	16.40	10.44
20-08P	16.56	17.66	11.15	18.13	20.25	32.77	21.19
20-08S	19.31	20.37	13.97	20.76	22.88	35.28	23.82
20-11P	18.52	19.39	12.99	20.01	21.86	34.57	22.96
20-11S	28.33	29.32	22.96	29.71	31.87	44.50	32.77
20-14P	17.62	18.41	12.09	18.96	20.84	33.44	21.82
20-14S	22.45	23.59	17.11	23.98	26.06	38.54	26.96
20-15P	8.28	8.71	5.44	9.05	9.97	16.48	10.56
20-15S	11.18	11.71	8.48	11.99	13.05	19.52	13.54
20-16P	8.32	8.75	5.65	9.07	10.03	16.58	10.62
20-16S	8.85	9.34	6.12	9.71	10.64	17.11	11.11
20-17P	9.22	9.67	6.04	10.13	11.15	18.48	11.73
20-17S	11.15	11.73	8.06	11.99	13.21	20.49	13.77
20-18P	9.67	10.34	6.57	10.58	11.73	18.96	12.28
20-18S	10.69	11.18	7.65	11.64	12.75	19.98	13.15
20-19P	10.34	10.89	7.24	11.11	12.28	19.60	12.79
20-19S	12.54	13.15	9.50	13.38	14.62	21.84	15.13
20-21P	15.70	16.56	10.24	17.11	19.15	31.87	20.25
20-21S	16.52	17.62	11.11	18.01	20.01	32.61	20.84
20-22P	10.65	11.15	7.48	11.44	12.58	19.88	13.21
20-22S	12.54	13.15	9.50	13.38	14.62	21.84	15.13
20-23P	8.97	9.50	5.85	9.73	10.97	18.17	11.52
20-23S	9.73	10.36	6.75	10.65	11.79	19.05	12.34
20-24P	16.07	16.84	10.52	17.62	19.39	32.10	20.41
20-24S	19.90	20.76	14.40	21.35	23.27	35.79	24.06
20-27P	8.52	9.05	5.71	9.32	10.40	16.80	11.52
20-27S	9.34	9.83	6.59	10.03	11.11	17.62	10.64
20-29P	9.28	9.73	6.48	9.95	11.03	17.56	11.52
20-29S	10.24	10.69	7.40	11.03	12.13	18.52	12.60
20-33P	10.34	10.87	7.24	11.11	12.28	19.60	12.79
20-33S	10.58	11.11	7.42	11.44	12.54	19.80	13.15
22-01P	9.50	9.93	5.73	9.50	10.87	18.56	11.52
22-01S	11.01	11.52	7.40	11.01	12.46	20.27	13.21
22-02P	10.16	10.58	6.42	10.16	11.64	19.41	12.28
22-02S	12.34	12.79	8.75	12.34	13.79	21.55	14.44
22-04P	18.17	19.07	11.85	18.17	20.76	34.34	21.86
22-04S	20.64	21.47	14.36	20.64	23.23	36.69	24.53
22-05P	16.91	17.97	10.64	16.91	19.47	33.32	20.76
22-05S	17.11	18.01	10.99	17.11	19.54	33.12	20.84
22-08P	14.36	15.23	7.93	14.36	16.84	30.49	18.13
22-08S	18.13	18.96	11.77	18.13	20.64	34.26	21.82
22-09P	15.15	15.78	8.71	15.15	17.66	31.08	18.92
22-09S	19.15	20.01	12.87	19.15	21.66	35.24	22.96
22-10P	15.15	15.78	8.71	15.15	17.66	31.08	18.92
22-10S	15.70	16.52	9.42	15.70	18.17	31.87	19.39
22-11P	13.97	14.87	7.69	13.97	16.52	30.10	17.70
22-11S	15.15	15.78	8.71	15.15	17.66	31.08	18.92
22-12P	18.17	19.07	11.85	18.17	20.76	34.34	21.86
22-12S	21.19	21.82	14.87	21.19	23.74	37.32	24.88
22-13P	16.84	17.70	10.52	16.84	19.39	32.97	20.64
22-13S	18.92	19.47	12.60	18.92	21.35	34.93	22.45
22-14P	10.40	10.69	7.04	10.40	11.64	18.66	12.28
22-14S	11.83	12.28	8.59	11.83	13.19	20.13	13.81
22-15P	18.01	18.92	11.73	18.01	20.53	34.18	21.66
22-15S	21.86	22.88	15.70	21.86	24.61	38.03	25.82
22-16P	10.87	11.18	7.24	10.87	12.28	20.09	12.91
22-16S	11.01	11.52	7.40	11.01	12.46	20.27	13.21
22-18P	9.63	10.16	6.02	9.63	11.11	18.94	11.79
22-18S	9.73	10.34	6.12	9.73	11.18	19.05	11.93
22-19P	10.18	10.62	6.95	10.18	11.52	18.39	12.17
22-19S	10.40	10.69	7.04	10.40	11.64	18.66	12.28
22-20P	9.93	10.42	6.34	9.93	11.44	19.19	12.19
22-20S	10.42	10.69	6.77	10.42	11.87	19.70	12.54
22-22P	11.71	12.19	8.03	11.71	13.15	21.04	13.79

★LARGER QUANTITY DISCOUNTS SHOWN ON LAST PAGE OF THIS SERIES

Insert	Net Each, Lots of 1-9* Shell Style						
	3100A	3101A	3102A	3106A	3106B	3108A	3108B
22-22S	14.72	15.13	11.01	14.72	16.09	23.96	16.86
22-23P	11.15	11.71	7.48	11.15	12.58	20.49	13.36
22-23S	14.30	14.85	10.69	14.30	15.82	23.57	16.56
22-26P	18.60	19.39	12.52	18.60	21.31	34.73	22.37
22-26S	21.19	21.82	14.87	21.19	23.74	37.32	24.88
22-27P	11.01	11.52	7.40	11.01	12.46	20.27	13.21
22-27S	11.87	12.34	8.26	11.87	13.36	21.09	14.11
22-28P	18.41	19.15	12.09	18.41	20.84	34.42	22.17
22-28S	25.43	26.25	19.07	25.43	27.86	41.25	29.16
22-34P	16.84	17.70	10.52	16.84	19.39	32.97	20.64
22-34S	17.66	18.41	11.15	17.66	20.25	33.75	21.35
24-02P	10.48	10.56	6.67	10.64	11.34	19.56	11.83
24-02S	12.66	12.70	8.87	12.81	13.25	21.76	13.99
24-05P	13.05	13.15	8.77	13.25	15.91	23.25	14.62
24-05S	14.72	14.74	10.42	14.91	17.54	24.86	16.25
24-06P	21.31	21.35	13.74	21.58	26.25	38.97	23.94
24-06S	27.67	27.79	20.37	27.98	32.61	45.45	30.30
24-07P	12.17	12.19	8.32	12.32	14.72	21.17	13.54
24-07S	13.15	13.19	9.32	13.32	15.64	22.17	14.46
24-09P	20.25	20.37	12.83	20.53	25.04	37.87	22.88
24-09S	22.37	22.45	15.15	22.88	27.28	40.07	25.04
24-10P	13.07	17.03	12.75	17.15	19.80	27.14	18.48
24-10S	19.56	19.60	15.97	19.70	22.21	29.63	21.05
22-11P	12.89	13.05	9.22	13.19	15.50	22.11	14.30
24-11S	16.44	16.48	12.66	16.64	18.96	25.53	17.86
24-12P	20.29	26.49	18.96	26.76	31.36	43.99	29.12
24-12S	$31.55	$31.59	$24.02	$31.95	$36.62	$49.37	$34.26
24-16P	21.82	21.86	14.40	22.25	26.88	39.60	24.61
24-16S	25.89	25.63	18.13	25.94	30.49	43.25	28.26
24-19P	22.68	22.88	15.27	23.04	27.67	40.42	25.43
24-19S	24.02	24.06	16.76	24.61	29.16	41.95	26.88
24-20P	12.19	12.24	7.87	12.34	14.99	22.23	13.70
24-20S	12.28	12.34	8.03	12.46	15.13	22.43	13.79
24-21P	21.19	21.31	13.70	22.88	24.29	38.66	23.82
24-21S	22.68	22.88	15.27	23.04	27.67	40.42	25.43
24-22P	13.79	13.81	9.52	14.11	16.74	24.08	15.38
24-22S	17.09	17.15	12.87	17.35	19.98	27.33	18.60
24-24P	14.11	14.15	9.73	14.19	16.88	24.25	15.54
24-24S	15.82	15.91	11.64	16.03	18.60	25.98	17.35
24-27P	18.13	18.17	10.64	18.52	23.04	35.76	20.76
24-27S	18.60	18.92	11.15	19.07	23.74	36.58	21.35
24-28P	12.70	12.79	9.03	12.89	15.17	21.84	14.15
24-28S	14.40	14.46	10.62	14.60	16.95	23.57	15.74
28-01P	26.06	28.61	19.07	26.96	29.36	44.11	29.63
28-01S	33.32	35.75	26.29	34.26	36.65	51.41	36.85
28-02P	13.36	14.85	9.34	13.83	15.29	23.70	15.46
28-02S	14.19	15.68	10.34	14.85	16.25	24.76	16.31
28-03P	23.98	26.57	16.91	24.88	27.28	42.19	27.67
28-03S	25.59	27.98	18.52	26.49	28.84	43.52	29.16
28-05P	23.23	25.82	16.17	24.02	26.57	41.21	26.88
28-05S	26.57	29.16	19.47	27.51	29.83	44.70	30.18
28-06P	16.25	17.58	12.24	16.76	18.15	26.59	18.33
28-06S	18.15	19.66	14.15	18.60	20.09	28.55	20.25
28-08P	23.23	25.82	16.25	24.02	26.57	41.21	26.88
28-08S	23.98	26.57	16.91	24.88	27.28	42.19	27.67
28-09P	24.61	27.04	17.66	25.59	27.86	42.70	28.26

Insert	Net Each, Lots of 1-9* Shell Style						
	3100A	3101A	3102A	3106A	3106B	3108A	3108B
28-09S	26.88	29.36	19.90	27.79	30.18	44.94	30.49
28-10P	28.41	30.65	22.09	29.20	31.44	44.70	31.51
28-10S	35.75	38.11	29.59	36.58	43.48	52.12	38.97
28-11P	13.54	14.85	9.93	13.97	15.23	22.84	15.33
28-11S	16.40	17.64	12.79	16.89	18.09	25.76	18.31
28-12P	13.99	15.33	10.48	14.54	15.74	23.33	15.91
28-12S	16.40	17.64	12.79	16.89	18.09	25.76	18.31
28-13P	17.35	18.84	13.36	17.90	19.23	27.82	19.56
28-13S	20.11	21.55	16.09	20.58	22.11	30.57	22.15
28-15P	15.74	17.09	12.19	16.27	17.56	25.02	17.62
28-15S	18.11	19.52	14.60	18.76	19.86	27.51	20.09
28-16P	13.85	15.23	10.40	14.40	15.64	23.19	15.74
28-16S	13.99	15.33	10.48	14.54	15.74	23.33	15.91
28-17P	22.96	25.59	16.05	23.94	26.29	40.97	26.29
28-17S	24.61	27.04	17.66	25.59	27.86	42.70	28.26
28-18P	12.79	14.19	9.14	13.36	14.74	23.25	14.91
28-18S	13.83	15.46	9.93	14.44	15.91	24.37	16.03
28-19P	22.45	25.04	15.58	23.59	25.94	40.74	26.25
28-19S	27.28	29.83	20.41	28.33	30.57	45.48	31.04
28-20P	13.64	14.99	9.97	14.15	15.33	22.96	15.50
28-20S	15.17	16.44	11.56	15.64	16.89	24.47	17.01
28-21P	16.27	17.58	12.66	16.74	17.93	25.53	18.09
28-21S	18.39	19.74	14.93	18.94	20.17	27.71	20.31
32-05P	18.94	20.25	14.44	22.13	22.21	.....	23.47
32-05S	21.04	22.15	16.56	24.21	24.49	.....	25.55
32-06P	18.11	19.37	14.27	21.04	21.17	.....	22.23
32-06S	25.82	27.04	21.92	28.75	28.88	.....	29.96
32-07P	33.44	35.75	25.94	39.24	39.56	.....	41.25
32-07S	42.70	44.94	34.97	48.39	48.59	.....	50.67
32-08P	18.84	20.03	14.93	21.70	21.84	.....	22.86
32-08S	19.15	20.29	15.17	21.98	22.15	.....	23.17
32-13P	17.42	18.76	13.05	20.58	20.86	.....	21.94
32-13S	19.88	21.19	15.50	23.17	23.31	.....	24.43
32-17P	41.17	43.48	33.44	46.90	47.13	.....	49.13
32-17S	45.09	47.37	37.44	50.74	50.98	.....	53.06
32-414P	29.18	30.51	24.84	32.38	32.55	.....	33.73
32-414S	38.99	40.28	34.48	42.21	42.33	.....	43.52
36-01P	34.57	35.71	23.23	39.24	40.07	.....	42.70
36-01S	43.29	44.50	31.95	47.92	48.78	.....	51.41
36-05P	61.10	62.16	49.49	65.50	66.44	.....	69.11
36-05S	72.37	73.31	60.87	76.72	77.55	.....	80.37
36-06P	34.77	35.30	28.10	37.32	37.91	.....	39.46
36-06S	42.54	43.19	35.93	45.09	45.72	.....	47.17
36-07P	27.47	27.96	20.88	29.94	30.57	.....	32.08
36-07S	30.28	30.87	23.66	32.91	33.46	.....	34.91
36-08P	46.11	47.21	34.73	50.74	51.61	.....	54.16
36-08S	49.41	50.55	37.99	53.92	54.94	.....	57.38
36-09P	54.94	56.08	43.48	59.57	60.48	.....	62.83
36-09S	66.56	67.74	55.22	71.11	71.97	.....	74.64
36-10P	23.33	23.86	17.56	25.71	26.16	.....	27.51
36-10S	25.25	25.78	19.37	27.55	28.10	.....	29.34
36-15P	38.54	39.79	27.20	43.25	44.11	.....	46.78
36-15S	42.38	43.48	31.04	47.02	47.92	.....	50.55
36-403P	54.94	56.08	43.48	59.57	60.48	.....	62.83
36-403S	73.62	74.88	62.32	78.25	79.35	.....	81.79

Pioneer-Standard

★LARGER QUANTITY DISCOUNTS SHOWN ON FOLLOWING PAGE

PRICES LISTED ARE FOR GUIDANCE ONLY

CAP AND CHAIN ASSEMBLIES

Fits MS and 97 type receptacles and plugs. Provides protection against live circuits, dirt and dust when connector is not in use.

Cap and Chain			Cap Only, No Chain		
Amphenol Number	Shell Size	Net Ea., 1-9*	Amphenol Number	Shell Size	Net Ea., 1-9*
9760-10P	10S, SL	$1.46	9760-10PG	10S, SL	$1.00
9760-12P	12, S, SL	2.89	9760-12PG	12, S, SL	1.20
9760-14P	14, 14S	1.85	9760-14PG	14, 14S	1.39
9760-16P	16, 16S	2.14	9760-16PG	16, 16S	1.64
9760-18P	18	2.65	9760-18PG	18	1.66
9760-20P	20	4.77	9760-20PG	20	1.73
9760-22P	22	4.93	9760-22PG	22	2.22
9760-24P	24	5.90	9760-24PG	24	2.68
9760-28P	28	3.64	9760-28PG	28	2.81
9760-32P	32	9.36	9760-32PG	32	4.21
9760-36P	36	6.70	9760-36PG	36	4.61

CABLE CLAMPS

Sturdy Amphenol AN3057 Cable Clamp supports cable or wire at the plug or receptacle, prevents twisting or pulling at soldered connections.

Amphenol Number	Shell Size	Net Ea. 1-9*	Amphenol Number	Shell Size	Net Ea. 1-9*
AN3057-3	8S, 10S	$2.21	AN3057-16	24, 28	$2.36
AN3057-4	12, 12S	2.25	AN3057-20	32	3.33
AN3057-6	14, 14S	2.29	AN3057-24	36	3.42
AN3057-8	16, 16S	2.46	AN3057-28	40	3.77
AN3057-10	18	2.07			
AN3057-12	20, 22	2.31			

†Step-down type. #Prices on request.

MS3057A CABLE CLAMPS & AN3420 BUSHING

Clamp for rubber-covered cables protected by tubing. Both halves float so cable is always centered for maximum strain relief. With unjacketed cable or wire bundles, use bushing. Shell sizes 16 and larger require two "telescoping" bushings (one corresponding size AN3420 with one smaller).

MS3057A Cable Clamps				AN3420 Bushings			
Amph. No. 97-3057-	MS No. MS-3057-	Shell Size	Net Ea., Lots 1-9*	Amph. No. 9779-513-	MS No. An-3420-	I.D., In.	Net Ea., Lots 1-9*
.....	.....	.....	.....	3	3	.130	$0.281
1004	4A	10SL, 12S	$1.84	4	4	.220	.325
1007	6A	14, 14S	1.92	6	6	.312	.341
1008	8A	16, 16S	2.06	8	8	.437	.281
1010	10A	18	1.74	10	10	.562	.281
1012	12A	20, 22	1.74	12	12	.625	.325
1016	16A	24, 28	1.87	16	16	.750	.416
10-20	20A	32	2.72	20	20	.937	.655
10-24	24A	36	2.72	24	24	1.250	.655

★QUANTITY DISCOUNTS FOR MS TYPES

Quantity In Lots	MS Connector		MS Fittings
	Discount	Multiplier	
10-49	−23%	0.770	Discounts vary with each item—complete price list on request
50-99	−31%	0.690	
100-999	−38%	0.620	

MINIATURE AN 165 SERIES CONNECTORS

Economical, quality miniature connectors feature quick mate and disconnect with reliable bayonet coupling. Pressure- and weather-proof. **Finish:** Aluminum shells with clear conversion seal. **Construction:** Internal rubber gasket cable clamp except those with potting construction. **Inserts:** Hard dielectric, rubber faced for environmental capability. Available in eight insert configurations with from 5-24 contacts in two shell sizes. **Contacts:** Gold over silver-plated; available in X and W alternate positions. **Mounting:** Small receptacles mount in $^{13}/_{16}$" dia. hole, four .125 screw holes on $^{25}/_{32}$" centers. Large receptacles mount in $1\,^{1}/_{16}$" hole with four .125 screw holes on $1\,^{5}/_{16}$" centers. **Size:** Small plugs, $2\,^{1}/_{16}$" lg. × $^{57}/_{64}$" dia.; large plugs, $2\,^{1}/_{16}$" lg. × $1\,^{9}/_{64}$" dia. **Rated:** 500 volts rms except as otherwise indicated. **Weight:** 3 oz., average.

SMALL SIZE: FIVE #20 CONTACTS

Rated 600 volts rms.

	Pin Contacts			Socket Contacts		
Type	Amphenol Number 165-	Net Each, Lots of 1-9	10-49	Amphenol Number 165-	Net Each, Lots of 1-9	10-49
Plug	33	$13.64	$10.36	34	$16.98	$12.90
Recept.*	35	9.27	7.04	36	12.59	9.56
Plug†	33-1000	8.59	6.53	34-1000	11.89	9.03
Recept.†	35-1000	23.83	18.10	36-1000	27.52	20.90
Recept.	35-1002	16.75	12.72	36-1003	20.03	15.22

SMALL SIZE: NINE #20 CONTACTS

Plug	13	$14.10	$10.71	14	$18.75	$14.24
Recept.*	15	10.02	7.61	16	14.61	11.10
Plug	13-1000	9.29	7.05	14-1000	13.90	10.56
Recept.	15-1000	24.64	18.72	16-1000	30.02	22.80
Recept.	15-1002	17.43	13.24	16-1003	22.08	16.77

SMALL SIZE: EIGHT #20 AND ONE SHIELDED CONTACTS

Recept.*	73	$16.04	$12.18	83	$27.60	$20.96
Plug	82	20.06	15.24	61-1008	31.71	24.09
Recept.†	73-1000	31.30	23.77	83-1000	43.97	33.40
Plug†	82-1000	15.32	11.64	61	26.90	20.43
Recept.	73-1001	23.56	17.89	83-1001	35.09	26.66

SMALL SIZE: TWELVE #20 CONTACTS

Plug	9	$16.04	$12.19	10	$21.30	$16.18
Recept.*	11	12.03	9.14	12	17.09	12.98
Plug†	9-1000	11.28	8.57	10-1000	16.49	12.52
Recept.†	11-1000	26.55	20.17	12-1000	32.96	25.03
Recept.	11-1002	19.45	14.77	12-1002	24.61	18.69

LARGE SIZE: FOURTEEN #16 CONTACTS

Plug	29	$21.42	$16.27	30	$27.34	$20.76
Recept.*	31	13.33	10.12	32	18.31	13.91
Plug†	29-1000	12.83	9.75	30-1000	18.81	14.29
Recept.†	31-1000	66.43	50.45	32-1000	73.82	56.07
Recept.	31-1003	55.79	42.38	32-1006	63.24	48.04

LARGE SIZE: NINETEEN #20 AND ONE SHIELDED CONTACTS

Recept.*	84	$23.56	$17.89	85	$37.68	$28.62
Plug	86	31.46	23.90	62-1007	47.75	36.27
Recept.†	84-1000	78.40	59.54	85-1000	92.88	70.55
Plug†	86-1000	23.03	17.49	62	40.95	31.11
Recept.	84-1001	67.91	51.59	85-1001	82.48	62.65

LARGE SIZE: TWENTY-FOUR #20 CONTACTS

Plug	25	$28.62	$21.74	16	$33.91	$25.77
Recept.*	27	20.48	15.54	28	25.69	19.51
Plug†	25-1000	20.02	15.20	26-1000	25.34	19.25
Recept.†	27-1000	74.80	56.81	28-1000	81.31	61.77
Recept.	27-1005	64.20	48.77	28-1003	70.73	53.72

*Square flange. †Potting construction.

BUNKER RAMO AMPHENOL MS/AN Insert Contacts

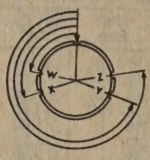
MANUFACTURED IN STRICT ACCORDANCE TO MIL-C-5015D SPECIFICATIONS

Contacts are non-rotating type with solder pockets pre-tinned. Inserts are all male or female; feature dimensional stability and high insulation and arc resistance. Sizes 20 and up have thicker inserts. Coupling rings made of solid aluminum bar stock for high strength. Number, in parenthesis, (1), (2), etc., indicates service voltage rating, per table below. Following letters (W,X,Y, and/or Z) give alternate pin positioning available per diagram, right.

CURRENT RATING

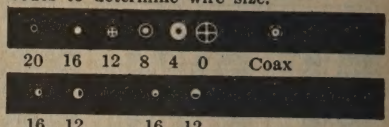
Contact Size	20	16	12	8	4	0
Amperes	10	22	41	73	135	245

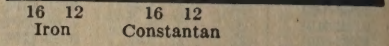
ALTERNATE POSITIONS



WIRE SIZE CODE

Wire size indicated by contact marking in diagrams. Compare diagrams with these codes to determine wire size.



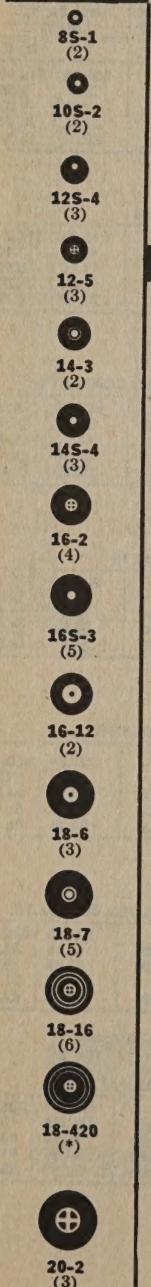


SERVICE VOLTAGE RATING

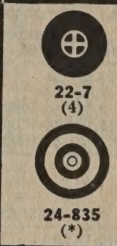
Where more than one rating is shown, (1,3) or (1-5) etc., some contacts have ratings different than other contacts; full information on request. (*) Indicates high voltage. (†) Thermocouple.

Key	(1)	(2)	(3)	(4)	(5)	(6)
Volts DC	250	700	1250	1750	2450	4200
Volts AC rms	200	500	900	1250	1750	3000

1 CONTACT



1 CONTACT



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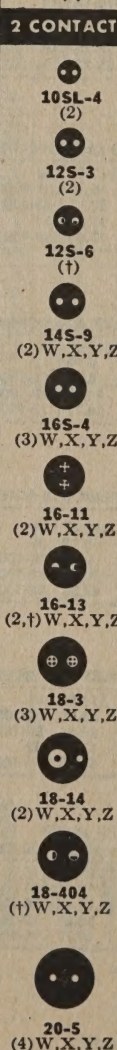

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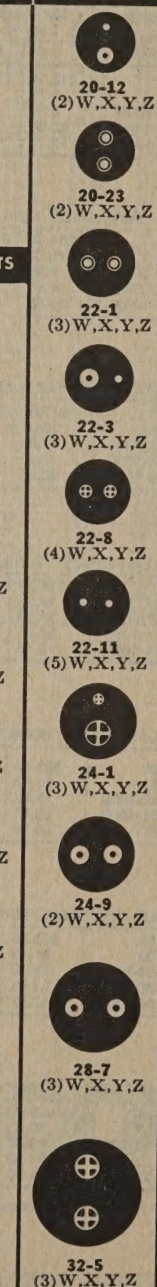

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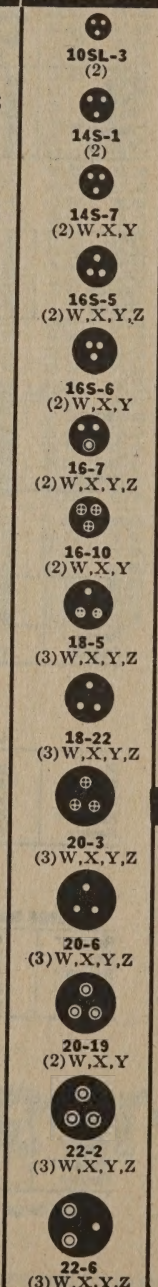
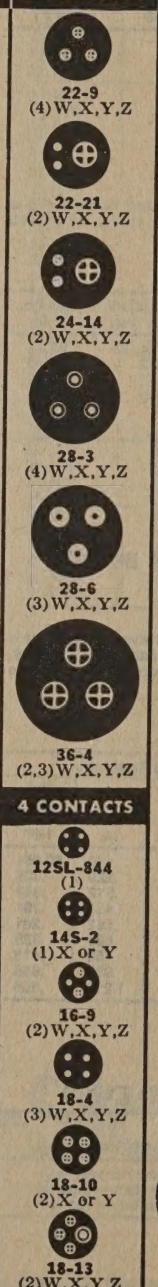
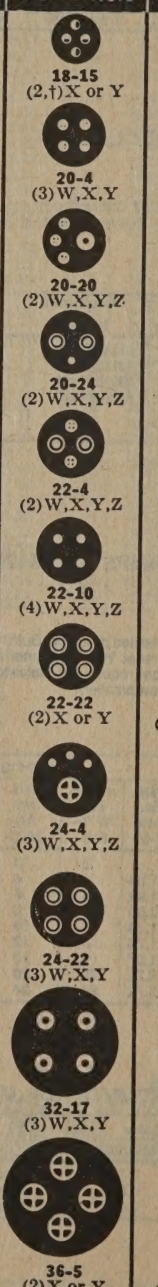


3 CONTACTS



4 CONTACTS

4 CONTACTS



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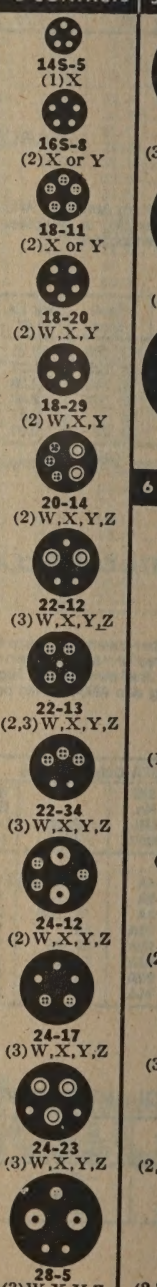
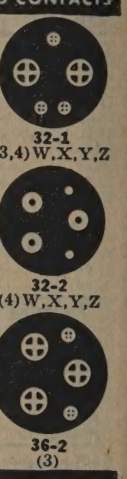
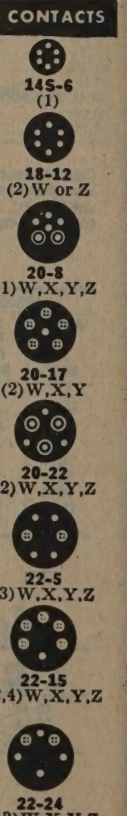


5 CONTACTS

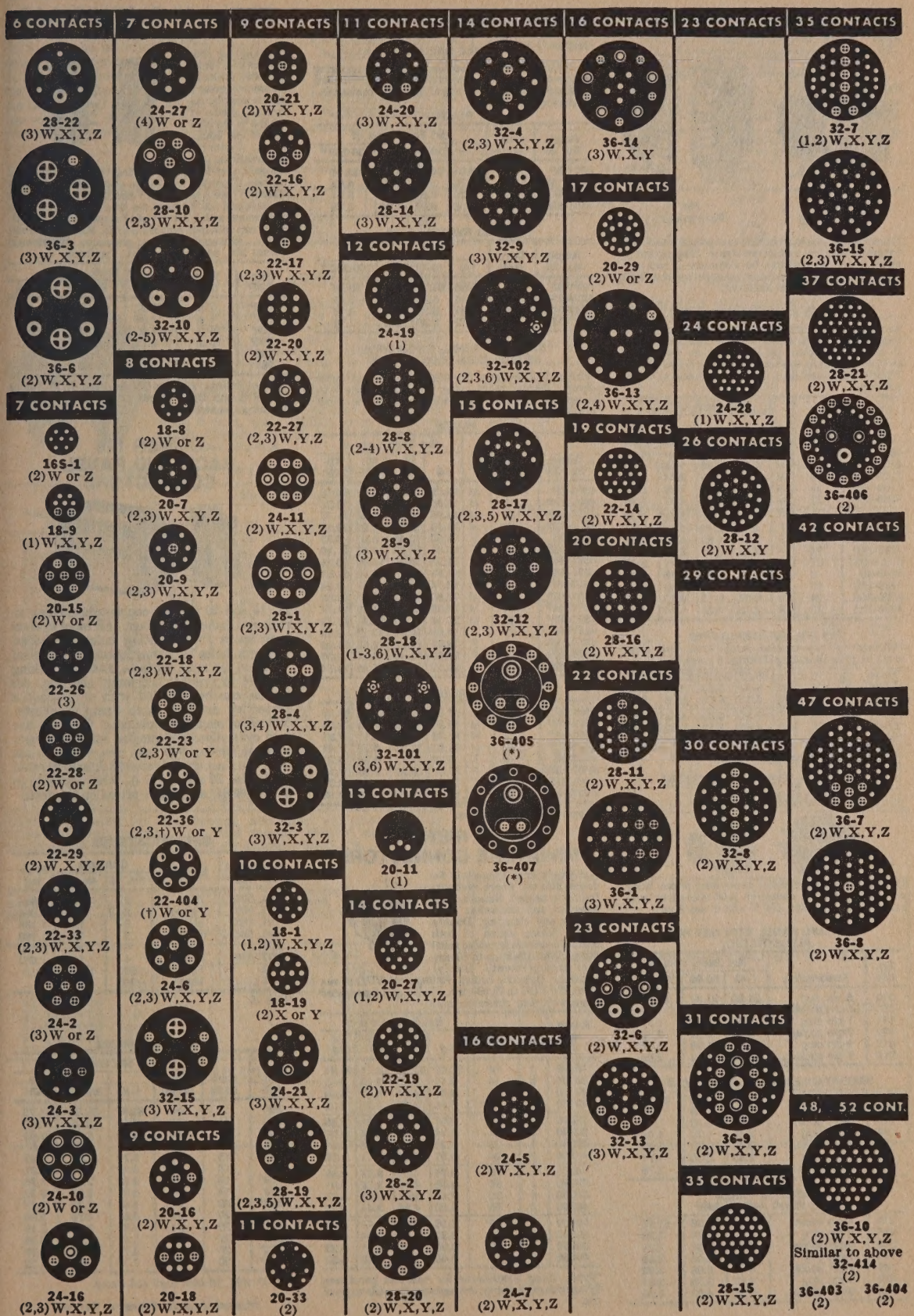


6 CONTACTS



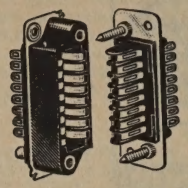
PRICES LISTED ARE FOR GUIDANCE ONLY

BUNKER RAMO AMPHENOL MS/AN Insert Contacts



BLUE RIBBON® CONNECTORS

Barrier Polarization



Pin Polarization

Patented gold plated ribbon contact provides self-wiping action with low contact resistance. Steel mounting plates with float bushings for alignment in rack and panel applications. Impact and moisture resistant, high quality diallyl phthalate dielectric.

BARRIER POLARIZATION TYPES

Requires rectangular panel cutout. Polarization and contact alignment by construction of dielectric barriers at end of connectors (26-182, -183), or by barrier thickness between contacts. **Rating:** 5 amps, 750 V. Parts 26-4200 are float mounted, all others, fixed positions.

Amph. No. 26-	Con.-tacts	*	Net Each, Lots of 1-9	10-49	50-99	100-249*
182	8	M	$2.96	$2.50	$2.04	$1.84
4100-8P	8	M	2.30	1.94	1.58	1.43
4100-16P	16	M	4.12	3.48	2.84	2.56
4100-24P	24	M	5.21	4.40	3.59	3.24
4100-32P	32	M	6.33	5.35	4.37	3.93
183	8	F	4.50	3.80	3.10	2.79
4100-8S	8	F	4.42	3.73	3.05	2.74
4100-16S	16	F	6.61	5.59	4.56	4.11
4100-24S	24	F	8.02	6.78	5.53	4.98
4100-32S	32	F	9.74	8.22	6.71	6.05
4200-8S	8	F	3.16	2.67	2.18	1.96
4200-16S	16	F	4.91	4.15	3.38	3.05
4200-24S	24	F	6.07	5.13	4.19	3.77
4200-32S	32	F	7.45	6.29	5.14	4.63

PIN POLARIZATION TYPES

Polarized by two tapered posts which also align contacts prior to mating. **Rating:** 5 amps, 750 V.

159-16	16	M	$5.23	$4.42	$3.61	$3.25
159-24	24	M	6.39	5.40	4.40	3.97
159-32	32	M	8.17	6.90	5.63	5.07
190-16	16	F	6.55	5.53	4.52	4.07
190-24	24	F	8.44	7.13	5.82	5.24
190-32	32	F	10.02	8.47	6.91	6.23

*Type: M-Male. F-Female.

MINIATURE HEXAGON CONNECTORS

Quality miniature connectors at economy prices. Body of diallyl phthalate dielectric; gold-over-silver contacts. Rated 7.5 amps, 500 V rms at sea level.

RACK AND PANEL WITH HEX NUT (ILLUSTRATED)

No. 126-	Description	Net Each, Lots of 1-49	50-99	100-249
010	5-pin plug	$1.90	$1.37	$1.14
001	5-pin socket	2.76	1.99	1.66
191	7-pin plug	2.28	1.65	1.37
192	7-pin socket	3.48	2.52	2.10
012	9-pin plug	2.75	1.98	1.65
013	9-pin socket	4.37	3.16	2.63

RECEPTACLES WITH LOCKING CLIP

214	4-pin plug	$2.11	$1.52	$1.27
216	5-pin plug	1.98	1.43	1.19
218	5-pin socket	2.91	2.10	1.75
197	7-pin plug	2.46	1.78	1.48
198	7-pin socket	3.73	2.70	2.25
219	9-pin plug	2.85	2.06	1.71
221	9-pin socket	4.57	3.31	2.75

CABLE TO PANEL WITH HOOD AND CLAMP

215	4-pin socket	$3.29	$2.38	$1.98
217	5-pin plug	3.79	2.74	2.28
223	5-pin socket	4.67	3.37	2.81
195	7-pin plug	4.24	3.06	2.55
196	7-pin socket	5.51	3.98	3.32
220	9-pin plug	4.67	3.38	2.81
222	9-pin socket	6.35	4.59	3.82

KEYED SHELLS

For rack and panel or module applications requiring additional keying or connector protection. Notched keys in shell provide a variety of positioned connectors. Rated 5 amps, 800 V.

PLUGS

Amph. No. 26-	Con.-tacts	Net Each, Lots of 1-9	10-49	50-99	100-249★
4101-8P	8	$5.08	$4.29	$3.50	$3.16
4101-16P	16	7.78	6.57	5.36	4.83
4101-24P	24	9.24	7.80	6.37	5.74
4101-32P	32	10.68	9.02	7.36	6.63

MATING RECEPTACLES

Amph. No. 26-	Con.-tacts	Net Each, Lots of 1-9	10-49	50-99	100-249★
4201-8S	8	$5.80	$4.90	$4.00	$3.60
4201-16S	16	8.10	6.84	5.58	5.03
4201-24S	24	9.92	8.38	6.84	6.16
4201-32S	32	11.72	9.90	8.08	7.28

CABLE TO PANEL TYPES WITH KEYED LATCH-LOCK SHELLS

With end cable clamp (26-4301) or right angle cable clamp (26-4501) on the plug; both units mate with receptacle 26-4401. With notched keying to avoid cross-mating.

PLUGS

Amph. No. 26-	Con-tacts	*	Net Each, Lots of 1-9	10-49	50-99	100-249*
4301-8P	8	M	13.08	11.05	$9.02	$8.13
4301-16P	16	M	16.65	14.06	11.48	10.34
4301-24P	24	M	18.95	16.00	13.06	11.77
4301-32P	32	M	21.19	17.90	14.61	13.16
4301-8S	8	F	15.90	13.43	10.96	9.87
4301-16S	16	F	18.01	15.22	12.42	11.19
4301-24S	24	F	21.30	18.00	14.69	13.23
4301-32S	32	F	23.36	19.73	16.10	14.51
4501-8P	8	M	13.74	11.61	9.47	8.54
4501-16P	16	M	16.60	14.02	11.45	10.31
4501-24P	24	M	18.95	16.00	13.06	11.77
4501-32P	32	M	21.19	17.90	14.61	13.16
4501-8S	8	F	14.69	12.41	10.13	9.12
4501-16S	16	F	18.01	15.22	12.42	11.19
4501-24S	24	F	20.61	17.41	14.21	12.80
4501-32S	32	F	22.12	18.68	15.25	13.74

MATING RECEPTACLES

4401-8P	8	M	$7.67	$6.48	$5.29	$4.77
4401-16P	16	M	10.24	8.65	7.06	6.36
4401-24P	24	M	11.76	9.94	8.11	7.31
4401-32P	32	M	11.93	10.08	8.23	7.41
4401-8S	8	F	9.20	7.77	6.34	5.71
4401-16S	16	F	11.57	9.78	7.98	7.19
4401-24S	24	F	13.38	11.31	9.23	8.31
4401-32S	32	F	15.37	12.98	10.60	9.55

*Type: M-Male, F-Female.

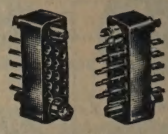
MICRO RIBBON® MINIATURE CONNECTORS

Extremely small connectors for dependable use where miniaturization is needed. Smooth, easy insertion and extraction. Self-wiping and cleaning. Double sided, flexing action of both contact members for added reliability. Available in up to 50-contact arrangements. Diallyl phthalate dielectric bodies. **Rating:** 700 VDC at sea level, 200 VDC at 70,000 feet. Shells, cadmium-plated brass with clear chromate finish.

Amph. No. 57-	*	Con-tacts	Net Each, Lots of 1-9	10-49	50-99	100-249*
10140	†	14	$3.07	$2.60	$2.11	$1.91
20140	‡	14	3.11	2.65	2.15	1.93
30140	§	14	5.61	4.77	3.87	3.49
40140	#	14	3.76	3.20	2.59	2.33
10240	†	24	4.07	3.47	2.81	2.53
20240	‡	24	4.14	3.52	2.86	2.57
30240	§	24	6.30	5.36	4.34	3.91
40240	#	24	4.51	3.84	3.11	2.80
10360	†	36	4.74	4.04	3.27	2.95
20360	‡	36	4.85	4.13	3.35	3.01
30360	§	36	7.65	6.51	5.27	4.75
40360	#	36	4.98	4.24	3.44	3.10
10500	†	50	6.15	5.24	4.24	3.82
20500	‡	50	6.30	5.36	4.34	3.92
30500	§	50	8.56	7.28	5.91	5.32
40500	#	50	6.46	5.50	4.45	4.02

*Type: †Plug: ‡receptacle: for rack and panel use. §Plug with cable clamp; #receptacle; for cable to panel use.

MINIATURE RECTANGULAR CONNECTORS

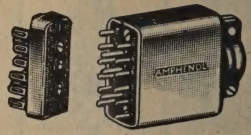


Rectangular connectors of a miniature size, intended for use wherever a circuit must be rerouted, made or broken in the interior of the equipment. Contacts and polarizing pins are gold over silver-base plating; will not tarnish or corrode. Dielectric bodies are of melamine. **Voltage Rating:** Types A and B, 700 V rms at sea level between contacts and ground with a current of 17 amps; Type C and D, 600 V rms with a current of 7.5 amps. **Insertion Force:** 15 lbs., minimum to 40 lbs., maximum. **Withdrawal Force:** 1lb., minimum to 4 lbs., maximum.

No. 126-	Con-tacts	Net Each, Lots of 1-49	50-99	100-249
016*	7 p.	$3.27	$2.37	$1.97
017*	7 s.	4.65	3.36	2.80
204*	15 p.	4.90	3.54	2.95
205*	15 s.	8.74	6.32	5.27
188†	34 p.	10.03	7.25	6.04
187†	34 s.	15.53	11.23	9.36

Current Rating: *17 amps (Types A and B). †7.5 amps (Types C and D). **Prices on request. **Contacts:** p.-pins; s.-sockets.

SERIES 126 RACK AND PANEL CONNECTORS



11, 15 and 20 contact connectors for use on rack and panel mountings. All have eyelets inserted in the mounting holes for added strength, holes for wiring instead of the usual hooks on the male contacts, and interlocking barriers to prevent accidental shorting. All models can be supplied with or without a protective can and cable clamp as shown. Molded of mica-filled phenolic. Contacts are gold over silver and molded into the insert. **Voltage Rating:** 900 volts rms, 60 Hz, at sea level. Contact size 12 rated 23 A; size 16 rated 13 A; size 20 rated 7.5 A. Also available to MIL-C-8384; specs and prices on request.

SPECIFICATIONS

Amphenol No. 126-	Description	Contacts No. 12	No. 20	Spacing
804, 809	mLe	2	9	.864
805, 808	Female	2	9	.864
151, 152	Male	3	12	1.188
150, 153	Female	3	12	1.188
806, 811	Male	4	16	1.620
807, 810	Female	4	16	1.620
812	Female	20*	.....	.....
813	Male	20*	.....	.....

*Size 16.

SERIES 126 PRICES

No. 126-	Con-tacts	Mtg. Screw	Net Each, Lots of 1-49	50-99	100-249
804*	11	#4	$2.87	$2.08	$1.73
809	11	#4	4.10	2.96	2.47
805*	11	#4	2.70	1.95	1.62
808	11	#4	4.17	3.02	2.51
151*	15	#6	3.78	2.73	2.28
152	15	#6	5.49	4.69	3.91
150*	15	#6	2.82	2.04	1.70
153	15	#6	5.01	3.62	3.02
806*	20	#4	4.81	3.33	2.77
811	20	#4	6.61	4.78	3.98
807*	20	#4	3.57	2.58	2.15
810	20	#4	5.57	4.03	3.36
812*	20	#4	3.74	2.70	2.25
813*	20	#4	7.10	5.14	4.28

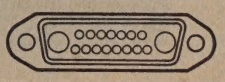
*Insert only, without shell and clamp.

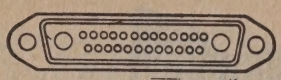
★Larger Quantity Prices on Request.

POWER/COAX MIN RAC 17

A variety of combinations available where coax must be terminated with power circuits. Power contacts are #20 size; coax are #1 shielded. Shell dimensions and mounting same as standard Crimp, Poke-Home contacts; rated at 7.5 amps, 500 V rms (power max.). Glass-filled nylon dielectric.

Shell Size 25
1 Coax Contact


Shell Size 25
2 Coax Contacts


Shell Size 37

Shell Size 50

Contacts Power	Coax	Shell Size	Amphenol No.	PLUGS, Net Each, Lots of 250-999	PLUGS, Net Each, Lots of 1000-2499	Amphenol No.	RECEPTACLES, Net Each, Lots of 250-999	RECEPTACLES, Net Each, Lots of 1000-2499
0	3	15	17-90003-1	$0.45	$0.30	17-80003-1	$0.50	$0.30
15	2	25	17-90152-1	1.62	1.08	17-80152-1	3.23	2.15
25	2	37	17-90252-1	2.45	1.63	17-80252-1	4.40	2.93
17	7	50	17-90177-1	1.83	1.22	17-80177-1	3.42	2.28

MIN RAC® 17 MINIATURE RACK AND PANEL CONNECTORS WITH POKE-HOME® CONTACTS

Half the size and weight of standards. "Poke Home" contacts are soldered to leads outside the connector, then "Poked Home" for quick, simple and reliable assembly. No damage or difficulty from "close in" soldering. From 9 to 50 contacts. Solder type contacts take up to #20 AWG wire. Crimp type take #20, #22 or #24 AWG wire. Steel shells with either clear chromate (listed) or gold iridite (change 2nd number from 0 to 1, e.g., -21090), over cadmium finish. Current rating: 7.5 A. Prices listed less cable housing.

PLUGS WITH ZYTEL‡ 101 NYLON INSERTS

Amphenol No.	Contacts	Net Each, Lots of 1-9	10-24	25-99	100-249	250-999
17-20090*	9	$2.20	$1.85	$1.62	$1.35	$1.13
17-20150*	15	3.12	2.62	2.30	1.91	1.61
17-20250*	25	4.51	3.79	3.32	2.77	2.33
17-20370*	37	6.34	5.33	4.67	3.89	3.27
17-20500*	50	8.18	6.87	6.02	5.02	4.22
17-20090-1†	9	2.45	2.04	1.79	1.63	1.37
17-20150-1†	15	3.50	2.92	2.57	2.34	1.96
17-20250-1†	25	5.08	4.24	3.73	3.39	2.85
17-20370-1†	37	7.20	6.00	5.28	4.80	4.03
17-20500-1†	50	9.33	7.77	6.84	6.22	5.22
MATING RECEPTACLES						
17-10090*	9	$ 2.90	$ 2.44	$2.14	$1.78	$1.50
17-10150*	15	4.28	3.59	3.15	2.62	2.20
17-10250*	25	6.53	5.49	4.81	4.01	3.37
17-10370*	37	9.34	7.85	6.87	5.73	4.81
17-10500*	50	12.11	10.18	8.92	7.43	6.24
17-10090-1†	9	2.92	2.43	2.14	1.95	1.64
17-10150-1†	15	4.27	3.56	3.13	2.85	2.39
17-10250-1†	25	6.25	5.21	4.58	4.17	3.50
17-10370-1†	37	9.36	7.80	6.87	6.24	5.24
17-10500-1†	50	12.20	10.17	8.95	8.13	6.83

*Solder contacts; for float mount, add suffix -5; prices slightly higher. †Crimp contacts; for float mount, change suffix to -6; prices slightly higher. ‡DuPont registered trademark.

FIXED PIN MIN RAC 17

Low cost, with screw machine-type fixed contacts; dimensions, mounting and panel cut-outs same as standard 17 series. Solder pin contacts; max. wire size, 20 gauge. Glass-filled nylon dielectric.

PLUGS

Amphenol No.	Contacts	Net Each, Lots of 1-9	10-24	25-99	100-249	250-999
17-90090-16	9	....	....	....	$1.25	$1.05
17-90150-16	15	....	....	....	1.79	1.51
17-90250-16	25	....	....	....	2.62	2.20
17-90370-16	37	....	....	....	3.64	3.06
17-90500-16	50	....	....	....	4.72	3.96
MATING RECEPTACLES						
17-80090-16	9	....	....	....	$1.60	$1.35
17-80150-16	15	....	....	....	2.35	1.97
17-80250-16	25	....	....	....	3.60	3.02
17-80370-16	37	....	....	....	5.04	4.23
17-80500-16	50	....	....	....	6.54	5.49

CABLE CLAMP ASSEMBLIES FOR MIN RAC SERIES

Amphenol No.	Contacts	Net Each, Lots of 1-9	10-24	25-99	100-249	250-999
17-310-01	9	$1.56	$1.20	$1.12	$1.03	$0.86
17-311-01	15	1.85	1.57	1.39	1.16	.91
17-312-01	25	1.93	1.63	1.43	1.19	.90
17-313-01	37	1.98	1.67	1.46	1.22	.93
17-314-01	50	2.01	1.73	1.49	1.25	.95
17-529*	9–37	1.00	.83	.73	.62	.46
17-770*	50	1.03	.85	.76	.64	.49

*Locking assemblies latch cable to panel with clamp assemblies.

ENCAPSULATED CONTACT MIN RAC 17

Crimp Poke-Home contacts. Extra depth of nylon dielectric at rear of connector protects contacts from arcing, shorting. No sleeving, potting necessary. Shell dimensions, specifications same as standard.

PLUGS

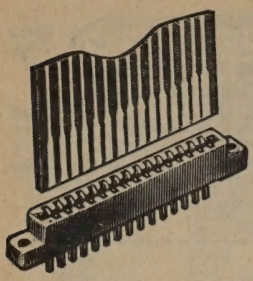
Amphenol No.	Contacts	Net Each, Lots of 1-9	10-24	25-99	100-249	250-999
17-20090-1 (390)	9	$2.59	$2.21	$1.86	$1.52	$1.45
17-20150-1 (390)	15	3.83	3.27	2.75	2.26	2.14
17-20250-1 (390)	25	5.74	4.90	4.12	3.38	3.21
17-20370-1 (390)	37	8.38	7.15	6.01	4.93	4.68
17-20500-1 (390)	50	10.88	9.28	7.81	6.40	6.08
MATING RECEPTACLES						
17-10090-1 (390)	9	$2.84	$2.40	$2.15	$1.78	$1.69
17-10150-1 (390)	15	4.17	3.52	3.15	2.61	2.48
17-10250-1 (390)	25	6.41	5.41	4.85	4.01	3.81
17-10370-1 (390)	37	9.25	7.81	7.00	5.78	5.49
17-10500-1 (390)	50	11.97	10.10	9.05	7.48	7.11

OUR STOCK IS COMPLETE AND UP TO DATE.

WRITE FOR ADDITIONAL INFORMATION ON

ANY NEW OR UNLISTED ITEMS

PRINTED CIRCUIT CONNECTORS



RECEPTACLES

—143 SERIES

Type 01

Type 03

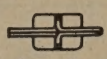
The contact is the secret of these connectors' effectiveness; gold plated tuning fork contacts firmly, but gently. Will form-fit any standard .055″ to .073″ board. Contacts are on .156″ centers. Rated 600 V rms, 5 amps.

Contact Style

-01—Eyelet contact type. **-03**—Pin contact type. May be ordered with one contact replaced with a key, for positioning. When ordering, number indicates exactly what is desired: Example—143-010-01 indicates 143 Series, 10 contacts, -01 contact style.

No. 143-	Contacts	Net Each, Lots of 1-49	50-99	100-249	250-999
006-01	6	$1.62	$1.37	$1.15	$0.99
010-01	10	1.80	1.52	1.28	1.10
012-01	12	1.99	1.68	1.41	1.21
015-01	15	2.27	1.92	1.61	1.39
018-01	18	2.75	2.32	1.95	1.68
022-01	22	3.27	2.76	2.32	1.99
036-01	36	6.20	5.23	4.40	3.78
006-03	6	1.64	1.39	1.16	1.00
010-03	10	1.83	1.54	1.30	1.12
012-03	12	2.03	1.71	1.44	1.24
015-03	15	2.32	1.96	1.65	1.41
018-03	18	2.79	2.36	1.98	1.70
022-03	22	3.35	2.83	2.37	2.04
036-03	36	4.91	4.15	3.48	3.00

PLUGS—133 SERIES



Type 21

Type 03

For use with printed circuit boards requiring frequent mating and disengagement, also for boards of non-standard thickness. Contacts are on .156″ centers. Type 21 contact tail for use in cable to panel applications using a mate to 143 Series connector. Rugged, gold plated contacts. Rated 600 V rms, 5 amps. May be ordered with contact omitted for keying.

Contact Types

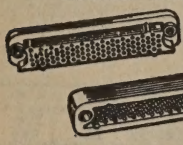
-21—Double Tail, solder type.

-03—Single Side Mount, pin type.

Stock Number Identification: No. 133-022-21 indicates 133 Series, 22 contacts, 21 contact tail (double tail, solder type).

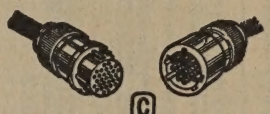
No. 133-	Contacts	Net Each, Lots of 1-49	50-99	100-249	250-999
006-21	6	$3.81	$3.22	$2.70	$2.32
010-21	10	3.75	3.17	2.66	2.29
012-21	12	4.49	3.79	3.18	2.74
015-21	15	5.37	4.53	3.81	3.28
018-21	18	5.78	4.87	4.10	3.52
022-21	22	6.69	5.65	4.74	4.08
006-03	6	3.26	2.75	2.31	1.99
010-03	10	2.95	2.49	2.09	1.80
012-03	12	3.60	3.04	2.55	2.20
015-03	15	4.10	3.46	2.91	2.50
018-03	18	4.34	3.66	3.08	2.65
022-03	22	4.91	4.15	3.49	3.00

SERIES 220 THRU 223 MICRO-MINIATURE CONNECTORS, CONTACTS AND GUIDE PINS



A

B



C

D

SERIES 220 MICRO-RAC® CONNECTORS (FIG. A)

Rack and panel connectors with monoblock body of polycarbonate resin. Polarization through trapezoidal mating area; molded-in slot-and-key arrangement. Float-mounted connectors. **52-Contact:** 1.888″ x .677″; 1.492″ mtg. ctrs. **104-Contact:** 3.017″ x .677″; 2.611″ mtg. ctrs. Supplied less contacts. See "Wire-Form" and "Relia-Tac" contacts.

Amphenol No.	Contacts	Description	Net Each, Lots of 1-49	50-99	100-249	250-499
220-1N052	52	Plug	$2.69	$2.24	$1.88	$1.67
220-2N052	52	Receptacle	2.32	1.93	1.62	1.44
220-5	.....	Cable clamp	2.10	1.75	1.47	1.31
220-1N104	104	Plug	3.30	2.75	2.31	2.06
220-2N104	104	Receptacle	2.89	2.40	2.02	1.80
220-6	.....	Cable clamp	2.16	1.80	1.51	1.34

SERIES 221 MULTI-PURPOSE STRIP CONNECTORS (FIG. B)

Economical connectors with highly versatile adaptability. May be used full 4″ or 6″ length or cut with scissors and stacked to any configuration desired. Material, black nylon; polycarbonate available on request. Supplied less contacts. See "Wire-Form" and "Relia-Tac" contacts.

221-1560*	60	6″ plug	$1.17	$0.98	$0.82	$0.73
221-1660*	60	6″ recept.	1.17	.98	.82	.73
221-2553†	53	4″ plug	.93	.77	.65	.58
221-2653†	53	4″ recept.	.93	.77	.65	.58

Spacing: *.100″; †.075″; ‡.050″.

SERIES 222 MIGHTY-MITE® CABLE CONNECTORS (FIG. C)

Reliable, low cost connectors for cable-to-cable and cable-to-chassis application. Molded one-piece polycarbonate. **Spacing:** .085″ centers. Size: **19-Contact,** .621″ dia. x 2.618″ lg.; **31-Contact,** .746″ dia. x 2.948″ lg.; **61-Contact,** .996″ dia. x 3.530″ lg. Supplied less contacts. See "Wire-Form" and "Relia-Tac" contacts.

Amphenol No.	Contacts	Description	Net Each, Lots of 1-49	50-99	100-249	250-499
222-11N19	19	Plug	$1.90	$1.23	$1.02	$0.91
222-12N19	19	Receptacle	1.51	.98	.81	.72
222-518	.....	Cable clamp	3.18	2.07	1.71	1.52
222-11N31	31	Plug	1.90	1.23	1.02	.91
222-12N31	31	Receptacle	1.51	.98	.81	.72
222-519	.....	Cable clamp	3.37	2.19	1.81	1.61
222-11N61	61	Plug	1.99	1.29	1.07	.95
222-12N61	61	Receptacle	1.62	1.05	.87	.77

SERIES 223 TINY TIM® NYLON CONNECTORS (FIG. D)

Screw-mount rack and panel connectors ideal for circuit module either potted or surface mounted and for cable-to-cable use. Meet MIL-C-8384B requirements. Trapezoidal mating for polarization Contact spacing, .100″ centers each row. Overall length: **5-Contact,** .843″; **9-Contact,** 1.043″; **17-Contact,** 1.443″; **25-Contact,** 1.843″; **33-Contact,** 2.243″. Supplied less contacts. See "Wire-Form" and "Relia-Tac" contacts.

Amph. No.	Contacts	Description	Mtg. Ctrs.	Net Each, Lots of 1-49	50-99	100-249	250-499
223-1505	5	Plug	.593″	$0.83	$0.69	$0.58	$0.52
223-1605	5	Receptacle	.593″	.83	.69	.58	.52
223-1509	9	Plug	.793″	.87	.73	.61	.54
223-1609	9	Receptacle	.793″	.87	.73	.61	.54
223-1517	17	Plug	1.193″	.92	.76	.64	.57
223-1617	17	Receptacle	1.193″	.92	.76	.64	.57
223-1525	25	Plug	1.593″	1.00	.83	.70	.62
223-1625	25	Receptacle	1.593″	1.00	.83	.70	.62
223-1533	33	Plug	1.993″	1.06	.88	.74	.66
223-1633	33	Receptacle	1.993″	1.06	.88	.74	.66

INDIVIDUAL "WIRE-FORM" AND "RELIA-TAC" CONTACTS

For Amphenol Series 220–223 connectors. Current rating, 3 amps. Both take 24, 26, 28 gauge solid wire; 24, 26, 28 gauge stranded wire. **Wire-Form:** 4-member spring design. Gold clad copper alloy wire in gold plated copper sleeves; .413″ long. **Relia-Tac:** Gold-over-nickel on copper alloy body. Male, .388″ long; female, .404″ long. Does not mate with Wire-Form. **Ask about solder-tail contacts, special adapters, Ultra-Tac crimp contacts, special contacts, guide pins and strain reliefs also available.**

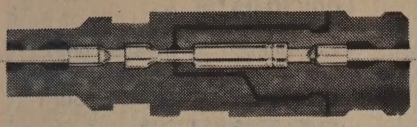
Amph. No.	Description	Net Each, Lots of 100-999	1M-4999	5M-9999	10M-19,999*
220-P02	Relia-Tac male	$0.097	$0.083	$0.07	$0.066
220-S02	Relia-Tac female	.236	.202	.171	.161

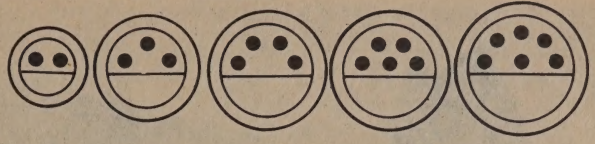
GUIDE PINS

Poke-Home® guide pins for polarizing, keying or connector alignment. Supplement the keyed slots; can be used in conjunction with either Relia-Tac or Wire-Form contacts. Insert into plug

Amphenol No.	Type	Net Each, Lots of 1-49	50-99	100-249	250-499
221-535	Std. guide pin	$0.30	$0.25	$0.21	$0.19
221-590	Groove retention	.51	.43	.36	.32

44 SERIES WATERPROOF CONNECTORS





Highly reliable, low-cost, waterproof connector. Resilient one-piece shell. Crimp Poke-Home® contacts of electro tin plated copper alloy in five insert configurations. Punch press contacts utilize semi-automatic or hand crimping equipment. Contacts accept wire sizes 14, 16 and 18 AWG with an overall insulation diameter range of .080″ to .130″. **Voltage Rating:** 250 VDC or 200 VAC rms at sea level. **Current Rating:** 8 amps continuous. **Temperature Range:** −40° C to +105° C, continuous operation. Available in 2, 3, 4, 5 and 6 contact configurations.

No. of Contacts	Amphenol No.	Net Each, Lots of 1-9	10-49	50-99	100-999★
RECEPTACLES					
2	44-104-10002-02	$0.813	$0.647	$0.552	$0.476
3	44-104-10003-02	.855	.68	.58	.50
4	44-104-10004-02	.966	.768	.655	.565
5	44-104-10005-02	1.049	.835	.712	.614
6	44-104-10006-02	1.114	.886	.756	.652
PLUGS					
2	44-103-10002	$0.776	$0.617	$0.526	$0.454
3	44-103-10003	.813	.647	.552	.476
4	44-103-10004	.919	.731	.624	.538
5	44-103-10005	.998	.794	.677	.584
6	44-103-10006	1.063	.845	.721	.622

INSERTS AVAILABLE

BOOTS

Amphenol No.	For Connector	Amphenol No.	For Connector
44-105-10002-02	2-Contact	44-105-10003-02	3-Contact

CONTACTS

Sold in minimum quantity of 100, bulk; 5,000 on reel.

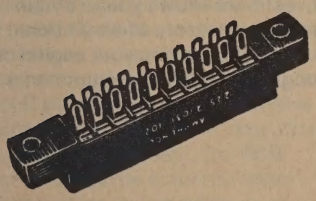
BULK CONTACTS

Amphenol No.*	Type of Contact	Net per Package of 100	500	1000
44-100-1414P-X-101	Pin	$ 6.70	$27.45	$ 50.86
44-102-1414S-X-101	Socket	15.77	64.37	117.49

*Substitute number of contacts (100, 500 or 1000) for **X** in Amphenol No. e.g., 44-100-1414P-**1000**-101 for package of 1000.

CONTACTS WITH CARRIER STRIP, ON REEL

Amphenol No.	Type of Contact	Net per Reel of 500 1	2-3	4-9
44-100-1414P-5000	Pin	$192.36	$152.55	$132.66
44-102-1414S-5000	Socket	422.04	361.26	337.63



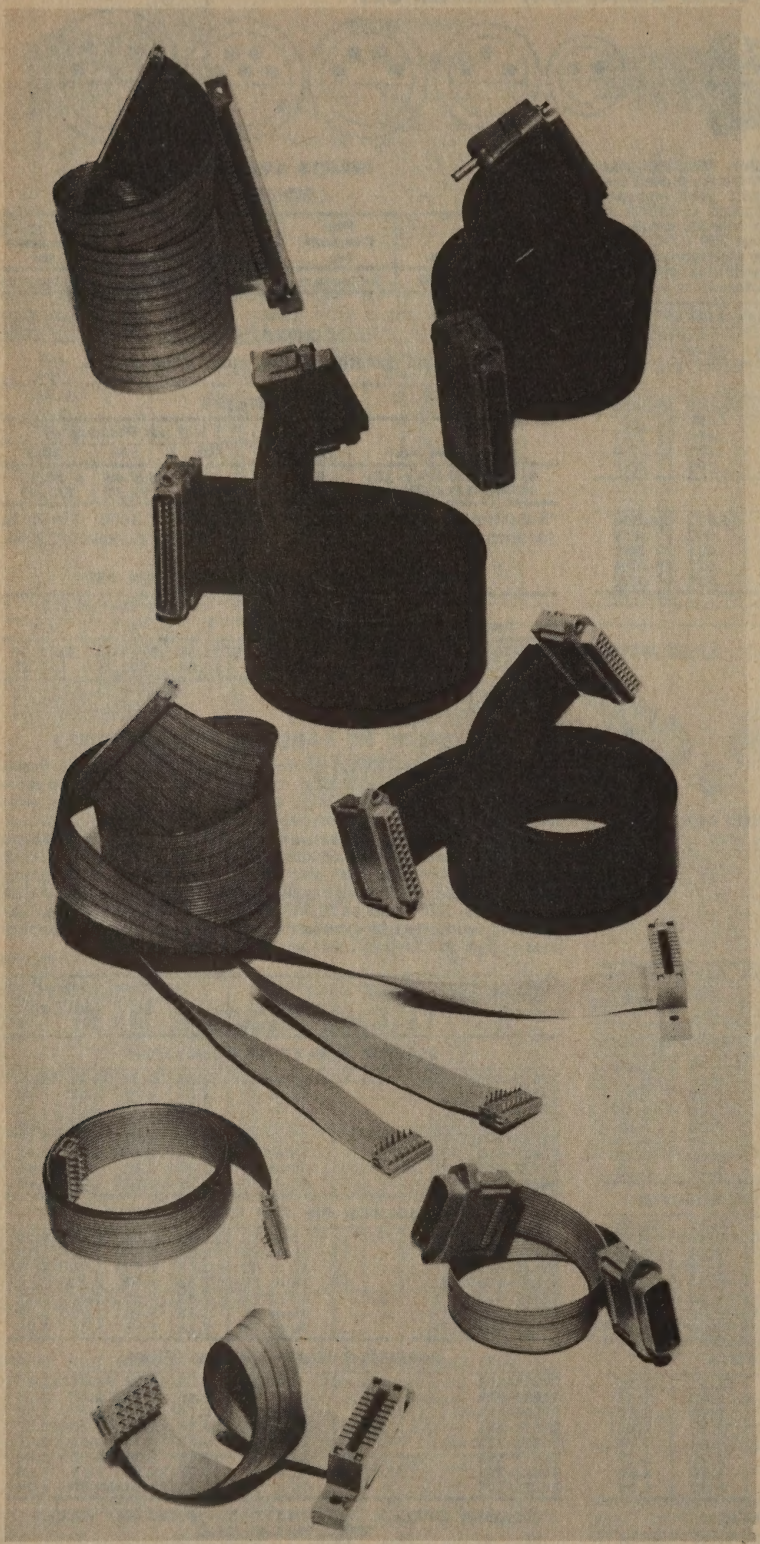
225 SERIES PC CARD EDGE CONNECTORS

Card edge connectors with bifurcated bellows contacts (industrial and military types) or slotted, folded-ribbon contacts (commercial type). Choice of 6 through 43 contact positions. Solder eyelet, long dip solder or short dip solder termination; down-the-center (single row) or double row on .200″ row spacing. **Dielectric Material:** Glass-fiber-reinforced diallyl pythalate, Type SDG-F per MIL-M-14 (industrial and military types); electrical grade black phenolic (commercial type). **Operating Voltage:** 600 V rms at sea level; 150 V rms at 70,000 ft. **Current Rating:** 5 amps continuous. **Insulation Resistance:** 30 mV at rated current. Connectors accept PC boards .054″ to .071″ thick.

Amphenol No. 225-	No. of Contacts	Net Each, Lots of 1-49	50-99	100-249	250-499
SOLDER EYELET "DOWN THE CENTER" TERMINATION					
20651-401(117)	6	$ 2.81	$ 2.27	$ 1.79	$1.59
21051-401(117)	10	3.86	3.12	2.46	2.19
21551-401(117)	15	5.60	4.53	3.57	3.17
21851-401(117)	18	6.11	4.94	3.89	3.46
22251-401 117)	22	7.07	5.72	4.50	4.01
22851-401(117)	28	11.01	8.90	7.01	6.24
23651-401(117)	36	13.31	10.77	8.48	7.55
24351-401(117)	43	14.88	12.03	9.48	8.43
DIP SOLDER "DOWN THE CENTER" TERMINATION					
20651-404(117)	6	$ 2.74	$ 2.22	$1.75	$1.55
21051-404(117)	10	3.75	3.03	2.39	2.12
21551-404(117)	15	5.30	4.29	3.38	3.01
21851-404(117)	18	5.90	4.77	3.76	3.34
22251-404(117)	22	6.81	5.51	4.34	3.86
22851-404(117)	28	10.68	8.64	6.80	6.05
23651-404 117)	36	12.91	10.44	8.22	7.32
24351-404(117)	43	14.38	11.63	9.16	8.15
LONG DIP SOLDER TERMINATION					
20621-404(117)	6	$1.90	$1.53	$1.21	$1.08
21021-404(117)	10	2.52	2.04	1.60	1.43
21521-404(117)	15	3.13	2.53	1.99	1.77
21821-404(117)	18	3.60	2.92	2.30	2.04
22221-404(117)	22	3.83	3.10	2.44	2.17
22821-404(117)	28	6.69	5.41	4.26	3.79
23621-404(117)	36	7.16	5.79	4.56	4.06
24321-404(117)	43	8.20	6.63	5.22	4.65
SHORT DIP SOLDER TERMINATION					
20621-410(117)	6	$1.90	$1.53	$1.21	$1.08
21021-410(117)	10	2.52	2.04	1.60	1.43
21821-410(117)	18	3.60	2.91	2.29	2.04
22221-410(117)	22	3.83	3.10	2.44	2.17
22821-410(117)	28	6.68	5.41	4.26	3.79
23621-410(117)	36	7.16	5.79	4.56	4.06
24321-410(117)	43	8.19	6.63	5.22	4.64

Amphenol No. 225-	Mil. No. M21097/	No. of Contacts	Net Each, Lots of 1-49	50-99	100-249	250-499
SOLDER EYELET TERMINATION						
20621-401(117)	.....	6 or 12	$1.90	$1.54	$1.21	$1.08
21021-401(117)	.....	10 or 20	2.52	2.04	1.61	1.43
21521-401(117)	.....	15 or 30	3.15	2.55	2.01	1.78
21821-401(117)	.....	18 or 36	3.64	2.95	2.32	2.06
22221-401(117)	.....	22 or 44	3.86	3.12	2.46	2.19
22821-401(117)	.....	28 or 56	6.71	5.43	4.28	3.81
23621-401(117)	.....	36 or 72	7.21	5.83	4.59	4.09
24321-401(117)	.....	43 or 86	8.25	6.67	5.25	4.67
DIP SOLDER ON .200″ ROW SPACING						
20621-407(117)	.....	6 or 12	$1.90	$1.53	$1.21	$1.08
21021-407(117)	.....	10 or 20	2.52	2.04	1.60	1.43
21521-407(117)	.....	15 or 30	3.13	2.53	1.99	1.77
21821-407(117)	.....	18 or 36	3.60	2.92	2.30	2.04
22221-407(117)	.....	22 or 44	3.83	3.10	2.44	2.17
22821-407(117)	.....	28 or 56	6.69	5.41	4.26	3.79
23621-407(117)	.....	36 or 72	7.16	5.79	4.56	4.06
SOLDER EYELET TERMINATION						
20621-101	.....	6 or 12	$3.22	$2.61	$2.05	$1.83
21021-101	.....	10 or 20	4.49	3.64	2.86	2.55
21521-101	.....	15 or 30	6.74	5.45	4.29	3.82
21821-101	.....	18 or 36	7.68	6.21	4.89	4.35
22221-101	.....	22 or 44	7.83	6.34	4.99	4.44
22821-101	.....	28 or 56	10.68	8.64	6.80	6.05
23621-101	.....	36 or 72	14.37	11.62	9.15	8.14
24321-101	.....	43 or 86	16.31	13.19	10.39	9.24
SOLDER EYELET TERMINATION—MILITARY STYLE SPEC. MIL-C-21097						
20621-201	1.019	6 or 12	$3.85	$3.11	$2.45	$2.18
21021-201	1.055	10 or 20	5.51	4.46	3.51	3.12
21521-201	1.091	15 or 30	8.54	6.91	5.44	4.84
21821-201	1.127	18 or 36	10.96	8.87	6.98	6.21
22221-201	1.163	22 or 44	10.25	8.29	6.53	5.81
22821-201	1.199	28 or 56	12.47	10.09	7.94	7.07

Value-Added Services from T&B/Ansley



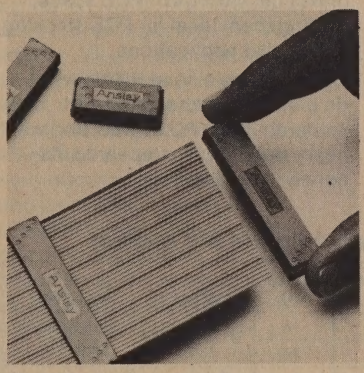
Look to us for...

- Customized, fully tested, pre-assembled cable-connector systems that conform to your exact specifications...
- Off-the-shelf stocking of connectors and cable for fast delivery of your single or lot quantity requirements...
- Dependable, specialized service in the handling of your order and re-orders...
- Reduction of your incoming inspection time, shipment handling, inventory maintenance as well as insurance and claim work...
- Substantial reductions or total elimination of your shipping charges...

Let us maximize your savings and profits by reducing your need for stocking facilities, personnel and inventory control. Our investment allows you to obtain needed inventory when you want it - without investing your capital on long term stocking requirements.

BLUE MACS® PCB Solder Transition Connectors

Available in tin plated pin lengths to accommodate all standard PC board thicknesses, these connectors provide fast, permanent termination of flat cable to printed circuit boards. The least expensive connector employing the insulation displacement concept, the PCB connector can be soldered either after crimping to the cable, or on the board (flow soldered) prior to crimping the cable.



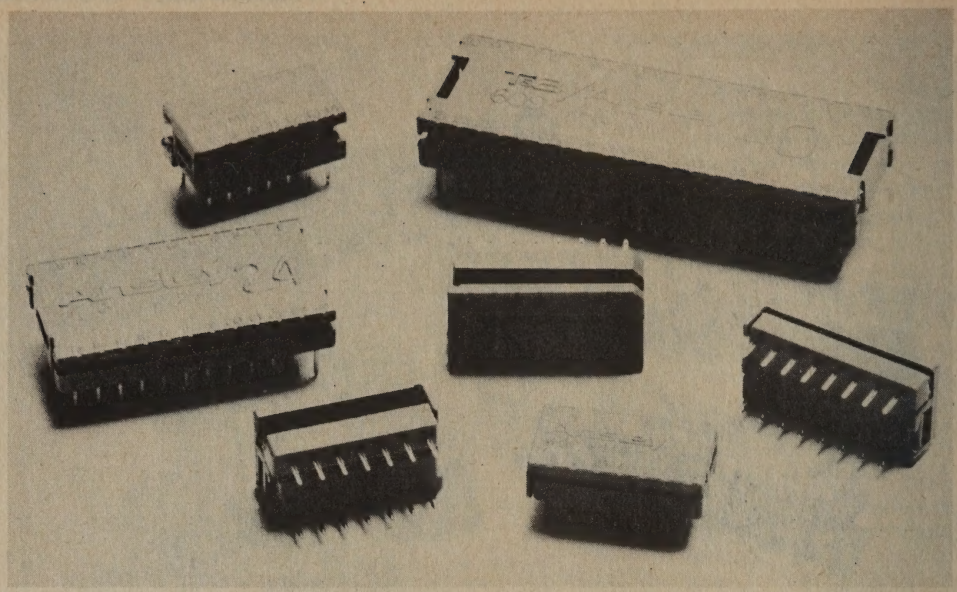
One piece connector design speeds cable installation. Cable is simply inserted into the connector. Self-aligning cable grooves automatically position cable conductors over the insulation displacing TULIP® contacts to assure reliable cable-to-contact interface.

FEATURES AND BENEFITS

- One piece connector design reduces installation time up to ⅔, for *lowest* installed cost benefits.
- Exclusive TULIP® contact design offers extraordinary reliability by providing up to 4 points of contact per conductor for superior electrical performance.
- Exclusive ridge design built into the connector top accurately positions the cable conductors over each TULIP® contact for highly accurate cable-to-contact alignment.
- During the crimp cycle, exclusive molded "buttons" in the connector top firmly seat each conductor deep into the TULIP® contact for added termination reliability.
- Mechanical side latches keep the connector intact before, during and after the crimping cycle.
- Connector mass terminates without wire stripping or soldering to all types of BLUE MACS® flat cable, including round and flat conductor cable, jacketed and shielded jacketed flat cable.

TAIL LENGTHS †			NO. OF CONTACTS
FOR $\frac{1.57}{(.062)}$ THICK PCB'S	FOR $\frac{.81}{(.032)}$ TO $\frac{1.19}{(.047)}$ THICK PCB'S	FOR $\frac{2.31}{(.094)}$ TO $\frac{3.17}{(.125)}$ THICK PCB'S	
2.92 (.115) †	2.16 (.085) †	4.06 (.160) †	
CAT. NO.	CAT. NO.	CAT. NO.	
609-1003	609-1023	609-1043	10
609-1403	609-1423	609-1443	14
609-1603	609-1623	609-1643	16
609-2003	609-2023	609-2043	20
609-2603	609-2623	609-2643	26
609-3403	609-3423	609-3443	34
609-4003	609-4023	609-4043	40
609-4403	609-4423	609-4443	44
609-5003	609-5023	609-5043	50
609-5603	609-5623	609-5643	56
609-6003	609-6023	609-6043	60

BLUE MACS® DIP Plug Connectors



BLUE MACS® DIP Plug connectors are designed to provide lower installed cost benefits with excellent electrical contact reliability. Primarily used as a disconnectable interface to DIP sockets, these DIP plug connectors are available in two styles, standard size 14 and 16 pin versions and low profile 14, 16, 24 and 40 pin versions.

The low profile design provides maximum savings of PCB space, making them ideal for PCB stacking and similar applications.

DIP plugs are also available with tin plated contacts for direct solderability to PC boards, and with heavy duty pins for repeated disconnect applications.

Standard Dip Plug (14 & 16 Position)

CATALOG NO.	NO. OF POS.
609-M141	14
609-M161	16

Low Profile DIP Plug (14 & 16 Position)

CATALOG NO.	NO. OF POS.	CONTACTS	PLATING
609-M145	14	STANDARD	GOLD OVER NICKEL
609-M165	16		
609-M145H	14	HEAVY DUTY	GOLD OVER NICKEL
609-M165H	16		
609-M145TH	14	HEAVY DUTY	BRIGHT ACID TIN OVER NICKEL
609-M165TH	16		

Low Profile DIP Plug (24 Position)

CATALOG NO.	NO. OF POS.	CONTACTS	PLATING
609-M245H	24	HEAVY DUTY	GOLD OVER NICKEL
609-M245TH	24	HEAVY DUTY	BRIGHT ACID TIN OVER NICKEL

Low Profile DIP Plug (40 Position)

CATALOG NO.	NO. OF POS.	CONTACTS	PLATING
609-M407H	40	HEAVY DUTY	GOLD OVER NICKEL

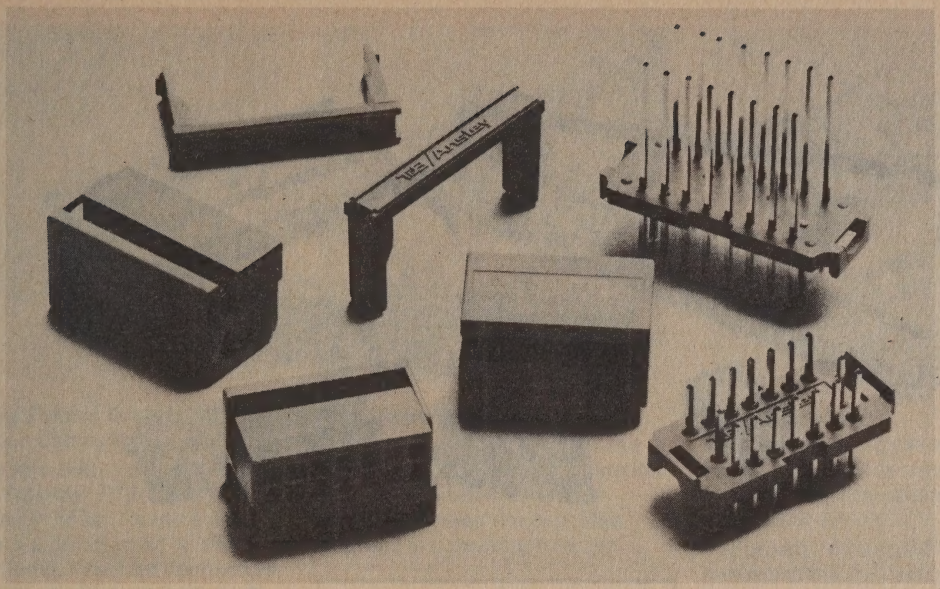
Strain Relief (24 & 40 Position)

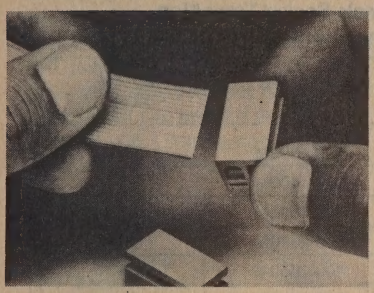
CATALOG NO.	DESCRIPTION
609-M245S	Strain relief for 24 pin DIP plug
609-M407S	Strain relief for 40 pin DIP plug

FEATURES AND BENEFITS

- One piece connector design reduces installation time up to ⅔, for *lowest* installed cost benefits.
- Exclusive TULIP® contact design offers extraordinary reliability by providing up to 4 points of contact per conductor for superior electrical performance.
- Exclusive ridge design built into the connector top accurately positions the cable conductors over each TULIP® contact for highly accurate cable-to-contact alignment.
- During the crimp cycle, exclusive molded "buttons" in the connector top firmly seat each conductor deep into the TULIP® contact for added termination reliability.
- Mechanical side latches keep the connector intact before, during and after the crimping cycle.
- Connector mass terminates without wire stripping or soldering to all types of BLUE MACS® flat cable, including round and flat conductor cable, jacketed and shielded jacketed flat cable.

BLUE MACS® Socket Connectors





One piece connector design speeds cable installation. Cable is simply inserted into the connector. Self-aligning cable grooves automatically position cable conductors over the insulation displacing TULIP® contacts to assure reliable cable-to-contact interface.

The Socket Connector Series is designed to provide the ultimate in reliability for pluggable dual inline packaging. When used with the recommended Socket connector headers, the problem of damage to DIP pins during repeated insertion and extraction cycles is virtually eliminated, since the mating pins are completely enclosed in a plastic housing. The retainer clip is used with the header for added stability under vibration. These connectors are compatible with .64mm (.025") square posts on either a 2.54mm × 5.08mm (.100" × .200") or a 2.54mm × 7.62mm (.100" × .300") grid.

FEATURES AND BENEFITS

- One piece connector design reduces installation time up to ⅔, for *lowest* installed cost benefits.
- Exclusive TULIP® contact design offers extraordinary reliability by providing up to 4 points of contact per conductor for superior electrical performance.
- Exclusive ridge design built into the connector top accurately positions the cable conductors over each TULIP® contact for highly accurate cable-to-contact alignment.
- During the crimp cycle, exclusive molded "buttons" in the connector top firmly seat each conductor deep into the TULIP® contact for added termination reliability.
- Mechanical side latches keep the connector intact before, during and after the crimping cycle.
- Connector mass terminates without wire stripping or soldering to all types of BLUE MACS® flat cable, including round and flat conductor cable, jacketed and shielded jacketed flat cable.

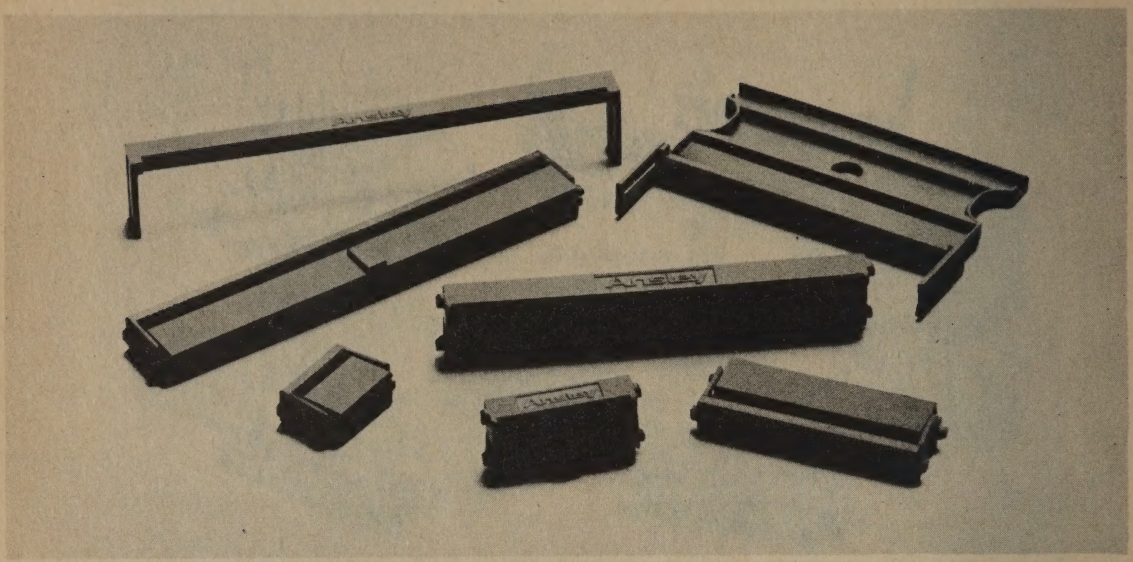
Socket Connector

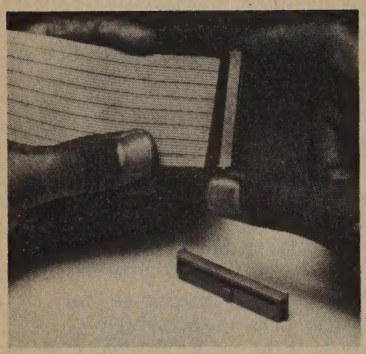
CATALOG NO.	GRID SPACING	NO. OF CONTACTS	CONTACT POSITIONS
609-F141M2	2.54 × 5.08 (.100 × .200)	14	ROWS 1 AND 2
609-F161M2	2.54 × 5.08 (.100 × .200)	16	ROWS 1 AND 2
609-F141M	2.54 × 7.62 (.100 × .300)	14	ROWS 1 AND 3
609-F161M	2.54 × 7.62 (.100 × .300)	16	ROWS 1 AND 3

Socket Connector Headers

CAT. NO.	NO. OF POSITIONS	USED FOR
609-1478	14	1.57 (.062) THK. P.C. BOARD
609-1488	14	3.18 (.125) THK. P.C. BOARD
609-1498	14	WRAP POST TAILS (3 LEVEL)
609-1678	16	1.57 (.062) THK. P.C. BOARD
609-1688	16	3.18 (.125) THK. P.C. BOARD
609-1698	16	WRAP POST TAILS (3 LEVEL)

BLUE MACS® Female Socket Transition Connectors





One piece connector design speeds cable installation. Cable is simply inserted into the connector. Self-aligning cable grooves automatically position cable conductors over the insulation displacing TULIP® contacts to assure reliable cable-to-contact interface.

The Female Socket Transition Connector plugs quickly and easily into a mating header.

Female Socket Transition Connectors are used primarily to plug into PCB Solder Tail or Wrap Post Tail mating headers with grid patterns of 2.54mm x 2.54mm (.100" x .100"). This connector series may also be used (without a strain relief) to plug into a wire wrap panel with .64mm (.025") square pins on a 2.54mm (.100") square grid. It is available in both polarized and non-polarized configurations.

The polarized configuration has a small molded-in tab on the center of the connector which helps to properly orient the female connector into a mating shrouded or low profile polarized header. An alternate polarization method is the use of a polarization plug which is inserted into the connector contact cavity at the required position.

Two styles of strain reliefs are also available for this connector series. The standard snap-on strain relief is recommended for applications that require repeated insertion and extraction cycles. Extractor handles with self contained strain reliefs can also be used to avoid pulling directly on the cable.

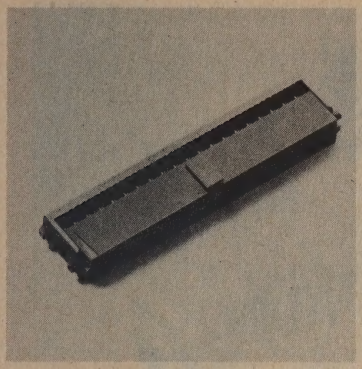
Female Socket Transition Connectors

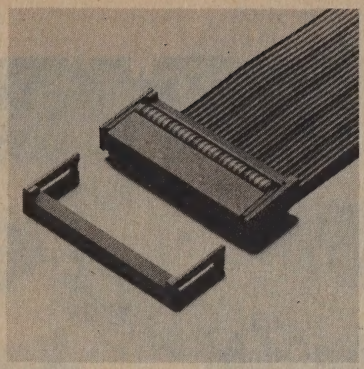
CATALOG NO.	NO. OF POS.
609-1000M	10
609-1400M	14
609-1600M	16
609-2000M	20
609-2600M	26
609-3400M	34
609-4000M	40
609-4400M	44
609-5000M	50
609-5600M	56
609-6000M	60

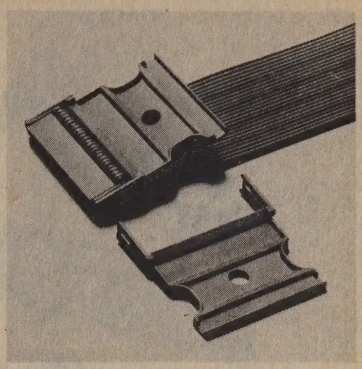
Female Socket Transition Connectors With Strain Relief

CATALOG NO. Socket Conn. With Strain Relief	NO. OF POS.
609-1001M	10
609-1401M	14
609-1601M	16
609-2001M	20
609-2601M	26
609-3401M	34
609-4001M	40
609-4401M	44
609-5001M	50
609-5601M	56
609-6001M	60

BLUE MACS® Female Socket Transition Connectors







Polarized Female Socket Transition Connectors

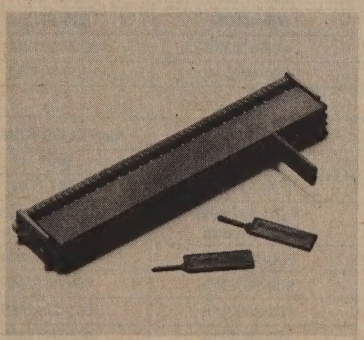
For use with Shrouded and Low Profile Polarized PCB Solder Tail and Wrap Post Tail Headers with 2.54mm × 2.54mm (.100" × .100") grid patterns. Polarized connectors are designed with polarization tab which orients female header into appropriate header. The tab permits full use of all contacts so separate polarizing plugs are not required. This series can also be used on .64mm (.025") wire wrapping posts on 2.54mm (.100") square grids.

CATALOG NO. Polarized Socket Conn.	NO. OF POS.
609-1030	10
609-1430	14
609-1630	16
609-2030	20
609-2630	26
609-3430	34
609-4030	40
609-4430	44
609-5030	50
609-5630	56
609-6030	60

Strain Relief

The snap-on strain relief provides protection for the cable termination and is recommended for applications requiring repeated insertion and extraction cycles.

CAT. NO.	NO. OF POS.
609-1031	10
609-1431	14
609-1631	16
609-2031	20
609-2631	26
609-3431	34
609-4031	40
609-4431	44
609-5031	50
609-5631	56
609-6031	60



Polarizing Plug

CATALOG NO.	609-0000
DESCRIPTION	
Polarizing Plug for Female Socket Transition Connectors	

Extractor Handle

The extractor handle is also designed to provide strain relief for the cable termination during disconnect cycles.

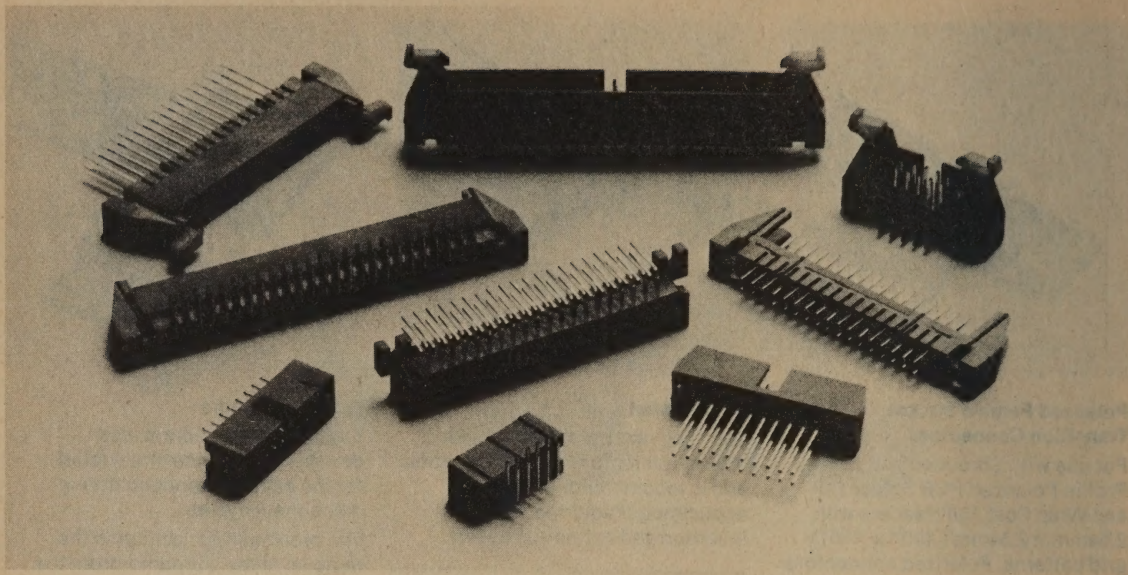
The broad handle facilitates the removal of the connector from the mating header, and is recommended for use in applications where the female connector is hidden from view.

CAT. NO.	NO. OF POS.
609-1631SP	16
609-2031SP	20
609-2631SP	26
609-3431SP	34
609-4031SP	40
609-5031SP	50
609-6031SP	60

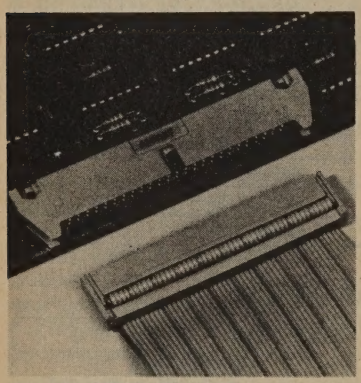
Retainer Clip

CATALOG NO.	609-0008
DESCRIPTION	
Retainer Clips for use with Cat. No. Series 609-XX31 Strain Reliefs, Cat. No. Series 609-XX31SP Extractor Handles and Cat. No. Series 609-XX01 Female Socket Transition Connectors with Strain Reliefs.	

BLUE MACS® PCB Male Headers



BLUE MACS® PCB Male Headers are designed as mating devices for Female Socket Transition Connectors. A number of header contact configurations, including straight and right angle contacts, are available for use with 1.57mm (.062") and 3.18mm (.125") thick printed circuit boards. Additional configurations include standard headers with or without retainers, shrouded headers with or without retainers, and low profile polarized headers without mounting ears, with half mounting, and with mounting holes.

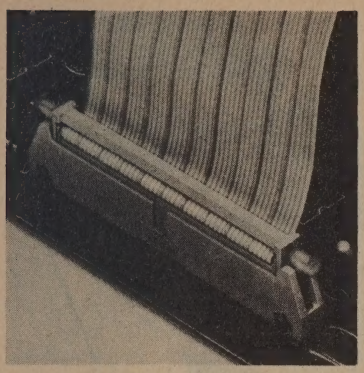


Standard Male Headers Right Angle Contacts

CATALOG NUMBER			
DIM. H†			
2.92 (.115)†	4.45 (.175)†	15.49 (.610)†	
For 1.57 (.062) P.C. Boards	For 3.18 (.125) P.C. Boards	For Wrap Post Tails	NO. OF POS.
609-1002M	609-1012M	609-1042M	10
609-1602M	609-1612M	609-1642M	16
609-2002M	609-2012M	609-2042M	20
609-2602M	609-2612M	609-2642M	26
609-3402M	609-3412M	609-3442M	34
609-4002M	609-4012M	609-4042M	40
609-5002M	609-5012M	609-5042M	50
609-6002M	609-6012M	609-6042M	60

CATALOG NUMBER			
DIM. H†			
2.92 (.115)†	4.45 (.175)†	15.49 (.610)†	
For 1.57 (.062) P.C. Boards	For 3.18 (.125) P.C. Boards	For Wrap Post Tails	NO. OF POS.
609-1002MR	609-1012MR	609-1042MR	10
609-1602MR	609-1612MR	609-1642MR	16
609-2002MR	609-2012MR	609-2042MR	20
609-2602MR	609-2612MR	609-2642MR	26
609-3402MR	609-3412MR	609-3442MR	34
609-4002MR	609-4012MR	609-4042MR	40
609-5002MR	609-5012MR	609-5042MR	50
609-6002MR	609-6012MR	609-6042MR	60

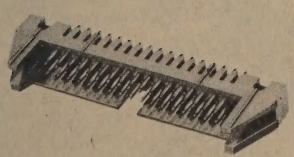
BLUE MACS® PCB Male Headers



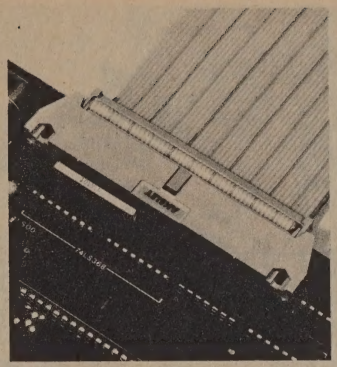
Standard Male Headers Straight Contacts

CATALOG NUMBER			NO. OF POS.
DIM. H†			
2.92 (.115)†	4.45 (.175)†	15.49 (.610)†	
For 1.57 (.062) P.C. Boards	For 3.18 (.125) P.C. Boards	For Wrap Post Tails	
609-1022M	609-1032M	609-1052M	10
609-1622M	609-1632M	609-1652M	16
609-2022M	609-2032M	609-2052M	20
609-2622M	609-2632M	609-2652M	26
609-3422M	609-3432M	609-3452M	34
609-4022M	609-4032M	609-4052M	40
609-5022M	609-5032M	609-5052M	50
609-6022M	609-6032M	609-6052M	60

CATALOG NUMBER			NO. OF POS.
DIM. H†			
2.92 (.115)†	4.45 (.175)†	15.49 (.610)†	
For 1.57 (.062) P.C. Boards	For 3.18 (.125) P.C. Boards	For Wrap Post Tails	
609-1022MR	609-1032MR	609-1052MR	10
609-1622MR	609-1632MR	609-1652MR	16
609-2022MR	609-2032MR	609-2052MR	20
609-2622MR	609-2632MR	609-2652MR	26
609-3422MR	609-3432MR	609-3452MR	34
609-4022MR	609-4032MR	609-4052MR	40
609-5022MR	609-5032MR	609-5052MR	50
609-6022MR	609-6032MR	609-6052MR	60



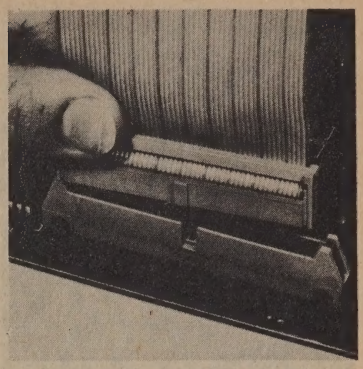
PCB Solder Tail Headers with straight contacts and Retainer feature. For 1.57mm (.062") PCB size.



Shrouded Headers with Right Angle Contacts

CATALOG NUMBER		NO. OF POS.
DIM. H†		
4.45 (.175)†	15.49 (.610)†	
For 1.57 (.062) P.C. Boards	For Wrap Post Tails	
609-1019M	609-1049M	10
609-1619M	609-1649M	16
609-2019M	609-2049M	20
609-2619M	609-2649M	26
609-3419M	609-3449M	34
609-4019M	609-4049M	40
609-5019M	609-5049M	50
609-6019M	609-6049M	60

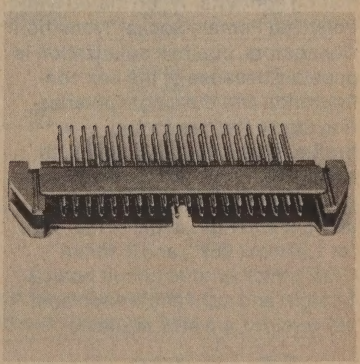
CATALOG NUMBER		NO. OF POS.
DIM. H†		
4.45 (.175)†	15.49 (.610)†	
For 1.57 (.062) P.C. Boards	For Wrap Post Tails	
609-1019M R	609-1049M R	10
609-1619M R	609-1649M R	16
609-2019M R	609-2049M R	20
609-2619M R	609-2649M R	26
609-3419M R	609-3449M R	34
609-4019M R	609-4049M R	40
609-5019M R	609-5049M R	50
609-6019M R	609-6049M R	60



Shrouded Headers with Straight Contacts

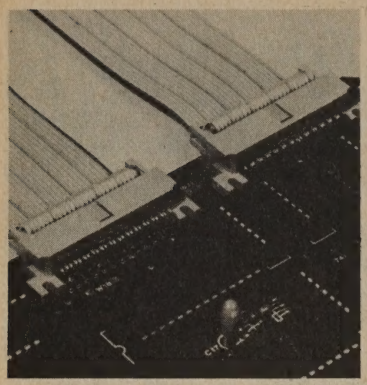
CATALOG NUMBER			NO. OF POS.
DIM. H†			
2.92 (.115)†	4.45 (.175)†	15.49 (.610)†	
For 1.57 (.062) P.C. Boards	For 3.18 (.125) P.C. Boards	For Wrap Post Tails	
609-1029M	609-1039M	609-1059M	10
609-1629M	609-1639M	609-1659M	16
609-2029M	609-2039M	609-2059M	20
609-2629M	609-2639M	609-2659M	26
609-3429M	609-3439M	609-3459M	34
609-4029M	609-4039M	609-4059M	40
609-5029M	609-5039M	609-5059M	50
609-6029M	609-6039M	609-6059M	60

CATALOG NUMBER			NO. OF POS.
DIM. H†			
2.92 (.115)†	4.45 (.175)†	15.49 (.610)†	
For 1.57 (.062) P.C. Boards	For 3.18 (.125) P.C. Boards	For Wrap Post Tails	
609-1029MR	609-1039MR	609-1059MR	10
609-1629MR	609-1639MR	609-1659MR	16
609-2029MR	609-2039MR	609-2059MR	20
609-2629MR	609-2639MR	609-2659MR	26
609-3429MR	609-3439MR	609-3459MR	34
609-4029MR	609-4039MR	609-4059MR	40
609-5029MR	609-5039MR	609-5059MR	50
609-6029MR	609-6039MR	609-6059MR	60



Shrouded Wrap Post Tail Headers with 3 level wrap length pins. Straight contacts.

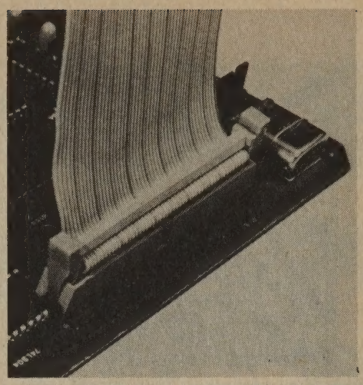
BLUE MACS® PCB Male Headers



Low Profile Polarized Headers with Right Angle Contacts and Half Mounting Ears

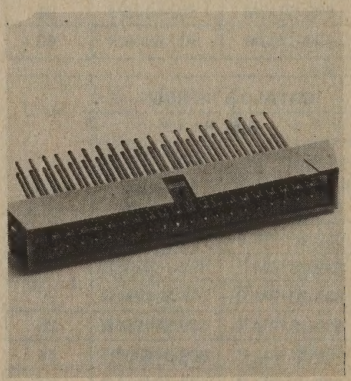
CATALOG NUMBER			
DIMENSION E†			
2.59 (.102)†	4.11 (.162)†	15.80 (.622)†	
FOR 1.57 (.062) P.C. BOARDS	FOR 3.18 (.125) P.C. BOARDS	FOR WRAP POST TAILS	NO. OF POSITIONS
609-1008	609-1018	609-1048	10
609-1408	609-1418	609-1448	14
609-1608	609-1618	609-1648	16
609-2008	609-2018	609-2048	20
609-2608	609-2618	609-2648	26
609-3408	609-3418	609-3448	34
609-4008	609-4018	609-4048	40
609-4408	609-4418	609-4448	44
609-5008	609-5018	609-5048	50
609-5608	609-5618	609-5648	56
609-6008	609-6018	609-6048	60

Low Profile Polarized Headers on 2.54mm x 2.54mm (.100" x .100") grid patterns are designed as mating receptacles for Female Socket Transition Connectors. This header series features a compact, low profile design that offers significant board space saving. The "box" configuration also provides pin protection for the mating contacts. When mated with Polarized Female Socket Transition Connectors, positive polarization is possible because of the box configuration and the single polarization slot in the header top. Low profile headers are available with mounting holes, half mounting ears, without mounting ears and with straight and right angle solder tails for 1.57mm (.062") and 3.18mm (.125") thick printed circuit boards. Straight and right angle wrap post tail versions are also available.

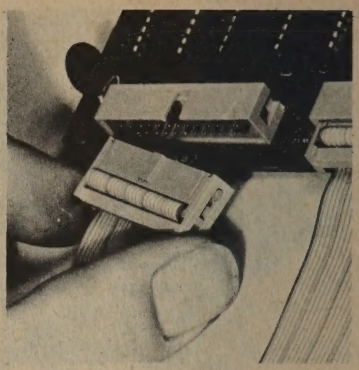


Low Profile Polarized Headers with Straight Contacts and Mounting Hole

CATALOG NUMBER			
DIMENSION E†			
2.59 (.102)†	4.11 (.162)†	15.80 (.622)†	
FOR 1.57 (.062) P.C. BOARDS	FOR 3.18 (.125) P.C. BOARDS	FOR WRAP POST TAILS	NO. OF POSITIONS
609-1028	609-1038	609-1058	10
609-1428	609-1438	609-1458	14
609-1628	609-1638	609-1658	16
609-2028	609-2038	609-2058	20
609-2628	609-2638	609-2658	26
609-3428	609-3438	609-3458	34
609-4028	609-4038	609-4058	40
609-4428	609-4438	609-4458	44
609-5028	609-5038	609-5058	50
609-5628	609-5638	609-5658	56
609-6028	609-6038	609-6058	60



Low Profile Polarized Wrap Post Tail Headers with 3 level wrap length pins. Straight contacts and mounting hole.

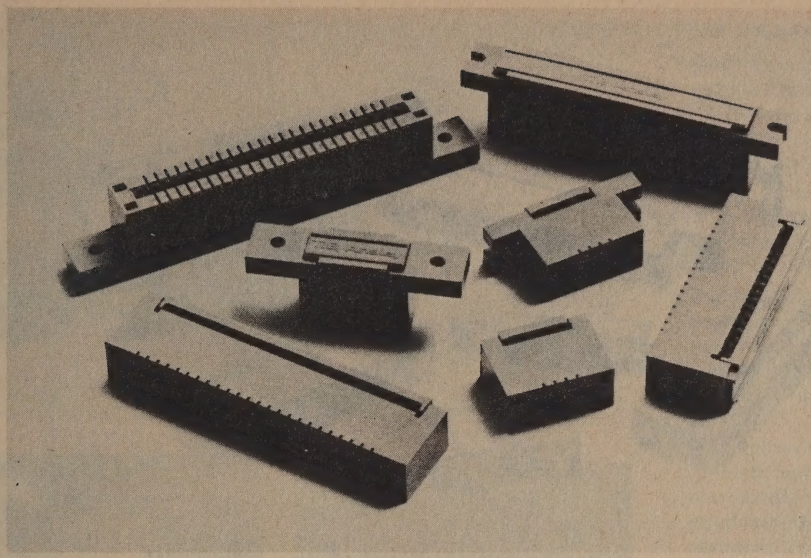


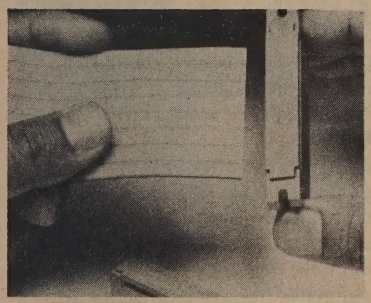
Low Profile Polarized Headers without Mounting Ears

CATALOG NUMBER			NO. OF CONTACTS
DIMENSION E†			
2.59 (.102)†	4.11 (.162)†	15.80 (.622)†	
FOR 1.57 (.062) P.C. BOARDS	FOR 3.18 (.125) P.C. BOARDS	FOR WRAP POST TAILS	(RIGHT ANGLE)
609-1007	609-1017	609-1047	10
609-1407	609-1417	609-1447	14
609-1607	609-1617	609-1647	16
609-2007	609-2017	609-2047	20
609-2607	609-2617	609-2647	26
609-3407	609-3417	609-3447	34
609-4007	609-4017	609-4047	40
609-4407	609-4417	609-4447	44
609-5007	609-5017	609-5047	50
609-5607	609-5617	609-5647	56
609-6007	609-6017	609-6047	60

CATALOG NUMBER			NO. OF CONTACTS
DIMENSION E†			
2.59 (.102)†	4.11 (.162)†	15.80 (.622)†	
FOR 1.57 (.062) P.C. BOARDS	FOR 3.18 (.125) P.C. BOARDS	FOR WRAP POST TAILS	(STRAIGHT)
609-1027	609-1037	609-1057	10
609-1427	609-1437	609-1457	14
609-1627	609-1637	609-1657	16
609-2027	609-2037	609-2057	20
609-2627	609-2637	609-2657	26
609-3427	609-3437	609-3457	34
609-4027	609-4037	609-4057	40
609-4427	609-4437	609-4457	44
609-5027	609-5037	609-5057	50
609-5627	609-5637	609-5657	56
609-6027	609-6037	609-6057	60

BLUE MACS®
Card Edge Connectors





One piece connector design speeds cable installation. Cable is simply inserted into the connector. Self-aligning cable grooves automatically position cable conductors over the insulation displacing TULIP® contacts to assure reliable cable-to-contact interface.

Card edge connectors are designed to provide a flat cable I/O access to PCB pads on 2.54mm (.100") centers. The bifurcated PCB pad mating portion of the TULIP® contact provides 2 points of contact with each PCB pad for exceptional electrical reliability.

Card edge connectors are designed to provide a reliable flat cable I/O access to double-sided PCB pads on 2.54mm (.100") centers. They are available in three different configurations, including full mounting ear for panel or card edge mount when the PCB is plugged and unplugged, half mounting ears for applications where space is at a premium, and with no mounting ear for use as a disconnect where the PCB remains stationary. The PCB pad mating portion of the TULIP® contact features a bifurcated design which tolerates irregular PCB pad variations. This contact design also exerts a bearing pressure on the board pads to displace any semi- or non-conductive films. A separate key is available for polarization requirements. This method of polarization permits full utilization of all TULIP® contacts.

To use the polarization key, all that is required is to machine a notch in the board between the desired traces, insert the key in the matching position in the connector, and break off the tab.

Card Edge Connectors With Full Mounting Ears

CONFIGURATION	CATALOG NUMBER	NO. OF POS.
MOUNTING EAR	609-1005M	10
	609-1605M	16
	609-2005M	20
	609-2605M	26
	609-3405M	34
	609-4005M	40
	609-4405M	44
	609-5005M	50
	609-5605M	56
	609-6005M	60

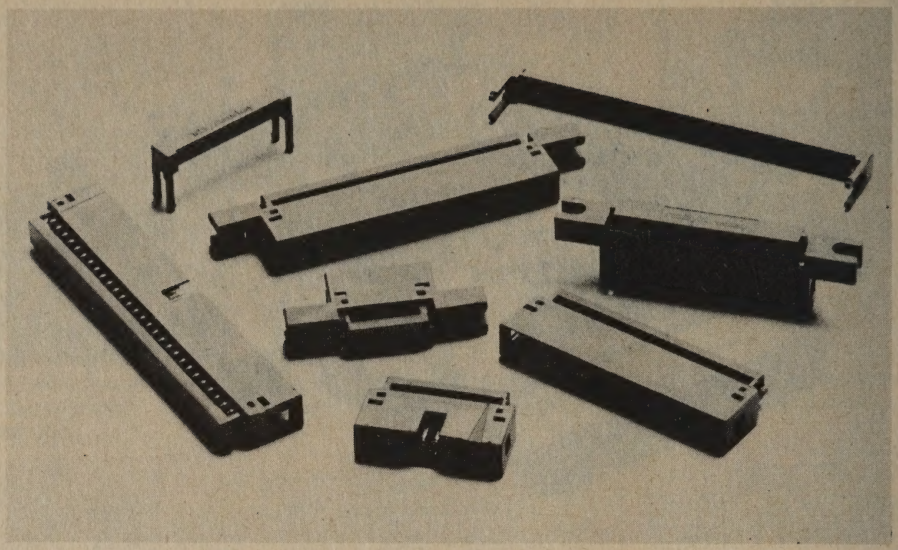
Card Edge Connectors With Half Mounting Ears

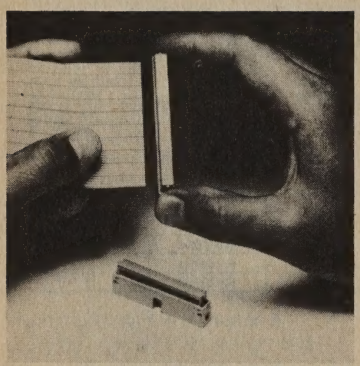
CONFIGURATION	CATALOG NUMBER	NO. OF POS.
HALF EAR	609-1025M	10
	609-1625M	16
	609-2025M	20
	609-2625M	26
	609-3425M	34
	609-4025M	40
	609-4425M	44
	609-5025M	50
	609-5625M	56
	609-6025M	60

Card Edge Connectors Without Mounting Ears

CONFIGURATION	CATALOG NUMBER	NO. OF POS.
WITHOUT EAR	609-1015M	10
	609-1615M	16
	609-2015M	20
	609-2615M	26
	609-3415M	34
	609-4015M	40
	609-4415M	44
	609-5015M	50
	609-5615M	56
	609-6015M	60

BLUE MACS® Male Connectors





One piece connector design speeds cable installation. Cable is simply inserted into the connector. Self-aligning cable grooves automatically position cable conductors over the insulation displacing TULIP® contacts to assure reliable cable-to-contact interface.

BLUE MACS® Male Connectors on 2.54mm x 2.54mm (.100" x .100") grid patterns are designed to mate with Female Socket Transition Connectors. Polarization is assured as a result of the box shape with a single polarization slot that is compatible with the polarized Female Socket Transition Connector. The box shape also protects the mating pins. The Male Connector is available with mounting ears for I/O applications, and without mounting ears for in line cable splice applications. A strain relief is also available for the Male Connector without mounting ears.

FEATURES AND BENEFITS

- One piece connector design reduces installation time up to ⅔, for *lowest* installed cost benefits.
- Exclusive TULIP® contact design offers extraordinary reliability by providing up to 4 points of contact per conductor for superior electrical performance.
- Exclusive ridge design built into the connector top accurately positions the cable conductors over each TULIP® contact for highly accurate cable-to-contact alignment.
- During the crimp cycle, exclusive molded "buttons" in the connector top firmly seat each conductor deep into the TULIP® contact for added termination reliability.
- Mechanical side latches keep the connector intact before, during and after the crimping cycle.
- Connector mass terminates without wire stripping or soldering to all types of BLUE MACS® flat cable, including round and flat conductor cable jacketed and shielded jacketed flat cable.

Male Connectors with Mounting Ears

CATALOG NO.	NO. OF POS.
609-1016	10
609-1416	14
609-1616	16
609-2016	20
609-2616	26
609-3416	34
609-4016	40
609-4416	44
609-5016	50
609-5616	56
609-6016	60

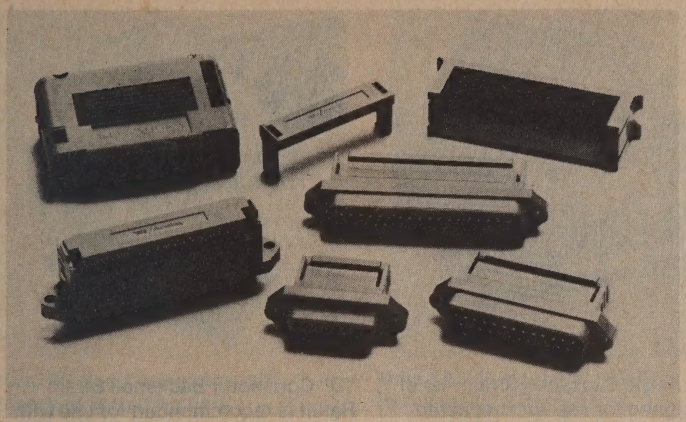
Male Connectors without Mounting Ears

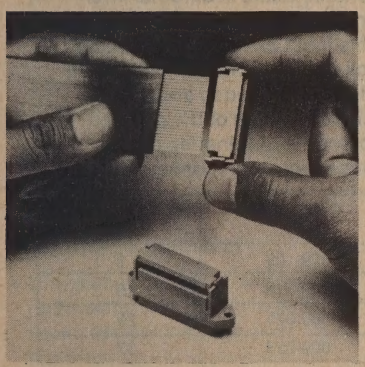
CATALOG NO.	NO. OF POS.
609-1006	10
609-1406	14
609-1606	16
609-2006	20
609-2606	26
609-3406	34
609-4006	40
609-4406	44
609-5006	50
609-5606	56
609-6006	60

Strain Relief

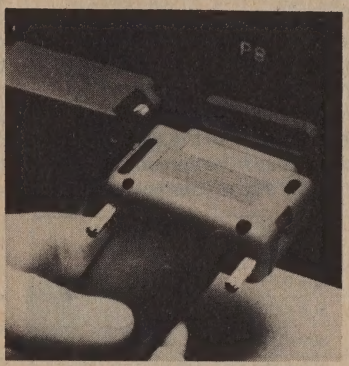
CATALOG NO.	NO. OF POS.
609-1066	10
609-1466	14
609-1666	16
609-2066	20
609-2666	26
609-3466	34
609-4066	40
609-4466	44
609-5066	50
609-5666	56
609-6066	60

BLUE MACS® "D" Connectors

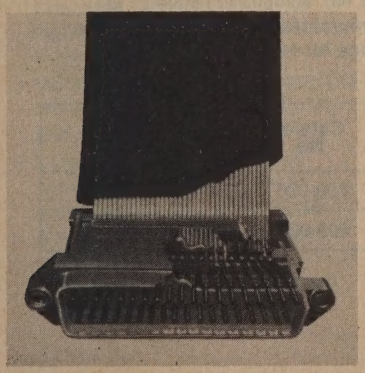




One piece connector design speeds cable installation. Cable is simply inserted into the connector. Self-aligning cable grooves automatically position cable conductors over the insulation displacing TUPLIP® contacts to assure reliable cable-to-contact interface.



Jacketed cable terminated to "D" connectors for external interconnect applications.



An exclusive SPREAD PITCH™ contact design enables this connector series to be mass terminated to 1.27mm (.050") pitch cable while maintaining I/O compatibility with 1.38mm (.0545") "D" type connectors.

Used in panel mounted I/O applications, this "D" Connector series features an exclusive "spread pitch" design where each of the TULIP® contacts is proportionally moved to accommodate the varying pitch that occurs between the cable interface and I/O mating contacts.

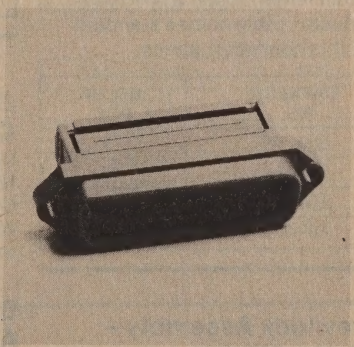
This design enables the connector to be mass terminated to all types of standard 1.27mm (.050") pitch cable while still maintaining complete mating compatibility with industry standard "D" type connectors with I/O mating contacts on 1.38mm (.0545") centers.

"D" Connectors can be terminated to round conductor cable for intra-cabinet applications as well as Ansley's U.L. listed Jacketed cable for inter-cabinet applications.

A full complement of mounting hardware accessories and back-shell strain reliefs are also available for this connector series.

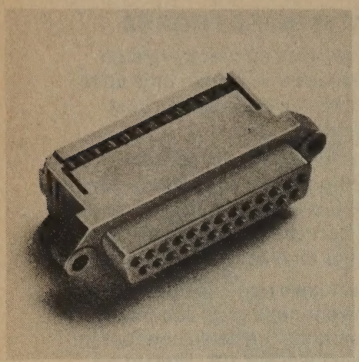
FEATURES AND BENEFITS

- One piece connector design reduces installation time up to ⅔, for *lowest* installed cost benefits.
- Exclusive TULIP® contact design offers extraordinary reliability by providing up to 4 points of contact per conductor for superior electrical performance.
- Exclusive ridge design built into the connector top accurately positions the cable conductors over each TULIP® contact for highly accurate cable-to-contact alignment.
- During the crimp cycle, exclusive molded "buttons" in the connector top firmly seat each conductor deep into the TULIP® contact for added termination reliability.
- Mechanical side latches keep the connector intact before, during and after the crimping cycle.
- Connector mass terminates without wire stripping or soldering to all types of BLUE MACS® flat cable, including round conductor cable, jacketed and shielded jacketed flat cable.



"D" Connectors with pin contacts are designed for I/O applications utilizing standard 1.27mm (.050") pitch cable.

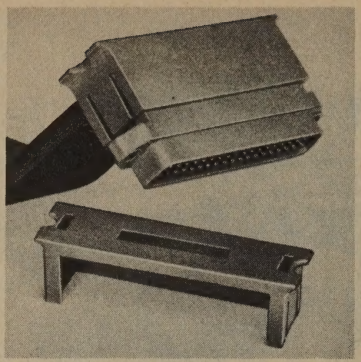
CATALOG NO.	NO. OF POS.
609- 9P	9
609-15P	15
609-25P	25
609-37P	37



"D" Connectors with socket contacts are designed for I/O applications utilizing standard 1.27mm (.050") pitch cable. This connector series can be mass terminated to all types of 28 or 30 AWG Jacketed Cable for U.L. listed external interconnection of electronic equipment. The use of backshell strain reliefs are recommended when "D" Connectors are terminated to Jacketed Cable in inter-cabinet disconnect applications.

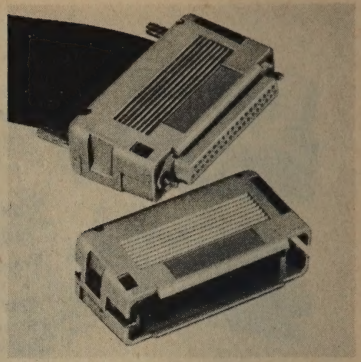
"D" Connectors can also be mass terminated to standard 28 or 30 AWG round conductor cable for intra-cabinet applications.
A strain relief for use with round conductor cable comes standard with this connector series.

CATALOG NO.	NO. OF POS.
609- 9S	9
609-15S	15
609-25S	25
609-37S	37



Right Angle Backshell Strain Relief is designed for use with Jacketed Cable in external inter-connect applications where the cable must exit at right angles from the back of the connector. Small "gripping" teeth molded into the strain relief top maintain a firm grip on the jacketed portion of the cable to protect the termination during disconnect and reconnect cycles.

CATALOG NO.	NO. OF POS.
609-09R	9
609-015R	15
609-025R	25
609-037R	37



"D" Connector Backshell Strain Relief is recommended for use with Jacketed Cable in external interconnect applications where the cable must exit straight from the back of the connector. This strain relief is designed to grip the jacketed portion of the cable to protect the termination during disconnect and reconnect cycles.

CATALOG NO.	NO. OF POS.
609- 09	9
609-015	15
609-025	25
609-037	37

Screwlock Assembly - Cat. No. 609-001

Used to retain 2 "D" connectors to each other through a panel or PC Board.

Retaining Ring Installation Tool - Cat. No. 779-6211

Jackscrew Assembly - Cat. No. 609-002

Used with Jacksocket Cat. No. 609-003 to retain 2 "D" Connectors as a mated pair cable splice.

Retaining Ring Installation Tool - Cat. No. 779-6210

Jack Socket Assembly - Cat. No. 609-003

Used with Jackscrew Cat. No. 609-002 to retain 2 "D" Connectors as a mated pair cable splice for front panel mounting.

Backshell Jacscrew Assembly - Cat. No. 609-004

Used with Backshell Strain Relief and Jacksocket Cat. No. 609-003 to retain 2 "D" Connectors as a mated pair cable splice.

Retaining Ring Installation Tool - Cat. No. 779-6210

Backshell Screwlock Assembly - Cat. No. 609-005

Used with Backshell Strain Relief to retain 2 "D" Connectors through a panel or P.C. Board.

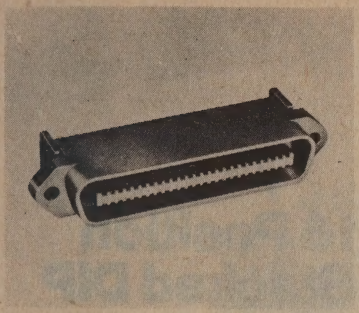
Retaining Ring Installation Tool - Cat. No. 779-6211

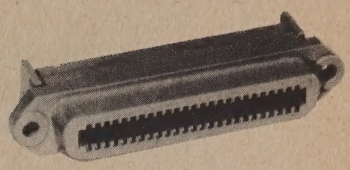
Jack Socket Assembly - Cat. No. 609-006 and 609-007

Used with Jackscrew Cat. No. 609-002 to retain 2 "D" Connectors as a mated pair cable splice for rear panel mounting.

Catalog No.	Panel Thickness
609-006	.090
609-007	.125

BLUE MACS® Ribbon Connectors





Male Ribbon Connectors with Standard Mounting Ears

CATALOG NO.	NO. OF POSITIONS
609-14M	14
609-24M	24
609-36M	36
609-50M	50

Male Ribbon Connectors with Bail Mounting Ears

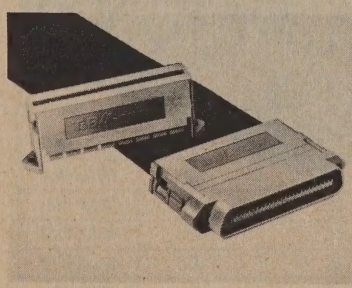
CATALOG NO.	NO. OF POS.
609-14MA	14
609-24MA	24
609-36MA	36
609-50MA	50

Female Ribbon Connectors with Standard Mounting Ears

CATALOG NO.	NO. OF POSITIONS
609-14F	14
609-24F	24
609-36F	36
609-50F	50

FEATURES AND BENEFITS

- One piece connector design reduces installation time up to ⅔, for *lowest* installed cost benefits.
- Exclusive TULIP® contact design offers extraordinary reliability by providing up to 4 points of contact per conductor for superior electrical performance.
- Exclusive ridge design built into the connector top accurately positions the cable conductors over each TULIP® contact for highly accurate cable-to-contact alignment.
- Mechanical side latches keep the connector intact before, during and after the crimping cycle.
- Connector mass terminates without wire stripping or soldering to all types of BLUE MACS® flat cable, including round conductor cable, jacketed and shielded jacketed flat cable.



Ribbon Connector Backshell Strain Relief

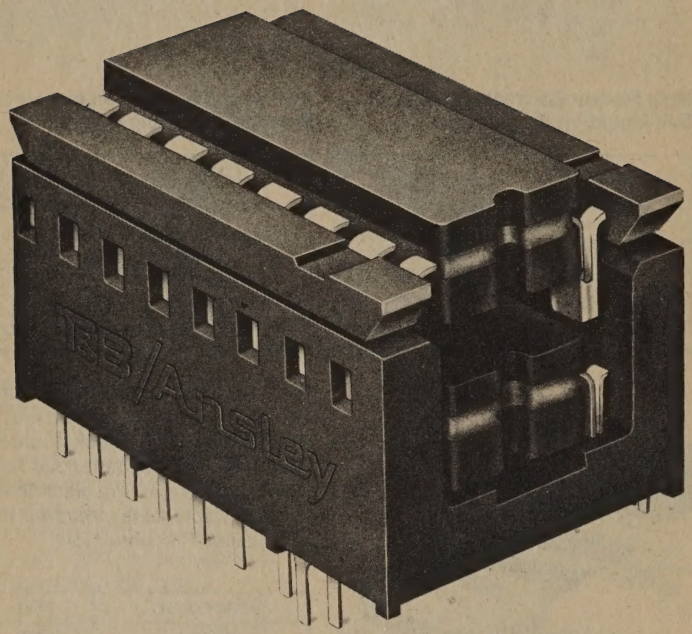
Provides strain relief for standard ear version Ribbon Connectors when terminated to Jacketed Cable. Strain relief is recommended for applications requiring disconnect cycling. Cable exits straight from the back of the connector.

CATALOG NO.	POS.
609-014	14
609-024	24
609-036	36
609-050	50

Ribbon Connector Mounting Hardware

CATALOG NO.	APPLICATION	CLIP STYLE
609-320	FOR MOUNTING TO ANSLEY RIBBON CONNECTORS WITH BAIL MOUNT EARS	A
609-321	FOR MOUNTING TO ANSLEY RIBBON CONNECTORS WITH BACKSHELL STRAIN RELIEF (FRONT PANEL MOUNT)	B
609-322	FOR MOUNTING TO ANSLEY RIBBON CONNECTORS WITH BACKSHELL STRAIN RELIEF (REAR PANEL MOUNT)	C
609-323	FOR MOUNTING ANSLEY RIBBON CONNECTORS TO METAL SHELL CONNECTORS WITH BAIL MOUNTING EARS	D
609-324	THREADED BUSHING FOR ALL IN LINE MOUNTING APPLICATIONS	N/A

T&B/Ansley



16 Position Stacked DIP Socket

Catalog No. 609-16-1
609-16-2
609-16-3
609-16-4
609-16-5

for 4K, 16K and 64K Dynamic Random Access Memory Packages

Patents Pending

The T&B/Ansley Stacked DIP Sockets are designed to be compatible with two 16 pin Dynamic RAM's (4K, 16K or 64K), one above the other. The position of the contacts in the DIP Socket allows the upper IC device to be electrically selected, independent of the lower IC device. This selection is made possible by the use of independent contacts for the upper Row Address Strobe *(RAS)* pin #4, and the upper Column Address Strobe *(CAS)* pin #15. All other contacts are electrically paralleled.

A decoupling capacitor assembly can be added to the socket to provide up to three 0.1 μf capacitors. This assembly becomes an integral part of the socket.

The contacts of the Stacked DIP Socket are cam operated, which significantly lowers IC insertion forces. The operating cam has three distinct positions. Position #1 is "cam up," which disengages the upper and lower contacts, allowing insertion or extraction of either IC. Position #2 engages the lower contacts. In this position the upper IC may be inserted or extracted without affecting the electrical integrity of the lower IC. Position #3 is "cam down," which engages the upper contacts with the leads of the upper IC package while at the same time maintaining the lower contacts in the engaged position on the lower IC package leads.

The upper IC package is supported in the Stacked DIP Socket by a mounting clip that serves several functions. It provides a means of supporting the leads of the upper IC package against the normal forces of the upper contacts, while at the same time providing positive clearance for air flow over the lower IC package.

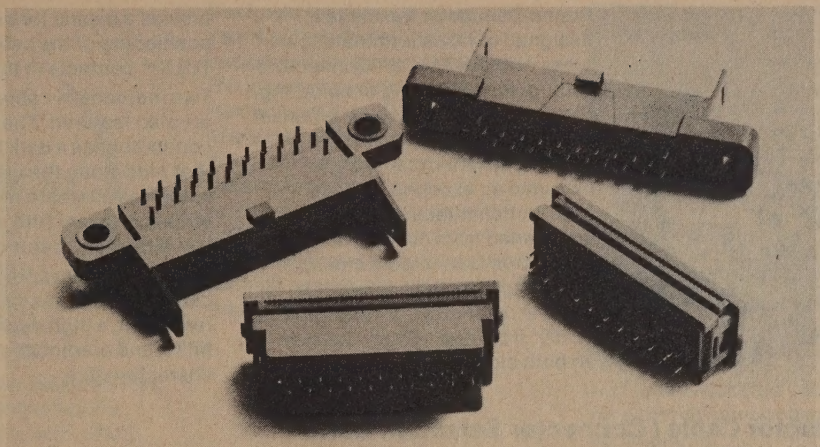
- Low Profile
- Low insertion force
- Positive air flow over lower IC package
- Cam operated
- Upper IC $\overline{RAS}$ and $\overline{CAS}$ electrically isolated from lower IC $\overline{RAS}$ and $\overline{CAS}$

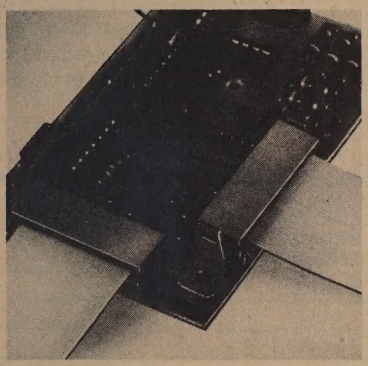
Physical Properties	
Insulation Material	Glass reinforced thermoplastic
Contact Material	Be Cu.
Mounting Clip	Brass
Contact Plating	150 μ inch tin over nickel
Insertion Force	2.4 lbs. with cams up
Electrical Properties	
Contact Resistance	Upper Contact—3.3 milliohm Lower Contact—1.65 milliohm
Capacitance—Pin to Pin	1 pf.
Dielectric Strength	1000 VDC (Sea Level)
Environmental Properties	
Temperature Rating	−55°C to 105°C
UL Approved for 105°C	

PRICES LISTED ARE FOR GUIDANCE ONLY

T&B/Ansley

BLUE MACS® Micro-Pitch Connectors and Cable





Micro-Pitch Connectors are typically used in high density wiring applications.

Available in PCB Solder Transition, Shrouded Male Plug and Polarized Female Header configurations,

Micro-Pitch connectors are ideal for high density, controlled impedance applications. Alternate signal and ground lines in .64mm (.025") pitch transmission line cable are mass terminated in seconds. During termination, TULIP® contacts provide up to 4 points of contact with each of 20 signal lines. A ground bar which also uses insulation displacing contacts grounds each of the 21 ground lines. This bar also has two external contacts which are soldered to a PCB to provide a common ground. BLUE MACS® Transmission Line Cable Style 170 is designed specifically for use with Micro-Pitch Connectors in high density wiring applications.

Micro-Pitch PCB Solder Transition Connector

CAT. NO.	P.C. BOARD SIZE	NO. OF POS.
025-0320	1.57 (.062)	20
025-2320	2.36 (.093)	20

Micro-Pitch Shrouded Male Plug

CAT. NO.	NO. OF POS.
025-0120 †	20

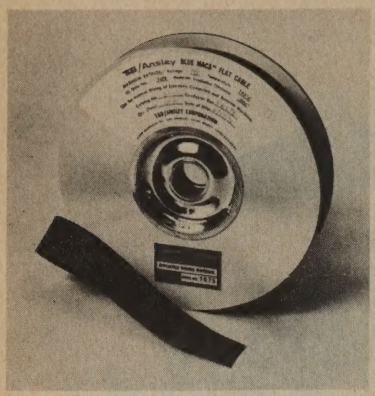
Micro-Pitch Polarized Female Headers

CAT. NO.	TYPE OF CONTACT	NO. OF POS.	USED WITH CAT. NO.	P.C. BOARD THK.
025-0220	R/A	20	025-0120	1.57 (.062)
025-1220	R/A	20	025-0120	2.36 (.093)
025-2220	R/A	20	025-0120	3.18 (.125)
025-3220	ST	20	025-0120	1.57 (.062)
025-4220	ST	20	025-0120	2.36 (.093)
025-5220	ST	20	025-0120	3.18 (.125)

BLUE MACS® Transmission Line Cable Style 170 is designed for high density, controlled impedance applications using Mirco-Pitch Connectors. This cable features 33 AWG solid wire on .64mm (.025") centers, with 20 signal lines and 21 ground lines. TEFLON® insulation is utilized for its superior electrical characteristics.

Transmission Line Cable									TYPICAL CROSSTALK CHARACTERISTIC 3.1M (10FT) SAMPLE ONE LINE DRIVEN			
ANSLEY CAT. NO.	WIRE GAUGE	INSULATION	TEMP. RATING	IMPEDANCE OHMS	CAPACITANCE pF/M (pF/FT)	INDUCTANCE μH/M (μH/FT)	VELOCITY OF PROPAGATION nS/M (nS/FT)	INSULATION RESISTANCE OHMS	RISE TIME nSEC	NEAR END	FAR END	UL STYLE NO.
170	#33 AWG SOLID SILVER PLATED	TEFLON®	60°C	110	39 (12)	.49 (.15)	4.27 (1.30)	10^{10}	3.0 / 7.0	4.3% / 3.0%	5.0% / 2.3%	2445

BLUE MACS®
Round Conductor Flat Cable



Round Conductor flat cable is designed to mass terminate to all types of BLUE MACS® Connectors without wire stripping or soldering. Primarily designed for intra-cabinet wiring applications, this highly flexible, symmetrical cable is extruded so exacting 1.27mm (.050") pitch tolerances can be maintained from conductor to conductor. Connectors can be terminated to round conductor cable in up or down configurations or 180° from each other. Grooves on both sides of the cable also provide a means for exact positioning of the cable over the TULIP® contacts in the connector.

Two methods of cable polarization are also featured. The number one conductor has a dark blue stripe that runs along the leading edge as well as alternate red and blue stripes on every fifth conductor on one side of the cable only.

The inherent advantages of this cable include space and weight reduction, a high degree of flexibility, and predictable electrical characteristics.

Round Conductor Cable / Connector Selection Chart

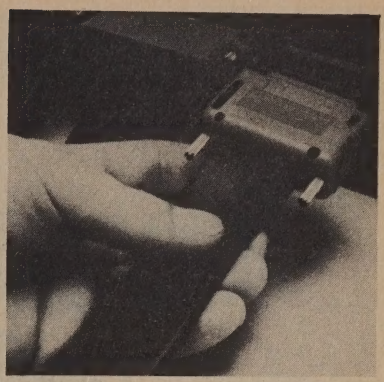
CABLE STYLE	Used with the following connectors*
171 Style - 28 AWG Stranded Round Conductor	All BLUE MACS® Connectors
172 Style - 30 AWG Solid Round Conductor	All BLUE MACS® Connectors except Ribbon Connectors
173 Style - 28 AWG Solid Round Connector	All BLUE MACS® Connectors except Ribbon Connectors
178 Style - 26 AWG Solid Round Conductor	Designed primarily for use with Ribbon Connectors
179 Style - 26 AWG Stranded Round Conductor	Designed primarily for use with Ribbon Connectors

*Micro-Pitch Connectors use BLUE MACS® Transmission Line Cable Style 170.

NO. OF CONDUCTORS	CAT. NO. 28 GAUGE STRANDED	CAT. NO. 30 GAUGE SOLID	CAT. NO. 28 GAUGE SOLID	CAT. NO. 26 GAUGE SOLID	CAT. NO. 26 GAUGE STRANDED
9	171-09	172-09	173-09	—	—
10	171-10	172-10	173-10	—	—
14	171-14	172-14	173-14	178-14	179-14
15	171-15	172-15	173-15	—	—
16	171-16	172-16	173-16	—	—
20	171-20	172-20	173-20	—	—
24	171-24	172-24	173-24	178-24	179-24
25	171-25	172-25	173-25	—	—
26	171-26	172-26	173-26	—	—
34	171-34	172-34	173-34	—	—
36	171-36	—	—	178-36	179-36
37	171-37	172-37	173-37	—	—
40	171-40	172-40	173-40	—	—
44	171-44	172-44	173-44	—	—
50	171-50	172-50	173-50	178-50	179-50
56	171-56	172-56	173-56	—	—
60	171-60	172-60	173-60	—	—
64	171-64	—	—	—	—

BLUE MACS® Jacketed Flat Cable

Designed for external wiring applications, Dual Dielectric PVC Jacketed Flat Cable combines all the inherent advantages of flexibility and predictable electrical characteristics found in flat cable. This cable structure is ideal for external interconnection of electronic equipment. Jacketed cable also exhibits consistent low crosstalk characteristics required for high speed data processing equipment.



Dual Dielectric Thin Jacketed Flat Cable features a polyethelene insulated core cable with a PVC outer jacket. It is ideal for external interconnection of electronic equipment. Available in 100 foot, continuous rolls. 300 foot continuous rolls are also available.

U.L. listed Jacketed Cable is used for external interconnect applications.

Jacketed Flat Cable Styles 174, 184, and 180

NO. OF COND.	CAT. NO. 28 GAUGE STRANDED	CAT. NO. 30 GAUGE SOLID	CAT. NO. 26 GAUGE STRANDED
9	174-09	184-09	—
10	174-10	184-10	—
14	174-14	184-14	180-14
15	174-15	184-15	—
16	174-16	184-16	—
20	174-20	184-20	—
24	174-24	184-24	180-24
25	174-25	184-25	—
26	174-26	184-26	—
34	174-34	184-34	—
36	174-36		180-36
37	174-37	184-37	—
40	174-40	184-40	—
44	174-44	—	—
50	174-50	184-50	180-50
56	174-56	—	—
60	174-60	—	—
64	174-64	—	—

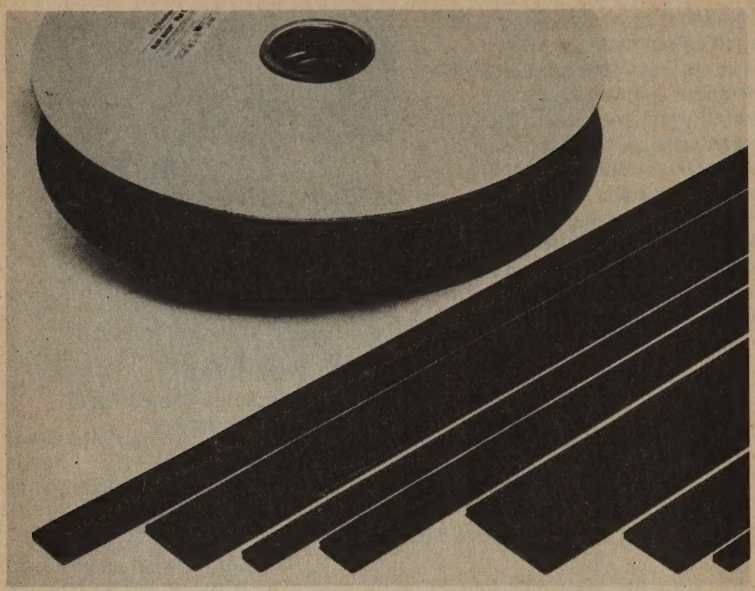
Thin Jacketed Flat Cable Style 194

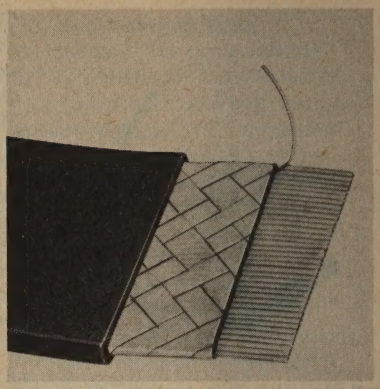
NO. OF COND.	CAT. NO. THIN JACKETED CABLE
20	194-20
25	194-25
26	194-26
34	194-34
37	194-37
40	194-40
50	194-50

Jacketed Cable Connector Selection Chart

JACKETED CABLE STYLE	Used with the following connectors
174 Style - 28 AWG Stranded Conductor	All BLUE MACS® Connectors
180 Style - 26 AWG Stranded Conductor	Designed primarily for use with Ribbon Connectors
184 Style - 30 AWG Solid Conductor	All BLUE MACS® Connectors except Ribbon Connectors
194 Style - 28 AWG Stranded Conductor	All BLUE MACS® Connectors

BLUE MACS®
Jacketed Shielded Cable





Standard BLUE MACS® insulation piercing connectors are easily installed on jacketed cable after a small portion of the jacket is removed.

U.L. Listed Jacketed Shielded Cable is designed primarily for use with BLUE MACS® "D" Connectors, Ribbon Connectors or Male Connectors. It features a 28 AWG stranded PVC insulated wire with a flexible woven aluminum foil shielding surrounded by a black PVC outer jacket. It also incorporates a special drain wire which can be terminated directly to a contact in the connector or pigtailed out to achieve a shielded ground termination.

Jacketed Shielded Cable is designed primarily for use with "D", Ribbon and Male Connectors in I/O applications. Available in 100 foot, continuous rolls. 300 foot continuous rolls also available.

Jacketed Shielded Cable / Connector Selection Chart

CABLE STYLE	Used with the following connectors
177 Style - 28AWG Stranded Conductor	All BLUE MACS® Connectors

CATALOG NO.	NO. OF COND.
177- 9	9
177-10	10
177-14	14
177-15	15
177-16	16
177-20	20
177-24	24
177-25	25
177-26	26
177-34	34
177-36	36
177-37	37
177-40	40
177-44	44
177-50	50
177-56	56
177-60	60
177-64	64

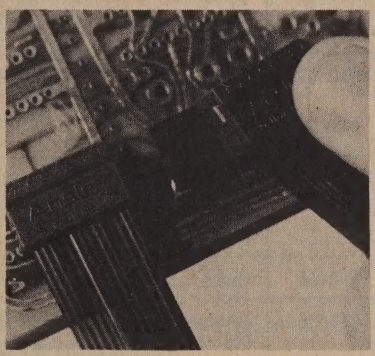
BLUE MACS®
Flat Conductor Flat Cable

ANSLEY CATALOG NO.	175
EQUIVALENT WIRE GAUGE	33 AWG
INSULATION	MYLAR® †
TEMP. RATING	80°C
VOLTAGE RATING	90 V
CURRENT RATING	.5 AMPS
OVERALL THICKNESS	.25 (.010)
COLOR	BLUE

NO. OF CONDUCTORS	CAT. NO.
10	175-10
14	175-14
16	175-16
20	175-20
24	175-24
26	175-26
34	175-34
40	175-40
44	175-44
50	175-50
56	175-56
60	175-60

Ansley Flat Conductor Flat Cable is ideal for applications where high flexibility, weight and space reduction and consistent electrical characteristics are required. Designed to be terminated to most standard BLUE MACS® connectors without wire stripping or soldering, this flat cable conductor offers exceptionally high performance under high flex conditions. To terminate, a unique low profile adapter or spacer is positioned anywhere along the length of the cable where the connector is to be installed. The cable is placed into a standard connector and crimped with standard BLUE MACS® hand or bench tooling. For ease of polarity identification, the number 1 conductor is tin plated to distinguish it from the other conductors.

CABLE STYLE	Used with the following connectors
175 Style – 33 AWG equivalent wire gauge	All BLUE MACS® Connectors except "D" and Ribbon Connectors.

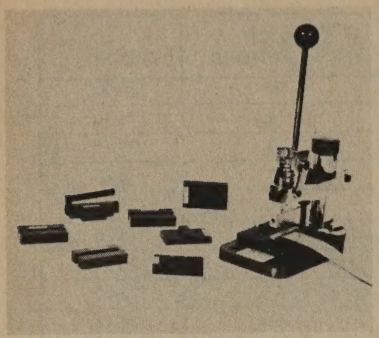


BLUE MACS® Flat Conductor Cable is ideal for applications where high flex life, weight reduction and consistent electrical characteristics are required.

FLAT CONDUCTOR CABLE / CONNECTOR SELECTION CHART

CABLE		ADAPTERS					
No. of Conductors	Cable Cat. No.	Adapters for Female Socket Transition Connectors	Adapters for Card Edge Connectors	Adapters for Socket Connectors and Standard DIP Plug Connectors .100 × .300 Grid	Adapters for Low Profile DIP Plug Connectors	Adapters for PCB Solder Transition Connectors	Adapters for Male Connectors
10	175-10	609-W104	609-W105			609-W108	609-W109
14	175-14	609-W144		609-W146	609-W147	609-W148	609-W149
16	175-16	609-W164	609-W165	609-W166	609-W167	609-W168	609-W169
20	175-20	609-W204	609-W205			609-W208	609-W209
24	175-24				609-W247		
26	175-26	609-W264	609-W265			609-W268	609-W269
34	175-34	609-W344	609-W345			609-W348	609-W349
40	175-40	609-W404	609-W405		609-W407	609-W408	609-W409
44	175-44	609-W444	609-W445			609-W448	609-W449
50	175-50	609-W504	609-W505			609-W508	609-W509
56	175-56	609-W564	609-W565			609-W568	609-W569
60	175-60	609-W604	609-W605			609-W608	609-W609

BLUE MACS® Bench Press



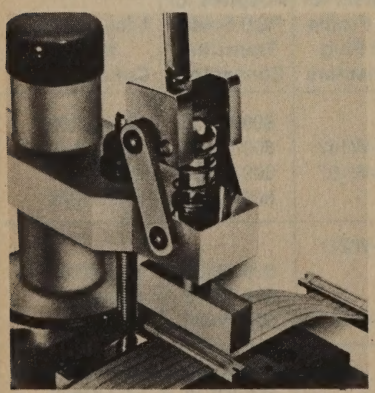
Ansley's rugged, easy to use BLUE MACS® bench press is designed for large volume installation of insulation displacing connectors to round or flat conductor cables on 1.27mm (.050") centers. With a mechanical advantage of approximately 30:1, minimum operator effort is required to simultaneously mass terminate up to 64 conductor cables in seconds - without wire stripping or soldering. A spring loaded arm return further reduces operator fatigue.

Tool adjustment is rarely required. The tool's shut height is factory preset and does not need adjustment when base plates are changed to terminate different connector styles.

A complete series of interchangeable base plates are available to install the entire range of BLUE MACS® connectors. Unnecessary handling of base plates is eliminated as each plate accommodates the complete range of connector sizes within any connector style.

For maximum installation versatility, the Bench Press utilizes base plates and platens that can be rotated 90° to accommodate cable clearance for mid-span crimping.

During operation, a cable guide helps verify that the cable enters the connector at right angles and that the load is evenly distributed in the center of the press during a compression cycle. A reliable crimp is obtained by a positive bottoming action of the die on the connector.

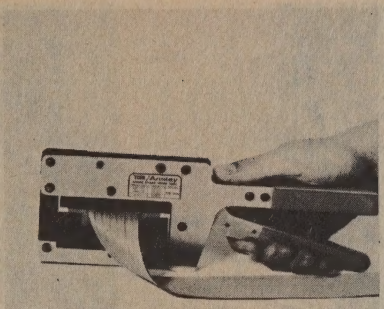


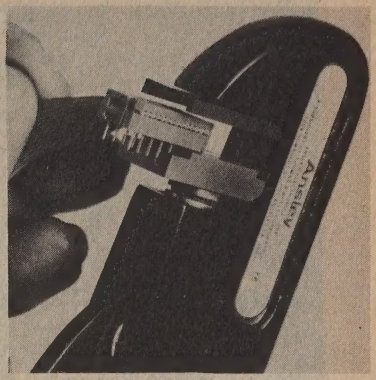
Base Plate and Platen rotated 90° to allow cable clearance for crimping in middle of cable.

CAT. NO.	DESCRIPTION
779-3100	BENCH PRESS WITH STANDARD PLATEN (779-3130). BASE PLATES NOT INCLUDED.

CAT. NO.	DESCRIPTION
779-3130	STANDARD REPLACEMENT PLATEN FOR 779-3100 BENCH PRESS.
779-3131	MODIFIED PLATEN FOR USE WITH "D" CONNECTOR BASE PLATE 779-3166.
779-3132	MODIFIED PLATEN FOR USE WITH BASE PLATE NO. 779-3154. ALSO USED TO TERMINATE 025 - SERIES MICRO-PITCH AND RIBBON CONNECTORS.

CAT. NO.	USED TO INSTALL
779-3151	BASE PLATE FOR STANDARD AND POLARIZED FEMALE SOCKET TRANSITION CONNECTORS - 609-1000M, 609-1001M AND 609-1030 SERIES.
779-3152	BASE PLATE FOR PCB SOLDER TRANSITION CONNECTORS - 609-1003 SERIES, 609-1023 SERIES AND 609-1043 SERIES. USED TO TERMINATE CABLE BEFORE CONNECTOR IS SOLDERED TO PC BOARDS.
779-3154	BASE PLATE FOR PCB SOLDER TRANSITION CONNECTORS - 609-1003 SERIES, 609-1023 SERIES AND 609-1043 SERIES. USED TO TERMINATE CABLE AFTER CONNECTOR IS SOLDERED TO PC BOARDS.
779-3156	BASE PLATE FOR STANDARD DIP PLUGS - 609-M141 AND 609-M161.
779-3158	BASE PLATE FOR LOW PROFILE DIP PLUGS - 609-M145, 609-M145H, 609-145TH, 609-M165, 609-M165H AND 609-M165TH
779-3161	BASE PLATE FOR LOW PROFILE DIP PLUGS - 609-M245H, 609-M245TH AND 609-M407H
779-3162	BASE PLATE FOR SOCKET CONNECTORS - 609-F141M, 609-F161M, 609-141M2 AND 609-F161M2.
779-3164	BASE PLATE FOR CARD EDGE CONNECTORS - 609-1005, 609-1015 AND 609-1025 SERIES.
779-3166	BASE PLATE FOR "D" CONNECTORS 609-9S AND 609-9P SERIES.
779-3168	BASE PLATE FOR MALE CONNECTORS 609-1006 AND 609-1016 SERIES.
779-3170	BASE PLATE FOR EUROPEAN STANDARD INTERFACE CONNECTOR 609-64-3 AND 609-641-3.
779-3180	CABLE CUTTER.
779-3184	BASE PLATE FOR RIBBON CONNECTORS - 609-14M AND 609-14F SERIES.
779-3186	BASE PLATE FOR MICRO-PITCH PLUG CONNECTOR 025-0120.
779-3188	BASE PLATE FOR MICRO-PITCH PCB CONNECTORS 025-0320 AND 025-2320.
779-3190	BASE PLATE FOR EUROPEAN STANDARD INTERFACE CONNECTOR 604-64-2 AND 609-641-2.





T&B/Ansley offers a choice of three distinct hand tools to satisfy varying requirements for bench or field applications. Catalog number 779-2100 is designed to mass terminate the entire range of BLUE MACS® connectors, using interchangeable dies. Catalog numbers 779-1000 and 779-2000 provide a choice of tools to mass terminate DIP Plugs only, or a combination of DIP Plugs, Female Socket Transition Connectors and Socket Connectors.

All three hand tools feature a SHURE STAKE® controlled crimp mechanism that eliminates operator guesswork. Once the compression cycle is initiated, the tool jaws cannot be opened until the cycle is completed. The operator is therefore assured of a reliable crimp every time - without wire stripping or soldering.

CAT. NO.	DESCRIPTION
779-2100	TOOL FRAME WITHOUT INTERCHANGEABLE DIES.

DIE CAT. NO.	USED TO INSTALL
779-2150	609-1000M, 1001M, and 1030 SERIES FEMALE SOCKET TRANSITION CONNECTORS.
779-2152	609-1003 SERIES PCB SOLDER TRANSITION CONNECTORS.
779-2156	609-M141 and 609-M161 DIP PLUGS.
779-2158	609-M145, M145H, M145TH, M165, M165H, and M165TH DIP PLUGS.
779-2161	609-M245, M245H, M245TH & M407 DIP PLUGS.
779-2162	609-F141M, 609-F141M2, 609-F161M and 609-F161M2 SOCKET CONNECTORS.
779-2164	609-1005M, 1015M, and 1025M SERIES CARD EDGE CONNECTORS.
779-2166	609-9S and 609-9P SERIES "D" CONNECTORS.
779-2168	609-1006 and 609-1016 SERIES MALE CONNECTORS.
779-2170	609-64-2 and 609-64-3 SERIES DIN CONNECTORS.
779-2172	609-14M and 609-14F SERIES RIBBON CONNECTORS.
779-2174	025-0120 PLUG CONNECTOR.
779-2176	025-0320 and 025-2320 PCB CONNECTORS.

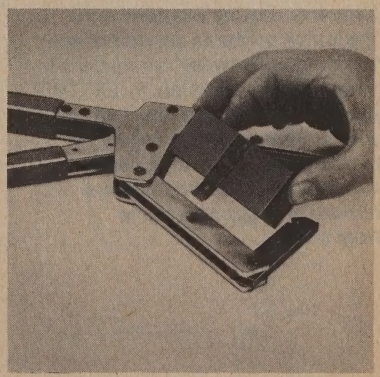
CAT. NO.	USED TO INSTALL
779-1000	609-M141, M161 DIP PLUGS. 609-M145, M145H, M145TH, M165, M165H, and M165TH LOW PROFILE DIP PLUGS.
779-2000	609-M141, M161 DIP PLUGS. 609-M145, M145H, M145TH, M165, M165H, and M165TH LOW PROFILE DIP PLUGS. 609-1000M and 1001M FEMALE SOCKET TRANSITION CONNECTORS.
779-2003	609-F141M, F141M2, F161M and F161M2 SOCKET CONNECTORS.

(Top Die For 770-2000)

Ansley's newest and most versatile BLUE MACS® Hand Tool is designed to mass terminate the entire range of BLUE MACS® connectors - without wire stripping or soldering.

Interchangeable dies are utilized to install different connector types. Each die will quickly snap in and out of the tool frame and will accommodate the entire range of connector sizes within any connector style.

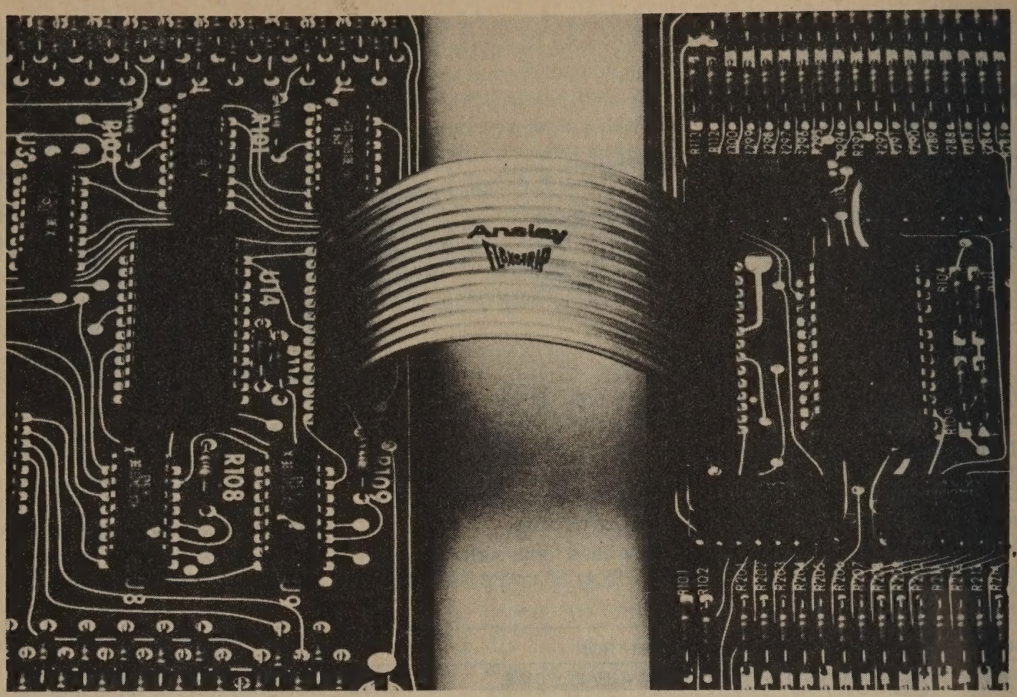
This tool features the SHURE STAKE® mechanism for reliable, positive crimping every time, and is ideally suited for small production runs or field service applications where a wide variety of connector types are installed.



Interchangeable dies snap in and out as required.

T&B/Ansley

FLEXSTRIP® Jumpers



...add another dimension to pc boards

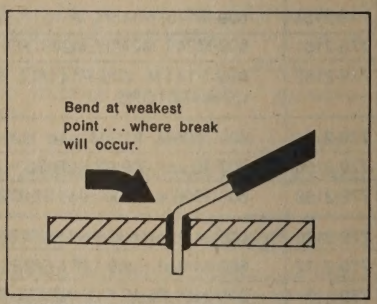
To extend circuitry that is flexible beyond a rigid printed circuit board, the common method has been point-to-point wiring with conventional round wire. Using this method results in two major disadvantages: long installation time and repeated breakage at the termination point after repeated flexing.

To satisfying mass production techniques for interconnecting jumpers, Ansley provides the ideal bridge of flexibility from one circuit board to another: FLEXSTRIP jumpers. Conductors are flat for flexibility, contacts are round, and the spacing between conductors is fixed for easy insertion. FLEXSTRIP jumpers are ready to use – with no wire stripping, cutting to length, or soldering preparation needed. All are preplated, and there are hundreds of sizes available from stock.

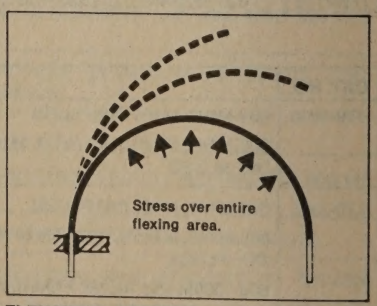
Lower installed cost benefits are realized since round pin ends facilitate ease of insertion into board hole patterns. Multi-conductor FLEXSTRIP Jumpers are installed as a unit.

FLEX LIFE

Whether FLEXSTRIP jumpers are flexed a hundred or a thousand times, conductors will not fail. Flat/round design and one-piece construction give vibration-proof reliability and long life.



CONVENTIONAL WIRING

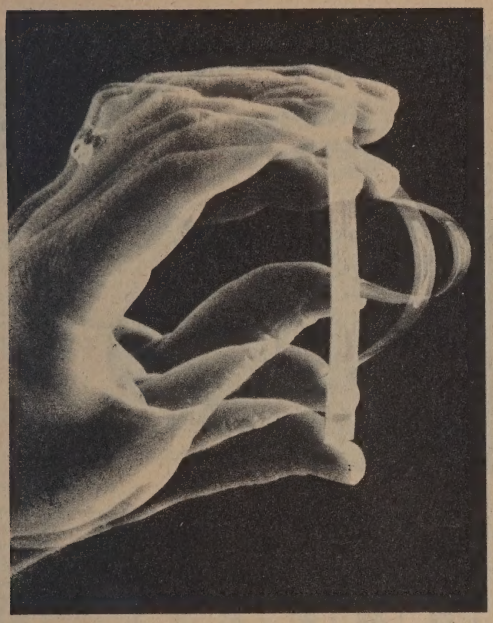


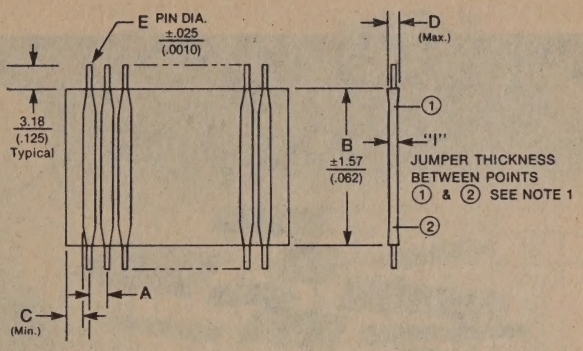
FLEXSTRIP JUMPERS

U.S. Patent No. 3,601,755

T&B/Ansley

FLEXSTRIP® Jumpers





Dimensions are shown in mm (inches) or mm / inches

SPECIFICATIONS

Resistance per 1000 feet (ohms)	65 (130*) MAX.
Current rating (amps)	2 (1*)
Rated voltage	300 VAC
Rated temperature	See insulation specifications
Conductor	Copper per QQ-W-343

**Refers to .050 Conductor Centers Jumpers.*

Note 1

.050 Pitch	.075, .100, .125, .150 & .200 Pitch
.254 (.010) NOMEX†	.254 (.010) NOMEX†
.254 (.010) KAPTON†	.254 (.010) KAPTON†
.304 (.012) TEFLON†	.406 (.016) TEFLON†
.254 (.010) POLYESTER	.254 (.010) POLYESTER

PITCH A mm (INCHES)	LENGTH B mm (INCHES)	MARGIN C mm (INCHES)	THICKNESS (Pin End) D mm (INCHES)	PIN DIAMETER E mm (INCHES)	For PCB with the following dia. (±.001) holes and (±.005) centr tolerance mm (INCHES)	NUMBER OF CONDUCTORS (Min.-Max.)
1.27 (.050)	25.4 (1.0)	.25 (.010)	.64 (.025)	.320 (.0126)	.71 (.028)	2-30
1.27 (.050)	50.8 (2.0)	.25 (.010)	.64 (.025)	.320 (.0126)	.71 (.028)	2-30
1.27 (.050)	76.2 (3.0)	.25 (.010)	.64 (.025)	.320 (.0126)	.71 (.080)	2-30
1.90 (.075)	25.4 (1.0)	.38 (.015)	.84 (.033)	.404 (.0159)	.79 (.031)	2-40
1.90 (.075)	50.8 (2.0)	.38 (.015)	.84 (.033)	.404 (.0159)	.79 (.031)	2-40
1.90 (.075)	76.2 (3.0)	.38 (.015)	.84 (.033)	.404 (.0159)	.79 (.031)	2-40
2.54 (.100)	25.4 (1.0)	.64 (.025)	.84 (.033)	.511 (.0201)	.94 (.037)	2-30
2.54 (.100)	50.8 (2.0)	.64 (.025)	.84 (.033)	.511 (.0201)	.94 (.037)	2-30
2.54 (.100)	76.2 (3.0)	.64 (.025)	.84 (.033)	.511 (.0201)	.94 (.037)	2-30
3.18 (.125)	25.4 (1.0)	1.52 (.060)	.84 (.033)	.511 (.0201)	.94 (.037)	2-25
3.18 (.125)	50.8 (2.0)	1.52 (.060)	.84 (.033)	.511 (.0201)	.94 (.037)	2-25
3.18 (.125)	76.2 (3.0)	1.52 (.060)	.84 (.033)	.511 (.0201)	.94 (.037)	2-25
3.81 (.150)	25.4 (1.0)	1.52 (.060)	.84 (.033)	.511 (.0201)	.94 (.037)	2-20
3.81 (.150)	50.8 (2.0)	1.52 (.060)	.84 (.033)	.511 (.0201)	.94 (.037)	2-20
3.81 (.150)	76.2 (3.0)	1.52 (.060)	.84 (.033)	.511 (.0201)	.94 (.037)	2-20
5.08 (.200)	25.4 (1.0)	1.52 (.060)	.84 (.033)	.511 (.0201)	.94 (.037)	2-15
5.08 (.200)	50.8 (2.0)	1.52 (.060)	.84 (.033)	.511 (.0201)	.94 (.037)	2-15
5.08 (.200)	76.2 (3.0)	1.52 (.060)	.84 (.033)	.511 (.0201)	.94 (.037)	2-15

"A" BEND

STRAIGHT PINS
PIN LENGTH TOL. ± .74 (.03)

INSULATION MATERIAL AND PIN ARRANGEMENT			
NOMEX	POLYESTER	TEFLON	KAPTON
FSN-11A	FSP-11A	FST-11A	FSK-11A
FSN-12A	FSP-12A	FST-12A	FSK-12A
FSN-13A	FSP-13A	FST-13A	FSK-13A
FSN-61A	FSP-61A	FST-61A	FSK-61A
FSN-62A	FSP-62A	FST-62A	FSK-62A
FSN-63A	FSP-63A	FST-63A	FSK-63A
FSN-21A	FSP-21A	FST-21A	FSK-21A
FSN-22A	FSP-22A	FST-22A	FSK-22A
FSN-23A	FSP-23A	FST-23A	FSK-23A
FSN-31A	FSP-31A	FST-31A	FSK-31A
FSN-32A	FSP-32A	FST-32A	FSK-32A
FSN-33A	FSP-33A	FST-33A	FSK-33A
FSN-41A	FSP-41A	FST-41A	FSK-41A
FSN-42A	FSP-42A	FST-42A	FSK-42A
FSN-43A	FSP-43A	FST-43A	FSK-43A
FSN-51A	FSP-51A	FST-51A	FSK-51A
FSN-52A	FSP-52A	FST-52A	FSK-52A
FSN-53A	FSP-53A	FST-53A	FSK-53A

"B" BEND

RIGHT ANGLE PINS
PIN LENGTH TOL. ± .74 (.03)

INSULATION MATERIAL AND PIN ARRANGEMENT			
NOMEX	POLYESTER	TEFLON	KAPTON
FSN-11B	FSP-11B	FST-11B	FSK-11B
FSN-12B	FSP-12B	FST-12B	FSK-12B
FSN-13B	FSP-13B	FST-13B	FSK-13B
FSN-61B	FSP-61B	FST-61B	FSK-61B
FSN-62B	FSP-62B	FST-62B	FSK-62B
FSN-63B	FSP-63B	FST-63B	FSK-63B
FSN-21B	FSP-21B	FST-21B	FSK-21B
FSN-22B	FSP-22B	FST-22B	FSK-22B
FSN-23B	FSP-23B	FST-23B	FSK-23B
FSN-31B	FSP-31B	FST-31B	FSK-31B
FSN-32B	FSP-32B	FST-32B	FSK-32B
FSN-33B	FSP-33B	FST-33B	FSK-33B
FSN-41B	FSP-41B	FST-41B	FSK-41B
FSN-42B	FSP-42B	FST-42B	FSK-42B
FSN-43B	FSP-43B	FST-43B	FSK-43B
FSN-51B	FSP-51B	FST-51B	FSK-51B
FSN-52B	FSP-52B	FST-52B	FSK-52B
FSN-53B	FSP-53B	FST-53B	FSK-53B

"C" BEND

RIGHT ANGLE STAGGERED PINS
PIN LENGTH TOL. ± .74 (.03)

INSULATION MATERIAL AND PIN ARRANGEMENT			
NOMEX	POLYESTER	TEFLON	KAPTON
FSN-11C	FSP-11C	FST-11C	FSK-11C
FSN-12C	FSP-12C	FST-12C	FSK-12C
FSN-13C	FSP-13C	FST-13C	FSK-13C
FSN-61C	FSP-61C	FST-61C	FSK-61C
FSN-62C	FSP-62C	FST-62C	FSK-62C
FSN-63C	FSP-63C	FST-63C	FSK-63C
FSN-21C	FSP-21C	FST-21C	FSK-21C
FSN-22C	FSP-22C	FST-22C	FSK-22C
FSN-23C	FSP-23C	FST-23C	FSK-23C
FSN-31C	FSP-31C	FST-31C	FSK-31C
FSN-32C	FSP-32C	FST-32C	FSK-32C
FSN-33C	FSP-33C	FST-33C	FSK-33C
FSN-41C	FSP-41C	FST-41C	FSK-41C
FSN-42C	FSP-42C	FST-42C	FSK-42C
FSN-43C	FSP-43C	FST-43C	FSK-43C
FSN-51C	FSP-51C	FST-51C	FSK-51C
FSN-52C	FSP-52C	FST-52C	FSK-52C
FSN-53C	FSP-53C	FST-53C	FSK-53C

"D" BEND

STRAIGHT STAGGERED PINS
PIN LENGTH TOL. ± .74 (.03)

INSULATION MATERIAL AND PIN ARRANGEMENT			
NOMEX	POLYESTER	TEFLON	KAPTON
FSN-11D	FSP-11D	FST-11D	FSK-11D
FSN-12D	FSP-12D	FST-12D	FSK-12D
FSN-13D	FSP-13D	FST-13D	FSK-13D
FSN-61D	FSP-61D	FST-61D	FSK-61D
FSN-62D	FSP-62D	FST-62D	FSK-62D
FSN-63D	FSP-63D	FST-63D	FSK-63D
FSN-21D	FSP-21D	FST-21D	FSK-21D
FSN-22D	FSP-22D	FST-22D	FSK-22D
FSN-23D	FSP-23D	FST-23D	FSK-23D
FSN-31D	FSP-31D	FST-31D	FSK-31D
FSN-32D	FSP-32D	FST-32D	FSK-32D
FSN-33D	FSP-33D	FST-33D	FSK-33D
FSN-41D	FSP-41D	FST-41D	FSK-41D
FSN-42D	FSP-42D	FST-42D	FSK-42D
FSN-43D	FSP-43D	FST-43D	FSK-43D
FSN-51D	FSP-51D	FST-51D	FSK-51D
FSN-52D	FSP-52D	FST-52D	FSK-52D
FSN-53D	FSP-53D	FST-53D	FSK-53D

HOW TO ORDER

Select catalog number and add dash number for number of conductors.

Example – If catalog FST-12A is wanted with 15 conductors, order part Number FST-12A-15. This will be a FLEXSTRIP® Jumper with Teflon insulation – .050 pitch (center-to-center of conductors) – 2″ long with straight pins – 15 conductors.

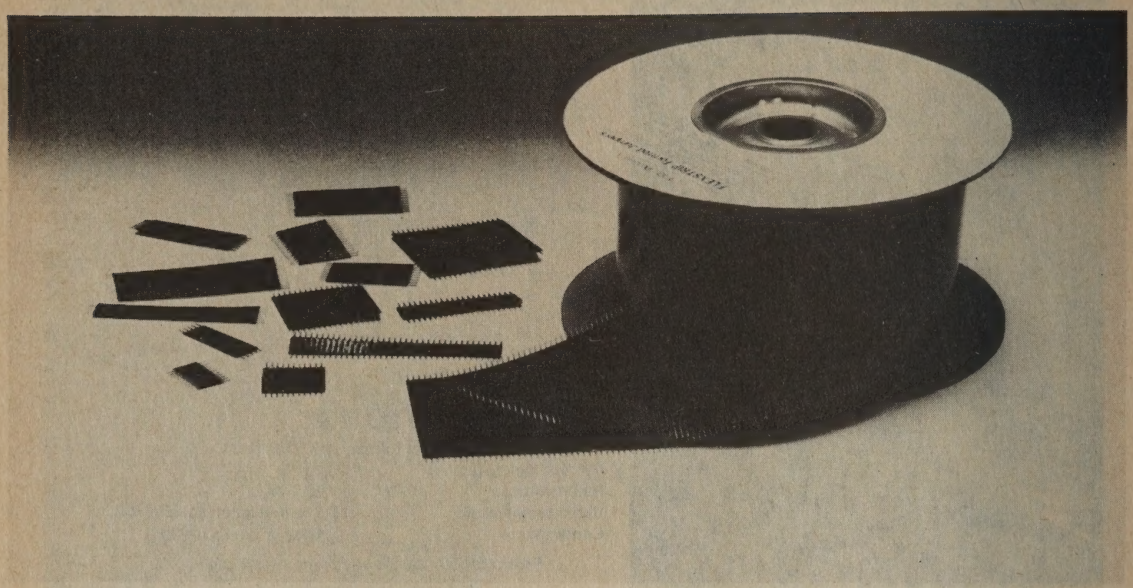
DESCRIPTION OF CATALOG NUMBERING SYSTEM

FS T – 1 2 A – 15

- Product code
- Insulation material
  - NOMEX - N TEFLON - T
  - POLYESTER - P KAPTON - K
- Conductor pitch
  - 1 – .050″
  - 2 – .100″
  - 3 – .125″
  - 4 – .150″
  - 5 – .200″
  - 6 – .075″
- Length
  - 1 – 1″
  - 2 – 2″
  - 3 – 3″
- Pin arrangement
  - A – Straight pins
  - B – Right angle pins
  - C – Right angle staggered pins
  - D – Straight staggered pins
- No. of conductors

† Registered trademarks of the E.I. DuPont de Nemours & Co. (Inc.)

FLEXSTRIP® Formed Jumpers

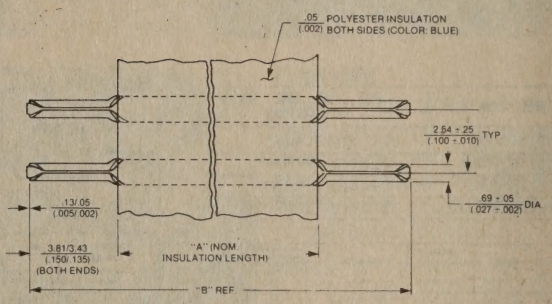


...for the highest reliability at the lowest possible cost, in high-volume interconnection applications

FLEXSTRIP® Formed Jumpers offer all the inherent advantages of the FLEXSTRIP system in board to board applications where high-volume and low-cost are primary considerations. UL listed for applications such as TV games, calculators and appliances, Formed Jumpers eliminate the possibility of crossed wires or other wiring errors. Multiple conductors can be reliably terminated in the time it takes to do one wire, without wire stripping, cutting to length, or soldering preparation. Formed Jumpers are available in the broadest range of sizes offered in the industry, from ¼" to 6" in width, and can be ordered in convenient spools or as separate components.

Specifications

- Resistance per 1,000 feet — 248 ohms
- Current Rating — .67 amps
- Rated Voltage — 300 VAC
- Rated Temperature — 105°C
- Conductor — 70-30 Tinned Brass
- Equivalent Wire Gauge — 28 AWG
- U.L. Style # — 2537

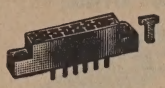

.05 POLYESTER INSULATION (.002) BOTH SIDES (COLOR: BLUE)
2.54 ± .25 (.100 ± .010) TYP
.69 ± .05 (.027 ± .002) DIA
.13/.05 (.005/.002)
3.81/3.43 (.150/.135) (BOTH ENDS)
"A" (NOM INSULATION LENGTH)
"B" REF

DIMENSIONS ARE SHOWN IN MM OR MM (INCHES)
INCHES

CAT. NO.	"A" Insulation Length	"B"
FJP2025A	6.3 (.25)	13.6 (.54)
FJP2050A	12.7 (.50)	20.1 (.79)
FJP2075A	19.1 (.75)	26.4 (1.04)
FJP2100A	25.4 (1.00)	32.8 (1.29)
FJP2150A	38.1 (1.50)	45.5 (1.79)
FJP2200A	50.8 (2.00)	58.2 (2.29)
FJP2250A	63.5 (2.50)	70.9 (2.79)
FJP2300A	76.2 (3.00)	83.6 (3.29)
FJP2400A	101.6 (4.00)	109.0 (4.29)
FJP2500A	127.0 (5.00)	134.4 (5.29)
FJP2600A	152.4 (6.00)	159.8 (6.29)

50-6A-20
50-6A-20M

50-12A-30
50-12A-30M



50-12B-10
50-12B-10M

50-12B-20

Printed circuit connectors designed for minimum printed circuit card wear, low insertion force and positive contact with 1/16" printed circuit boards. All units utilize bifurcated contacts permitting two flexing surfaces instead of one for positive contact. Bifurcated contacts are especially recommended for added contact reliability where vibration or printed circuit board irregularities would otherwise cause trouble. Types meeting MIL spec MIL-C-21097 are also available as indicated. **Mounting:** Available with 0.128" dia. holes for standard mounting, molded-in bushings or floating bushings. **Insulator Material:** Green glass-filled diallyl phthalate type SDG-F per MIL-M-14. **Contacts:** Phosphor bronze with 30 micro-inches gold finish; beryllium copper with 50 micro-inches gold to meet MIL-C-21097 as specified. Contacts .156" on centers. **Polarizing Keys:** Ordered separately as follows: No. 50-PK-1 for in-contact polarization made of diallyl phthalate; No. 50-PK-2 for between-contact polarization made of glass epoxy. **Voltage Rating:** 830 VAC rms at sea level. **Current:** Rated 5.0 amps. **Contact Resistance:** 0.005 ohm at rated current. **Insulation Resistance:** 5,000 megohms. **Temperature Cycling:** 5 continuous cycles per Method 107B, Test Condition B. Beryllium copper, −65° C to +125° C; phosphor bronze, −65° C to −105° C. UL recognized.

COMMERCIAL TYPES

SINGLE READOUT WITH .128" MTG. HOLES

Solder eyelet termination.

Cinch Number	Contact Pos.	★Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
50-6A-20	6	$2.29	$1.86	$1.61	$1.31	$1.24
50-10A-20	10	3.10	2.55	2.16	1.82	1.76
50-12A-20	12	3.53	3.01	2.45	2.03	1.94
50-15A-20	15	4.13	3.36	2.89	2.40	2.27
50-18A-20	18	4.73	3.88	3.30	2.74	2.63
50-22A-20	22	5.55	4.57	3.90	3.21	3.10
50-25A-20	25	6.60	5.38	4.62	3.82	3.65

5/32" DIP solder termination.

50-6B-10	6	$2.29	$1.86	$1.65	$1.31	$1.24
50-10B-10	10	3.10	2.55	2.16	1.82	1.76
50-15B-10	15	4.13	3.36	2.89	2.40	2.27
50-18B-10	18	4.73	3.88	3.30	2.74	2.63
50-22B-10	22	5.55	4.57	3.90	3.21	3.10
50-25B-10	25	6.60	5.38	4.62	3.82	3.65

15/64" DIP solder termination.

50-6S-10	6	$2.29	$1.86	$1.65	$1.31	$1.24
50-10S-10	10	3.10	2.55	2.16	1.82	1.76
50-12S-10	12	3.53	3.01	2.45	2.03	1.94
50-15S-10	15	4.13	3.36	2.89	2.40	2.27
50-18S-10	18	4.73	3.88	3.30	2.74	2.63
50-22S-10	22	5.55	4.57	3.90	3.21	3.10
50-25S-10	25	6.60	5.38	4.62	3.82	3.65

DOUBLE READOUT, .200" ROW SPACING, .128" MTG. HOLES

Conventional solder eyelet termination.

50-12A-30	6	$2.29	$1.86	$1.61	$1.31	$1.24
50-20A-30	10	3.10	2.55	2.16	1.82	1.76
50-25A-30	12	3.53	3.01	2.45	2.03	1.94
50-30A-30	15	4.13	3.36	2.89	2.40	2.27
50-36A-30	18	4.73	3.88	3.30	2.74	2.67
50-44A-30	22	5.55	4.57	3.90	3.21	3.10
50-50A-30	25	6.58	5.38	4.62	3.82	3.65

5/32" DIP solder termination.

50-12B-10	6	$2.29	$1.86	$1.61	$1.31	$1.24
50-20B-10	10	3.10	2.55	2.16	1.82	1.76
50-24B-10	12	3.53	3.01	2.45	2.03	1.94
50-30B-10	15	4.13	3.36	2.89	2.40	2.27
50-36B-10	18	4.73	3.88	3.30	2.74	2.67
50-44B-10	22	5.55	4.57	3.90	3.21	3.10
50-50B-10	25	6.58	5.38	4.62	3.82	3.65

15/64" DIP solder termination.

50-12S-20	6	$2.29	$1.86	$1.61	$1.31	$1.24
50-20S-20	10	3.10	2.55	2.16	1.82	1.76
50-24S-20	12	3.53	3.01	2.45	2.03	1.94
50-30S-20	15	4.13	3.36	2.89	2.40	2.27
50-36S-20	18	4.73	3.88	3.30	2.74	2.63
50-44S-20	22	5.55	4.57	3.90	3.21	3.10
50-50S-20	25	7.62	6.23	5.32	4.37	4.18

DOUBLE READOUT, .140" ROW SPACING, DIP SOLDER TERMINATION

.128" mounting holes.

Cinch No.	Contact Pos.	★Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
50-12S-30-2	6	$2.29	$1.86	$1.61	$1.31	$1.24
50-20S-30-2	10	3.10	2.55	2.16	1.82	1.76
50-24S-30-2	12	3.53	3.01	2.45	2.03	1.94
50-30S-30-2	15	4.13	3.36	2.89	2.40	2.27
50-36S-30-2	18	4.73	3.88	3.30	2.74	2.67
50-44S-30-2	22	5.55	4.57	3.90	3.21	3.10
50-50S-30-2	25	6.58	5.38	4.62	3.82	3.65

Without mounting ears.

50-12S-30-1	6	$2.29	$1.86	$1.61	$1.31	$1.24
50-20S-30-1	10	3.10	2.55	2.16	1.82	1.76
50-24S-30-1	12	3.55	3.01	2.45	2.03	1.94
50-30S-30-1	15	4.13	3.36	2.89	2.40	2.27
50-36S-30-1	18	4.73	3.88	3.30	2.74	2.67
50-44S-30-1	22	5.55	4.57	3.90	3.21	3.10
50-50S-30-1	25	6.58	5.38	4.62	3.82	3.65

MIL-C-21097 PC CONNECTORS

SINGLE READOUT

Solder eyelet termination, .128" mounting holes.

Cinch Number 50-	MIL No. M21097/	Contact Pos.	★Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
6A-20M-1	21-001	6	$4.05	$3.50	$3.13	$2.81	$2.74
10A-20M-1	21-037	10	5.99	5.22	4.74	4.24	4.11
15A-20M-1	21-073	15	8.41	7.38	6.70	6.01	5.89
18A-20M-1	21-109	18	9.90	8.71	7.92	7.11	6.95
22A-20M-1	21-145	22	11.84	10.42	9.48	8.53	8.37

Solder eyelet termination, molded-in bushings.

6A-20MB-1	21-004	6	$6.04	$5.29	$4.54	$4.20	$3.68
10A-20MB-1	21-040	10	9.19	7.80	6.89	5.94	5.75
15A-20MB-1	21-076	15	11.51	9.02	8.79	7.73	7.48
18A-20MB-1	21-112	18	12.87	11.11	9.92	8.70	8.46
22A-20MB-1	21-148	22	14.70	12.73	11.41	10.09	9.81

Solder eyelet termination, floating bushings.

6A-20MFB-1	21-007	6	$4.92	$4.21	$3.72	$3.23	$3.13
10A-20MFB-1	21-043	10	6.85	5.93	5.31	4.66	4.56
15A-20MFB-1	21-079	15	9.27	8.06	7.29	6.48	6.32
18A-20MFB-1	21-115	18	10.75	9.39	8.46	7.58	7.36
22A-20MFB-1	21-151	22	12.65	11.09	10.05	9.01	8.81

DOUBLE READOUT, .200" ROW SPACING

Solder eyelet termination, .128" mounting holes.

Cinch Number 50-	MIL No. M21097/	Contact Pos.	★Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
12A-30M-1	21-019	6	$3.85	$3.30	$2.93	$2.61	$2.54
20A-30M-1	21-055	10	5.67	4.90	4.42	3.92	3.79
30A-30M-1	21-091	15	7.93	6.90	6.22	5.53	5.41
36A-30M-1	21-127	18	9.31	8.09	7.33	6.53	6.36
44A-30M-1	21-163	22	11.13	9.71	8.77	7.84	7.66

Solder eyelet termination, molded-in bushings.

12A-30MB-1	21-022	6	$7.16	$5.95	$5.16	$4.35	$4.18
20A-30MB-1	21-058	10	8.86	7.48	6.57	5.62	5.43
30A-30MB-1	21-094	15	11.03	9.41	8.31	7.25	7.00
36A-30MB-1	21-130	18	12.26	10.52	9.33	8.11	7.87
44A-30MB-1	21-166	22	13.99	12.02	10.70	9.38	9.10

Solder eyelet termination, floating bushings.

12A-30MFB-1	21-025	6	$4.72	$4.01	$3.52	$3.03	$2.93
20A-30MFB-1	21-061	10	6.53	5.61	4.99	4.34	4.24
30A-30MFB-1	21-097	15	8.79	7.58	6.81	6.00	5.84
36A-30MFB-1	21-133	18	10.16	8.80	7.87	6.99	6.77
44A-30MFB-1	21-169	22	11.94	10.38	9.34	8.30	8.10

Dip solder termination, .128" mounting holes.

12B-10M-1	21-028	6	$3.82	$3.27	$2.90	$2.58	$2.51
20B-10M-1	21-064	10	5.61	4.84	4.36	3.86	3.73
30B-10M-1	21-100	15	7.84	6.81	6.13	5.44	5.32
36B-10M-1	21-136	18	9.22	8.00	7.24	6.44	6.27
44B-10M-1	21-172	22	11.01	9.59	8.65	7.72	7.54

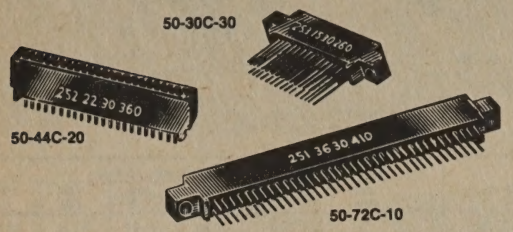
ACCESSORIES FOR EDGE CONNECTORS

POLARIZING KEYS

Cinch No.	Polarization	Net Each, Lots of 1-24	25-49	50-99	100-249	250-Up
50-PK-1	In-contact	$0.014	$0.12	$0.10	$0.08	$0.07
50-PK-2	Between contact	.12	.10	.09	.08	.07
50-PK-2M	Between contact—MIL type	.12	.10	.09	.08	.07

★DUE TO THE INSTABILITY IN THE COST OF GOLD, ALL PRICES FOR CONNECTORS HAVING GOLD PLATED TERMINALS WILL VARY. CHECK US FOR THE LATEST QUOTATIONS.

PRECISION DOUBLE READOUT EDGE CONNECTORS WITH .100" CONTACT CTRS., 1/16" BOARDS



Unique bifurcated cantilever contact construction provides simple, dependable design capable of handling 1/16" thick printed circuit boards. Contacts pre-loaded against an insulator stop to provide gap uniformity and assure rapid build-up of force to the PC board. Contacts are high-tensile brass alloy, plated with 30 micro-inches of gold over 50 micro-inches of copper in contact area and 10 micro-inches minimum gold on remainder of contact. Insulation, glass-filled diallyl phthalate. Type SDG-F per MIL-M-14. **Polarizing Key: No. 50-PK-3,** ordered separately. **Card Guide: No. 50-GP-1,** must also be ordered separately.

WITH CONVENTIONAL CINCH CONTACT NUMBERING

Solder termination.

Cinch No.*	Contact Pos.	★Net Each, Lots of 1-24	25-49	50-99	100-249	250-Up
50-30C-10	15	$5.84	$4.75	$4.07	$3.32	$3.18
50-44C-10	22	6.99	5.71	4.90	4.05	3.87
50-72C-10	36	9.31	7.67	6.58	5.52	5.24
50-80C-10	40	9.88	8.16	6.98	5.80	5.56
50-86C-10	43	10.50	8.64	7.44	6.20	5.93
50-100C-10	50	11.67	9.63	8.28	6.95	6.68

*To order dip solder terminals, change suffix −10 to −20; same prices apply.

.025" sq. Wire Wrap termination.

50-30C-30	15	$5.97	$4.89	$4.21	$3.49	$3.33
50-44C-30	22	7.17	5.90	5.04	4.21	4.03
50-72C-30	36	9.54	7.92	6.82	5.75	5.49
50-80C-30	40	10.10	8.39	7.22	6.09	5.85
50-86C-30	43	10.78	8.91	7.70	6.47	6.21
50-100C-30	50	12.07	9.99	8.64	7.26	6.96

WITH REVERSED CONTACT NUMBERING

Solder termination.

Cinch No.*	Contact Pos.	Net Each, Lots of 1-24	25-49	50-99	100-249	250-Up
50-30C-10-1	15	$5.84	$4.75	$4.07	$3.32	$3.18
50-44C-10-1	22	6.99	5.71	4.90	4.05	3.87
50-72C-10-1	36	9.31	7.67	6.58	5.52	5.24
50-80C-10-1	40	9.88	8.16	6.98	5.80	5.56
50-86C-10-1	43	10.50	8.64	7.44	6.20	5.93
50-100C-10-1	50	11.67	9.63	8.28	6.95	6.68

*To order dip solder tails, change −10 to −20; same prices apply.

.025" sq. Wire Wrap termination.

50-30C-30-1	15	$5.97	$4.89	$4.21	$3.49	$3.33
50-44C-30-1	22	7.17	5.90	5.04	4.21	4.03
50-72C-30-1	36	9.54	7.92	6.82	5.75	5.49
50-80C-30-1	40	10.10	8.39	7.22	6.09	5.85
50-86C-30-1	43	10.78	8.91	7.70	6.47	6.21
50-100C-30-1	50	12.07	9.99	8.64	7.26	6.96

CARD GUIDE FOR .100" AND .156" TYPES

Cinch Number	Net Each, Lots of 1-24	25-49	50-99	100-249	250-Up
50-GP-1	$0.55	$0.45	$0.38	$0.31	$0.30

POLARIZING KEY

50-PK-3	$0.14	$0.12	$0.10	$0.08	$0.07

.156" CONTACT CENTERS CARDCON™ P.C. DOUBLE READOUT EDGE CONNECTORS FOR 1/16" BOARDS

Ideal for applications involving vibration or board irregularities. Bifurcated, semi-bellows contacts provide added contact reliability. **Voltage Rating:** 1800 VAC rms at sea level. **Current Rating:** 5 amps. **Contact Resistance:** 0.006 ohms max. **Insulation Resistance:** 5000 megohms. **Contact Material:** Alloy 260 spring brass with 50 micro-inches copper and 20 micro-inches gold in contacting area. Gold flash on solder tails. **Polarizing Key:** No. 50-PK-2 Between contacts or 50-PK-4 in-contact ordered separately. **Mounting:** Ears with hole for 4-40 screw or no mounting ears.

Cinch No.	Contact Pos.	Net Each, Lots of 1-24	25-49	50-99	100-249	250-Up
.200" BETWEEN ROWS—PLAIN MOUNTING HOLE—.156" LONG TAIL						
50-12SN-1	6	$1.43	$1.16	$0.98	$0.80	$0.76
50-20SN-1	10	2.07	1.67	1.42	1.16	1.10
50-24SN-1	12	2.29	1.86	1.57	1.29	1.24
50-30SN-1	15	2.66	2.34	1.98	1.63	1.55
50-36SN-1	18	2.95	2.41	2.04	1.68	1.60
50-44SN-1	22	3.29	2.68	2.28	1.88	1.80
50-48SN-1	24	3.71	3.01	2.55	2.09	2.01
50-50SN-1	25	3.77	3.08	2.61	2.15	2.07
.140" BETWEEN ROWS—PLAIN MOUNTING HOLE—.125" LONG TAIL						
50-12SN-2	6	$1.43	$1.16	$0.98	$0.80	$0.76
50-20SN-2	10	2.07	1.67	1.42	1.16	1.10
50-24SN-2	12	2.29	1.86	1.57	1.29	1.24
50-30SN-2	15	2.66	2.34	1.98	1.63	1.55
50-36SN-2	18	2.95	2.41	2.04	1.68	1.60
50-44SN-2	22	3.29	2.68	2.28	1.88	1.80
50-48SN-2	24	3.71	3.01	2.55	2.09	2.01
50-50SN-2	25	3.77	3.08	2.61	2.15	2.07
.200" BETWEEN ROWS—WITHOUT EARS—.156" LONG TAIL						
50-12SN-3	6	$1.43	$1.16	$0.98	$0.80	$0.76
50-20SN-3	10	2.07	1.67	1.42	1.16	1.10
50-24SN-3	12	2.29	1.86	1.57	1.29	1.24
50-30SN-3	15	2.66	2.34	1.98	1.63	1.55
50-36SN-3	18	2.95	2.41	2.04	1.68	1.60
50-44SN-3	22	3.29	2.68	2.28	1.88	1.80
50-48SN-3	24	3.71	3.01	2.55	2.09	2.01
50-50SN-3	25	3.77	3.08	2.61	2.15	2.07
.140" BETWEEN ROWS—WITHOUT EARS—.125" LONG TAIL						
50-12SN-4	6	$1.43	$1.16	$0.98	$0.80	$0.76
50-20SN-4	10	2.07	1.67	1.42	1.16	1.10
50-24SN-4	12	2.29	1.86	1.57	1.29	1.24
50-30SN-4	15	2.66	2.34	1.98	1.63	1.55
50-36SN-4	18	2.95	2.41	2.04	1.68	1.60
50-44SN-4	22	3.29	2.68	2.28	1.88	1.80
50-48SN-4	24	3.71	3.01	2.55	2.09	2.01
50-50SN-4	25	3.77	3.08	2.61	2.15	2.07

WIRE WRAP TERMINAL SERIES .156" ON CENTERS

Single-level Wire Wrap tails .031" × .062".

Cinch No.*	Contact Pos.	Net Each, Lots of 1-24	25-49	50-99	100-249	250-Up
50-20E-10-1	10/20	$5.34	$4.40	$3.78	$3.16	$3.05
50-30E-10-1	15/30	5.86	4.89	4.27	3.63	3.49
50-36E-10-1	18/36	6.61	5.50	4.84	4.11	3.94
50-44E-10-1	22/44	7.94	6.68	5.78	4.93	4.76
50-50E-10-1	25/50	8.44	7.09	6.21	5.32	5.11
50-60E-10-1	30/60	9.40	7.93	6.95	5.99	5.78

Also available in 2 and 3 levels; same prices apply. To order: change E to F for 2-level or to G for 3-level.

WITH TAIL TWISTED BELOW INSULATOR

Single-level Wire Wrap tails .031" × .062".

50-44E-10	22/44	$7.79	$6.53	$5.63	$4.78	$4.61

Double-level Wire Wrap tails .031" × .062".

50-44F-10	22/44	$7.89	$6.63	$5.73	$4.88	$4.71

Triple-level Wire Wrap tails .031" × .062".

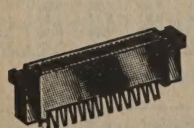
50-44G-10	22/44	$8.05	$6.79	$5.89	$5.04	$4.87

.125" ON CENTERS

Double-level Wire Wrap tails .025" × .025".

50-80W-20	44	$15.18	$12.70	$11.05	$9.37	$9.04

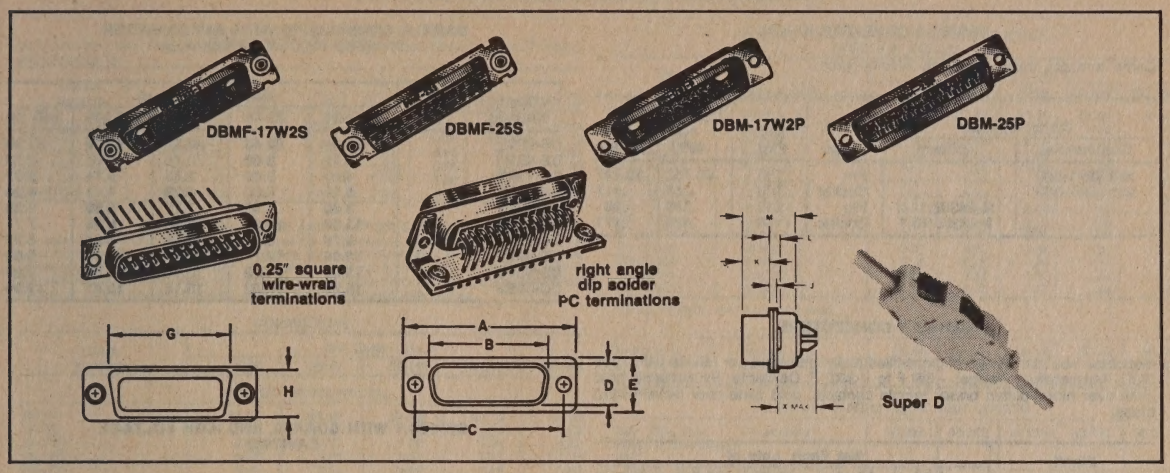
TYKON MINIATURE EDGE CONNECTORS



High density edge connectors with .050" centers for use with double-sided .062" printed circuit boards. Solder termination. Insulator is diallyl phthalate, type SDG-F per MIL-M-14F. Contacts are beryllium copper with .00003" gold plate per MIL-G-45204 Type II. Carbon steel mounting clip for use in semi-flush printed circuit mounting, and cellulose acetate polarizing key available as separate items.

Cinch Number 50-	Cont. Pos.	No. of Cont.	★Net Each, Lots of 1-24	25-49	50-99	100-249	250-Up
12A-40	6	12	$6.13	$4.93	$4.14	$3.37	$3.19
20A-40	10	20	7.61	6.15	5.20	4.21	4.01
30A-40	15	30	9.48	7.68	6.46	5.23	5.00
40A-40	20	40	10.98	9.18	7.74	6.31	6.04
50A-40	25	50	13.17	10.70	9.00	7.39	7.02
MC	Mounting Clip		.44	.32	.28	.27	.25
PK	Polarizing Key		.50	.34	.27	.24	.21

★DUE TO THE INSTABILITY IN THE COST OF GOLD, ALL PRICES FOR CONNECTORS HAVING GOLD PLATED TERMINALS WILL VARY. CHECK US FOR THE LATEST QUOTATIONS.



Five series in five basic shell sizes cover a full array of contact configurations for most rack and panel applications. Keystone shape assures proper polarization. All series intermate and intermount. Friction coupling, locking accessories and floating mount shells (suffix F) are available. Contacts are rated 5 amps (1.5 amps, MIL). Cadmium-plated steel shell has yellow chromate coating. Pins and sockets are #20 AWG; coaxial contacts and high-voltage contacts available.

Cinch No. by Shell Size	Dimension Key, Inches										
	A	B‡	C†	D‡	E	G	H	J	K	L	M
DE*-9P	1.213	.697	.984	.360	.494	.759	.422	.030	.236	.045	.422
DE*-9S	1.213	.640	.984	.308	.494	.759	.422	.030	.243	.045	.429
DA*-15P	1.541	1.025	1.312	.360	.494	1.083	.422	.030	.236	.045	.422
DA*-15S	1.541	.968	1.312	.308	.494	1.083	.422	.030	.243	.045	.429
DB*-25P	2.088	1.583	1.852	.378	.494	1.625	.422	.039	.231	.060	.426
DB*-25S	2.088	1.508	1.852	.308	.494	1.625	.422	.030	.243	.045	.429
DC*-37P	2.729	2.231	2.500	.378	.494	2.272	.422	.039	.231	.060	.426
DC*-37S	2.729	2.156	2.500	.308	.494	2.272	.422	.030	.243	.045	.429
DD*-50P	2.635	2.127	2.406	.484	.605	2.178	.534	.039	.231	.060	.426
DD*-50S	2.635	2.062	2.406	.420	.605	2.178	.534	.030	.243	.045	.429

*Refer to ordering code for insulator type designation. †.120" dia. holes, standard units; .086" dia., float mount units. ‡Measured as outside dimensions at bottom of the draw.

Type	X Max., Inches
Basic D	.312
Series 1	.390
Series 3	.375
Econo D	.375

SERIES 3 CONNECTOR

Snap-in, removable crimp contacts with rear release assembly. Contacts not interchangeable but units will mate and are interchangeable with all other D Series. Insulator diallyl phthalate, glass fiber filled, per MIL-M-14. Type GD1-30F, royal purple color, monobloc construction. **Contacts:** Pin, leaded copper, gold plate over nickel plate; socket, copper alloy, gold plate over nickel plate with stainless steel sleeves.

Cinch Number	Net Each, Lots of				
	1-24	25-49	50-99	100-249	250 Up
DEMA-9P	$10.99	$10.01	$8.52	$6.86	$6.30
DEMAF-9P	11.50	10.47	8.91	7.18	6.62
DEMA-9S	11.24	10.24	8.72	7.03	6.44
DEMAF-9S	11.70	10.66	9.07	7.31	6.75
DAMA-15P	15.39	14.02	11.95	9.64	8.86
DAMAF-15P	15.90	14.50	12.34	9.95	9.18
DAMA-15S	15.63	14.24	12.13	9.79	9.02
DAMAF-15S	16.12	14.69	12.52	10.11	9.34
DBMA-25P	23.09	21.05	17.93	14.46	13.32
DBMAF-25P	23.59	21.50	18.32	14.78	13.63
DBMA-25S	23.34	21.28	18.14	14.66	13.51
DBMAF-25S	23.86	21.76	18.54	14.97	13.83
DCMA-37P	32.08	29.24	24.93	20.13	18.53
DCMAF-37P	32.59	29.72	25.33	20.44	18.85
DCMA-37S	32.40	29.55	25.20	20.37	18.78
DCMAF-37S	32.90	30.00	25.59	20.69	19.09
DDMA-50P	41.26	37.63	32.08	25.92	23.87
DDMAF-50P	41.78	38.10	32.48	26.23	24.19
DDMA-50S	41.63	37.97	32.40	26.20	24.16
DDMAF-50S	42.12	38.43	32.79	26.52	24.47

SERIES 3 MIL-C-24308 VERSIONS

Cinch Number	Description	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250 Up
M24308/2-1	DEMA-9S	$13.05	$11.92	$10.20	$8.29	$7.66
M24308/2-2	DAMA-15S	18.42	16.85	14.44	11.76	10.88
M24308/2-3	DBMA-25S	28.02	25.64	22.00	17.95	16.61
M24308/2-4	DCMA-37S	39.35	36.01	30.92	25.26	23.39
M24308/2-5	DDMA-50S	51.19	46.87	40.26	32.92	30.50
M24308/4-1	DEMA-9P	12.73	11.62	9.91	8.01	7.38
M24308/4-2	DAMA-15P	17.97	16.41	14.02	11.38	10.50
M24308/4-3	DBMA-25P	27.39	25.01	21.40	17.38	16.04
M24308/4-4	DCMA-37P	38.46	35.15	30.08	24.46	22.59
M24308/4-5	DDMA-50P	50.05	45.74	39.16	31.86	29.44

BASIC "D" CONNECTORS

Two-piece construction utilizes two-piece Nylon insulator material. **Temp. Range:** −65° F to +250° F. **Contacts:** Pin, gold plate over nickel-plated brass; socket, gold plate over nickel-plated phosphor bronze.

Cinch Number	Net Each, Lots of				
	1-24	25-49	50-99	100-249	250 Up
DE-9P	$2.07	$1.88	$1.61	$1.30	$1.23
DE-9S	3.00	2.71	2.29	1.88	1.75
DEF-9P	3.18	2.91	2.43	2.00	1.81
DEF-9S	4.11	3.70	3.14	2.58	2.37
DA-15P	2.95	2.68	2.28	1.86	1.74
DA-15S	4.38	3.99	3.39	2.80	2.59
DAF-15P	4.08	3.69	3.12	2.52	2.35
DAF-15S	5.45	4.97	4.26	3.50	3.24
DB-25P	4.30	4.03	3.38	2.74	2.54
DB-25S	6.77	6.15	5.22	4.33	4.04
DBF-25P	5.54	5.00	4.27	3.50	3.24
DBF-25S	7.98	7.27	6.16	5.11	4.70
DC-37P	5.87	5.35	4.54	3.78	3.50
DC-37S	9.60	8.74	7.44	6.15	5.73
DCF-37P	7.12	6.47	5.51	4.50	4.20
DCF-37S	10.82	9.86	8.37	6.90	6.43
DD-50P	7.68	6.99	5.95	4.94	4.60
DD-50S	12.69	11.55	9.85	8.10	7.55
DDF-50P	8.90	8.08	6.90	5.70	5.27
DDF-50S	13.91	12.67	10.78	8.88	8.25

BASIC "D" CONNECTORS .025" × .025" WIRE WRAP TAILS, ⅛" LONG

Cinch Number	Net Each, Lots of				
	1-24	25-49	50-99	100-249	250 Up
DE-9P-F179	$3.27	$2.67	$2.35	$2.09	$2.01
DE-9S-F179	5.79	4.66	3.91	3.16	2.93
DA-15P-F179	4.30	3.47	3.09	2.78	2.65
DA-15S-F179	7.93	6.36	5.33	4.31	3.99
DB-25P-F179	6.75	5.46	4.80	4.08	3.90
DB-25S-F179	9.48	7.75	6.84	6.47	5.82
DC-37P-F179	9.24	7.45	6.69	5.86	5.58
DC-37S-F179	12.57	10.23	9.78	9.31	8.85
DD-50P-F179	11.06	9.00	8.03	7.32	6.98
DD-50S-F179	16.59	13.43	12.81	12.13	11.39

DUE TO THE INSTABILITY IN THE COST OF GOLD, ALL PRICES FOR CONNECTORS HAVING GOLD PLATED TERMINALS WILL VARY. CHECK US FOR THE LATEST QUOTATIONS.

D-SUBMINIATURE CONNECTORS (CONT'D)

SERIES 3 CONTACTS (D-MA)

Crimp contacts, commercial and military types.

Cinch Number			Std.	Net Each, Lots	
Commercial	Military	Type	Pkg.	100-4999	5000-24,999
330-5291-000	.....	Pin	100	$0.257	$0.227
031-1007-000	.....	Socket	100	.367	.317
.....	M-24308/11-1	Pin	100	.295	.26
.....	M24308/10-1	Socket	100	.425	.371

SERIES 1 CONNECTORS

Monobloc insulator design of glass-filled diallyl phthalate per MIL-M-14F, Type SGD. **Temperature Range:** −65° F to +300° F. **Contacts:** Pin contacts, gold plate over nickel-plated brass; female contacts, gold plate over nickel-plated brass.

Cinch Number	Net Each, Lots of				
	1-24	25-49	50-99	100-249	250 Up
DEM-9P	$4.00	$3.61	$3.05	$2.47	$2.27
DEM-9S	5.59	5.08	4.30	3.54	3.27
DEMF-9P	5.12	4.64	3.85	3.16	2.90
DEMF-9S	6.70	6.09	5.14	4.20	3.89
DAM-15P	5.78	5.26	4.41	3.61	3.33
DAM-15S	8.35	7.57	6.41	5.23	4.88
DAMF-15P	6.89	6.25	5.28	4.27	3.97
DAMF-15S	9.47	8.57	7.25	5.91	5.47
DBM-25P	8.57	7.76	6.59	5.35	5.00
DBM-25S	12.90	11.70	9.95	8.14	7.56
DBMF-25P	9.77	8.86	7.49	6.10	5.64
DBMF-25S	14.14	12.83	10.85	8.88	8.24
DCM-37P	11.77	10.26	8.72	7.51	6.95
DCM-37S	18.46	16.75	14.20	11.65	10.83
DCMF-37P	13.23	11.99	10.13	8.29	7.63
DCMF-37S	19.66	17.83	15.11	12.39	11.53
DDM-50P	15.55	14.14	11.95	9.81	9.07
DDM-50S	24.20	21.96	18.70	15.37	14.25
DDMF-50P	16.81	15.27	12.89	10.52	9.77
DDMF-50S	25.46	23.10	19.62	16.08	14.91

ECONO "D" CONNECTORS

"D" connectors for commercial applications where economy is an important factor. Rear release, crimp, snap-in contacts that are readily inserted and removed with a simple plastic tool. Two-piece, glass-filled nylon insulator. Copper alloy contacts with 20 microinches of gold over nickel. Uses same shell as other series.

Cinch Number	Net Each, Lots of				
	1-24	25-49	50-99	100-249	250 Up
WITH CONTACTS					
DEC-9P	$2.16	$1.95	$1.61	$1.33	$1.29
DEC-9S	2.89	2.64	2.14	1.81	1.71
DAC-15P	2.97	2.70	2.24	1.88	1.80
DAC-15S	4.14	3.77	3.09	2.57	2.50
DBC-25P	4.28	3.89	3.26	2.73	2.64
DBC-25S	6.11	5.55	4.63	3.90	3.70
DCC-37P	5.95	5.44	4.59	3.89	3.73
DCC-37S	8.77	7.99	6.73	5.63	5.34
DDC-50P	7.56	6.93	5.86	4.98	4.77
DDC-50S	11.24	10.25	8.67	7.28	6.82
WITHOUT CONTACTS					
DEC-9P-FO	$1.05	$0.94	$0.77	$0.63	$0.57
DEC-9S-FO	1.05	.94	.77	.63	.57
DAC-15P-FO	1.15	1.03	.83	.67	.61
DAC-15S-FO	1.15	1.03	.83	.67	.61
DBC-25P-FO	1.28	1.10	.97	.74	.67
DBC-25S-FO	1.19	1.04	.88	.69	.65
DCC-37P-FO	1.53	1.33	1.10	.89	.84
DCC-37S-FO	1.46	1.29	1.09	.86	.78
DDC-50P-FO	1.63	1.46	1.16	.94	.89
DDC-50S-FO	1.50	1.32	1.14	.88	.80

BASIC D CONNECTORS WITH .040" DIAMETER PRINTED CIRCUIT TERMINALS

Cinch Number	Net Each, Lots of				
	1-24	25-49	50-99	100-249	250 Up
DE-9PV	$3.06	$2.63	$2.32	$2.06	$1.98
DE-9SV	4.29	3.68	3.29	2.84	2.73
DA-15PV	4.29	3.89	3.53	3.14	2.97
DA-15SV	6.17	5.60	4.99	4.41	4.24
DB-25PV	9.40	8.52	7.19	5.85	5.39
DB-25SV	13.48	12.19	10.30	8.36	7.71
DC-37PV	9.79	8.41	7.64	6.84	6.57
DC-37SV	14.84	12.71	11.44	10.13	9.68
DD-50PV	12.96	11.12	10.10	9.06	8.69
DD-50SV	19.73	16.92	15.18	13.47	12.94

SERIES 1 WITH COAXIAL AND HIGH VOLTAGE CAVITIES

Includes solder type #20 AWG contacts assembled, but no coaxial or high-voltage contacts (ordered separately, see below)

Cinch Number	Number of		Net Each, Lots of				
	Cavities	Contacts	1-24	25-49	50-99	100-249	250 Up
DEM-5W1P	1	4	$3.36	$3.01	$2.56	$2.05	$1.92
DEM-5W1S	1	4	3.91	3.54	2.98	2.42	2.22
DAM-3W3P	3	None	2.52	2.27	1.91	1.53	1.40
DAM-3W3S	3	None	2.52	2.27	1.91	1.53	1.40
DAMF-3W3S	3	None	3.64	3.29	2.77	2.20	2.02
DAM-11W1P	1	10	4.93	4.47	3.74	3.07	2.82
DAM-11W1S	1	10	6.29	5.71	4.87	3.94	3.68
DAMF-11W1P	1	10	6.04	5.45	4.62	3.72	3.44
DAMF-11W1S	1	10	7.43	6.71	5.66	4.64	4.29
DAM-7W2P	2	5	3.68	3.36	2.83	2.28	2.10
DAM-7W2S	2	5	4.39	4.01	3.37	3.72	2.51
DAMF-7W2S	2	5	5.50	4.98	4.17	3.41	3.12
DBM-13W3P	3	10	5.21	4.72	3.99	3.21	3.00
DBM-13W3S	3	10	6.58	5.97	5.03	4.15	3.83
DBM-9W4P	4	5	4.00	3.59	3.02	2.46	2.27
DBM-9W4S	4	5	4.69	4.24	3.59	2.91	2.68
DBMF-9W4P	4	5	5.22	4.69	3.98	3.19	2.96
DBMF-9W4S	4	5	5.92	5.36	4.49	3.65	3.37
DBM-17W2P	2	15	6.42	5.82	4.88	3.98	3.71
DBM-17W2S	2	15	8.47	7.70	6.53	5.36	4.98
DBMF-17W2P	2	15	7.64	6.94	5.84	4.78	4.38
DBMF-17W2S	2	15	9.73	8.83	7.42	6.10	5.63
DBM-21W1P	1	20	7.64	6.90	5.86	4.74	4.39
DBM-21W1S	1	20	10.39	9.45	8.03	6.58	6.09
DCM-13W6P	6	7	4.84	4.38	3.67	2.97	2.75
DCM-13W6S	6	7	5.80	5.26	4.42	3.60	3.33

COAXIAL AND HIGH VOLTAGE CONTACTS

Use with the above coaxial and high-voltage shell assemblies. **Prefix: 53740**—Coaxial straight solder male; **53741**—Coaxial right angle solder male; **53742**—Coaxial straight solder receptacle; **53743**—Coaxial right angle solder receptacle; **53744**—High-voltage male; **53745**—High-voltage receptacle.

Cinch Number	For Cable RG-	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250 Up
DM-53740-5000†	196/U	$3.63	$3.38	$3.07	$2.72	$2.42
DM-53740-5001	187, 188/U	3.64	3.41	3.08	2.74	2.43
DM-53740-5002	195/U	3.78	3.53	3.21	2.88	2.53
DM-53740-5008	196/U	3.62	3.39	3.06	2.72	2.41
DM-53741-5000	196/U	4.07	3.81	3.44	3.07	2.71
DM-53741-5001	187, 188/U	4.52	4.21	3.82	3.41	3.01
DM-53742-5000	196/U	4.04	3.78	3.41	3.04	2.68
DM-53742-5001	187, 188/U	3.93	3.67	3.32	2.96	2.61
DM-53742-5002	195/U	4.61	4.28	3.89	3.49	3.07
DM-53742-5004	58/U	4.90	4.56	4.11	3.69	3.36
DM-53743-5000	196/U	5.02	4.67	4.21	3.77	3.31
DM-53743-5001	187, 188/U	4.94	4.61	4.16	3.71	3.27
DM-53744-0000‡	#20 wire	3.56	2.29	2.06	1.82	1.59
DM-53744-5000*	#20 wire	3.47	3.23	2.90	2.56	2.25
DM-53745-0000‡	#20 wire	2.49	2.30	2.07	1.83	1.61
DM-53745-5000*	#20 wire	3.68	3.42	3.07	2.73	2.39

*Right-angle. †Short type plug. ‡Straight.

DUE TO THE INSTABILITY IN THE COST OF GOLD, ALL PRICES FOR CONNECTORS HAVING GOLD PLATED TERMINALS WILL VARY. CHECK US FOR THE LATEST QUOTATIONS.

PRICES LISTED ARE FOR GUIDANCE ONLY

D-SUBMINIATURE CONNECTORS (CONT'D)

"DATAPHONE" CONNECTORS AND HOODS

Insulators are diallyl phthalate per MIL-M-14. Type GDI-30. Hoods black phenolic, fit plug or socket connector.

Cinch Number	Description	Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
DA-19603-404	15-cont. sckt.	$9.98	$9.20	$8.49	$7.65	$6.88
DB-19604-433	25-cont. sckt.	16.26	14.97	13.71	12.47	11.19
DA-19603-403	15-pin plug	4.69	4.43	4.03	3.65	3.51
DB-19604-432	25-pin plug	6.59	6.20	5.63	5.08	4.87
DA-51225-1	15-size hood	2.19	1.96	1.59	1.45	1.35
DB-51226-1A	25-size hood	2.42	2.04	1.62	1.50	1.38

SUPER D CONNECTOR AND ADAPTER SYSTEMS

For cable-to-cable and cable-to-panel applications in computers, peripheral equipment, medical equipment, instrumentation, cable assemblies, etc. Fast solderless IDC termination; no wire preparation or stripping. Glass-filled polyester hoods cover 9, 15, 25, or 37 contact Super D connectors that mate with each other and existing D type connectors. Hoods are available with latches to lock connectors together, or, they may be fastened with screws.

CONNECTORS

Cinch Number	Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
WITH MOUNTING HOLES					
TE-9P	$1.79	$1.57	$1.35	$1.10	$1.02
TE-9S	1.71	1.50	1.28	1.04	.96
TA-15P	2.48	2.13	1.83	1.50	1.40
TA-15S	2.28	2.00	1.71	1.39	1.28
TB-25P	3.41	3.01	2.60	2.14	1.99
TB-25S	3.20	2.80	2.40	1.96	1.82
TC-37P	4.65	4.11	3.55	2.93	2.73
TC-37S	4.36	3.83	3.29	2.69	2.49
WITH MOUNTING HOLES AND LATCHING BLOCKS					
TE-9P-LB	$1.81	$1.59	$1.36	$1.13	$1.03
TE-9S-LB	1.73	1.53	1.30	1.05	.97
TA-15P-LB	2.49	2.14	1.85	1.52	1.41
TA-15S-LB	2.30	2.01	1.72	1.40	1.29
TB-25P-LB	3.43	3.02	2.61	2.15	2.00
TB-25S-LB	3.23	2.83	2.43	1.98	1.84
TC-37P-LB	4.69	4.14	3.58	2.95	2.75
TC-37S-LB	4.37	3.84	3.30	2.70	2.50
WITH 4-40 THREADED BUSHINGS					
TE-9P-TB	$2.52	$2.21	$1.89	$1.53	$1.41
TE-9S-TB	2.43	2.12	1.81	1.46	1.34
TA-15P-TB	3.13	2.75	2.36	1.92	1.78
TA-15S-TB	2.99	2.62	2.23	1.81	1.67
TB-25P-TB	4.13	3.64	3.12	2.56	2.38
TB-25S-TB	3.94	3.45	2.95	2.40	2.22
TC-37P-TB	5.36	4.72	4.07	3.35	3.11
TC-37S-TB	5.06	4.44	3.81	3.10	2.87
WITH 4-40 THREADED BUSHINGS AND LATCHING BLOCKS					
TE-9P-LB-1	$3.01	$2.63	$2.24	$1.82	$1.68
TE-9S-LB-1	2.93	2.55	2.17	1.75	1.61
TA-15P-LB-1	3.64	3.19	2.73	2.22	2.06
TA-15S-LB-1	3.52	3.08	2.63	2.12	1.96
TB-25P-LB-1	4.65	4.08	3.51	2.87	2.64
TB-25S-LB-1	4.42	3.87	3.31	2.68	2.27
TC-37P-LB-1	5.91	5.20	4.48	3.67	3.41
TC-37S-LB-1	5.55	4.86	4.16	3.39	3.13

ACCESSORIES

Cinch Number	Description	Net Each, Lots of 1-24	25-49	50-99
SD-LB	Latch block	$0.357	$0.311	$0.283
SD-WC9	Wire cover	.28	.244	.207
SD-WC15*	Wire cover	.284	.247	.21
SD-WC25*	Wire cover	.29	.252	.213
SD-WC37*	Wire cover	.295	.257	.218
SD-4-40(3/4)*	4-40 screws	.038	.033	.028
SD-LB-060	Latch block #	1.53	1.30	1.10
SD-LB-080	Latch block	1.53	1.30	1.10

*Two required per connector. #Includes 2 blocks, 2 screws with lockwashers; number suffix indicates panel thickness.

D-SUBMINIATURE CONNECTOR ACCESSORIES

JUNCTION SHELLS

Cinch Number	Type & Size	Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
DA-19678-1	Straight, A	$1.67	$1.53	$1.29	$1.04	$0.94
DB-19678-2	Straight, B	1.99	1.80	1.52	1.20	1.11
DC-19678-3	Straight, C	2.38	2.15	1.80	1.44	1.33
DD-19678-4	Straight, D	2.80	2.40	1.94	1.58	1.44
DA-19977-1	Rt.-angle, A	2.19	1.96	1.63	1.33	1.20
DB-19977-2	Rt.-angle, B	2.41	2.17	1.83	1.45	1.35
DC-19977-3	Rt.-angle, C	2.54	2.28	1.92	1.53	1.40
DD-19977-4	Rt.-angle, D	2.77	2.48	2.06	1.65	1.52
DE-19977-5	Rt.-angle, E	2.79	2.51	2.12	1.66	1.53
DE-24657	Straight, E*	3.12	2.87	2.41	1.93	1.75
DA-24658	Straight, A*	3.07	2.85	2.36	1.89	1.79
DB-24659	Straight, B*	2.48	2.26	1.89	1.53	1.44
DC-24660	Straight, C*	2.58	2.36	1.95	1.59	1.47
DD-24661	Straight, D*	2.90	2.73	2.28	1.85	1.66

*Deep, straight, clamp junction shell.

SCREW LOCK ASSEMBLIES

D-20418-2	Female, A-E	$0.66	$0.61	$0.56	$0.42	$0.40
D-20419-0	Male, A-C, E	.42	.39	.35	.31	.29
D-20420-0	Male, D	.62	.59	.48	.40	.38

CLEAR POLYPROPYLENE DUST COVERS

DA-, DB-, DC-, DD-, or DE-59-20-SKT	For sockets	$0.936	$0.822	$0.696	$0.557	$0.511
DA-, DB-, DC-, DD-, or DE-60-20-PLG	For plugs	.936	.822	.696	.557	.511

SLIDING LOCK ASSEMBLIES

DE-51224-1	1.392" long	$1.36	$1.21	$1.04	$0.84	$0.74
DA-51220-1	1.720" long	.71	.66	.59	.48	.45
DB-51221-1	2.260" long	.71	.65	.58	.47	.42
DC-51222-1	2.908" long	.93	.88	.71	.60	.57
DD-51223-1	2.814" long	1.15	1.07	.89	.67	.65

GRAY PLASTIC HOODS FOR SUPER D CONNECTOR SYSTEM

Cinch Number	Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
WITH LATCHES					
SDH-9GL	$1.35	$1.17	$0.99	$0.79	$0.73
SDH-15GL	1.40	1.22	1.03	.83	.76
SDH-25GL	1.51	1.31	1.11	.89	.82
SDH-37GL	1.62	1.41	1.20	.96	.88
WITH FILLER ENDS					
SDH-9GF	$1.24	$1.08	$0.91	$0.73	$0.67
SDH-15GF	1.26	1.10	.93	.75	.68
SDH-25GF	1.37	1.20	1.01	.81	.74
SDH-37GF	1.48	1.29	1.09	.88	.80

BLACK PLASTIC HOODS FOR SUPER D ADAPTER SYSTEM

Cinch Number	Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
WITH LATCHES					
SDH-9BL	$1.35	$1.17	$0.99	$0.79	$0.73
SDH-15BL	1.40	1.22	1.03	.83	.76
SDH-25BL	1.51	1.31	1.11	.89	.82
SDH-37BL	1.62	1.41	1.20	.96	.88
WITH FILLER ENDS					
SDH-9BF	$1.24	$1.08	$0.91	$0.73	$0.67
SDH-15BF	1.26	1.10	.93	.75	.68
SDH-25BF	1.37	1.20	1.01	.81	.74
SDH-37BF	1.48	1.39	1.09	.88	.80

ORDERING INFORMATION

Part Number Series	Required Components	Connector System: Cable-to-Cable Latch-N-Lock	Cable-to-Cable Screw Lock	Cable-to-Panel Latch-N-Lock	Cable-to-Panel Screw Mount	Adapter System: Cable-to-Cable Latch-N-Lock	Cable-to-Panel Latch-N-Lock	Cable-to-Panel Screw Mount
TX-XXX	Connector with mtg. holes	1	1	1	1			
TX-XXX-TB	Connector with 4-40 bushings*							
TX-XXX-LB	Connector with latching blocks	1						
TX-XXX-LB-1	Connector with 4-40 bushings and latching blocks		1	1	1			
SDH-XXX-GL	Gray hood with latches†	1		1				
SDH-XXX-GF	Gray hood with filler ends†	1	2		1			
SDH-XXX-BL	Black hood with latches†					1	1	
SDH-XXX-BF	Black hood with filler ends†					1		1
SD-WCXX	Strain relief/wire covers#			2#	2#			
SD-4-40(3/4)	4-40 Screws for filler end hoods		2		2	2		2
SD-LB	Metal latching blocks‡					2	2	
SD-LB-XXXX	Panel mounting Sems screws‡			2	2		2	

*Connector with 4-40 bushings may be used to mount to panel and to mate to a connector without hoods. †One stay band/cable clamp supplied with each hood; additional stay bands available. #The 9-position connector strain relief is one piece, so only on required. ‡Latching blocks are available with and without mounting screws; mounting screws are available for either .060"/.080" or .125" panel thickness along with latch blocks.

TRW CINCH CONNECTORS

"JONES" PLUGS AND SOCKETS

300 SERIES PLUG AND SOCKETS from famous "Jones" line, the standard for the electrical and electronic industry for many years. Small size, with good separation between contacts, for medium-duty applications. Molded phenolic insulator; 2 to 33 cadmium-plated phosphor bronze contacts; for cap or panel mounting. Polarized so only common sizes will mate. "Knife-switch" type socket contacts engage both sides of flat plug contacts. Rated 730 V rms, 10 A max. Contact resistance, .016 ohms max. UL Standard #498 rated (all contacts simultaneously) 7.5 amps, 1875 watts for 2-12 contacts; 4.5 amps, 1125 watts, 15-33 contacts.

AB

CCT

CCT-L

CCE

DB

SB

Cinch Number	Contacts	Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
PLUGS WITH ANGLE BRACKETS						
P-302-AB	2	$0.70	$0.52	$0.49	$0.43	$0.41
P-303-AB	3	.76	.58	.51	.45	.44
P-304-AB	4	.82	.70	.56	.49	.49
P-306-AB	6	1.00	.82	.73	.55	.52
P-308-AB	8	1.17	.93	.80	.68	.63
P-310-AB	10	1.30	1.01	.89	.74	.72
P-312-AB	12	1.46	1.18	.96	.80	.76
P-315-AB	15	1.93	1.52	1.30	1.01	.97
P-318-AB	18	2.28	1.86	1.52	1.26	1.19
P-321-AB	21	2.84	2.28	1.93	1.52	1.48
P-324-AB	24	3.41	2.73	2.29	1.87	1.76
P-327-AB	27	3.99	3.23	2.69	2.14	2.03
P-330-AB	30	4.58	3.85	3.04	2.48	2.33
P-333-AB	33	5.12	4.09	3.42	2.73	2.64
PLUGS WITH CABLE CLAMPS/TOP						
P-302-CCT	2	$1.31	$1.05	$0.89	$0.74	$0.72
P-303-CCT	3	1.46	1.18	.96	.80	.76
P-304-CCT	4	1.54	1.24	1.01	.82	.80
P-306-CCT	6	1.67	1.39	1.18	.93	.89
P-308-CCT	8	1.87	1.49	1.27	1.00	.96
P-310-CCT	10	2.02	1.62	1.39	1.15	1.05
P-312-CCT	12	2.18	1.76	1.49	1.20	1.15
P-315-CCT	15	2.88	2.33	1.97	1.57	1.51
P-318-CCT	18	3.36	2.70	2.28	1.86	1.70
P-321-CCT	21	4.00	3.24	2.70	2.17	2.06
P-324-CCT	24	4.69	3.76	3.18	2.57	2.39
P-327-CCT	27	5.39	4.27	3.59	2.88	2.73
P-330-CCT	30	6.02	4.84	4.03	3.25	3.08
P-333-CCT	33	6.67	5.37	4.46	3.59	3.41
PLUGS WITH CABLE CLAMPS/TOP & LOCKS						
P-302-CCT-L	2	$1.61	$1.31	$1.12	$0.89	$0.84
P-303-CCT-L	3	1.70	1.41	1.19	.95	.90
P-304-CCT-L	4	1.86	1.48	1.26	.97	.95
P-306-CCT-L	6	2.02	1.62	1.37	1.12	1.05
P-308-CCT-L	8	2.14	1.70	1.48	1.19	1.15
P-310-CCT-L	10	2.33	1.92	1.58	1.30	1.24
P-312-CCT-L*	12	2.48	2.01	1.66	1.37	1.31
P-315-CCT-L*	15	3.23	2.62	2.17	1.70	1.65
P-318-CCT-L*	18	3.68	2.92	2.52	2.00	1.93
P-321-CCT-L*	21	4.30	3.46	2.89	2.33	2.23
P-324-CCT-L*	24	4.98	4.00	3.36	2.70	2.58
P-327-CCT-L*	27	5.67	4.56	3.78	3.04	2.89
P-330-CCT-L	30	6.32	5.10	4.24	3.41	3.25
P-333-CCT-L	33	6.96	5.57	4.69	3.76	3.54
PLUGS WITH CABLE CLAMPS/END						
P-306-CCE	6	$1.78	$1.47	$1.24	$0.96	$0.93
P-308-CCE	8	1.94	1.55	1.31	1.05	1.00
P-310-CCE	10	2.11	1.66	1.46	1.18	1.12
P-312-CCE	12	2.28	1.86	1.52	1.26	1.19
P-315-CCE	15	2.95	2.36	2.01	1.61	1.52
P-318-CCE	18	3.44	2.74	2.32	1.88	1.78
P-321-CCE	21	4.58	3.68	3.08	2.44	2.34
P-324-CCE	24	4.78	3.85	3.23	2.62	2.53
P-327-CCE	27	5.44	4.35	3.65	2.90	2.78
P-330-CCE	30	6.10	4.88	4.08	3.29	3.12
P-333-CCE	33	6.74	5.42	4.55	3.64	3.44
PLUGS WITH DEEP BRACKETS						
P-302-DB	2	$1.55	$1.27	$1.05	$0.84	$0.82
P-303-DB	3	1.57	1.27	1.11	.85	.82
P-304-DB	4	1.65	1.33	1.15	.90	.85
P-306-DB	6	1.87	1.48	1.26	1.00	.95
P-308-DB	8	1.97	1.61	1.33	1.11	1.01
P-312-DB	12	2.25	1.86	1.52	1.24	1.19
P-315-DB	15	2.73	2.21	1.86	1.49	1.46
P-318-DB	18	3.27	2.64	2.17	1.82	1.66
P-321-DB	21	3.91	3.17	2.64	2.11	2.01
P-324-DB	24	4.58	3.68	3.08	2.48	2.34
P-327-DB	27	5.23	4.20	3.50	2.79	2.69
P-330-DB	30	5.82	4.70	3.95	3.18	3.01
P-333-DB	33	6.46	5.23	4.37	3.47	3.36
PLUGS WITH SHALLOW BRACKETS						
P-315-SB	15	$2.73	$2.21	$1.88	$1.49	$1.46
P-318-SB	18	3.27	2.64	2.21	1.82	1.66
P-321-SB	21	3.91	3.17	2.64	2.11	2.01
P-324-SB	24	4.58	3.68	3.08	2.48	2.34
P-327-SB	27	5.23	4.20	3.50	2.79	2.69
P-330-SB	30	5.82	4.70	3.95	3.18	3.01
P-333-SB	33	6.46	5.23	4.37	3.47	3.36
PLUGS WITH FLUSH PLATE						
P-302-FP	2	$1.11	$0.85	$0.76	$0.58	$0.56
P-303-FP	3	1.17	.93	.80	.68	.58
P-304-FP	4	1.24	.96	.82	.72	.68
P-306-FP	6	1.41	1.17	.96	.76	.76
P-308-FP	8	1.52	1.26	1.05	.84	.81
P-310-FP	10	1.65	1.33	1.17	.93	.89
P-312-FP	12	1.86	1.48	1.26	.97	.95

Cinch Number	Contacts	Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
SOCKETS WITH ANGLE BRACKETS						
S-302-AB	2	$0.73	$0.56	$0.50	$0.44	$0.43
S-303-AB	3	.80	.68	.52	.48	.45
S-304-AB	4	.85	.73	.58	.50	.49
S-306-AB	6	1.11	.85	.76	.58	.56
S-308-AB	8	1.30	1.02	.89	.74	.72
S-310-AB	10	1.49	1.20	1.01	.82	.78
S-312-AB	12	1.76	1.41	1.20	.96	.90
S-315-AB	15	2.21	1.78	1.49	1.20	1.17
S-318-AB	18	2.58	2.02	1.67	1.39	1.31
S-321-AB	21	3.09	2.53	2.07	1.65	1.61
S-324-AB	24	3.68	2.92	2.52	1.97	1.93
S-327-AB	27	4.24	3.41	2.86	2.29	2.18
S-330-AB	30	4.87	3.91	3.27	2.64	2.53
S-333-AB	33	5.44	4.35	3.64	2.89	2.78
SOCKETS WITH CABLE CLAMPS/TOP						
S-302-CCT	2	$1.33	$1.12	$0.93	$0.76	$0.74
S-303-CCT	3	1.48	1.19	.97	.81	.78
S-304-CCT	4	1.55	1.27	1.05	.84	.82
S-306-CCT	6	1.78	1.46	1.20	.96	.93
S-308-CCT	8	2.00	1.58	1.33	1.12	1.01
S-310-CCT	10	2.23	1.83	1.51	1.24	1.18
S-312-CCT	12	2.56	2.02	1.86	1.37	1.31
S-315-CCT	15	3.23	2.62	2.17	1.70	1.65
S-318-CCT	18	3.64	2.89	2.44	1.97	1.88
S-321-CCT	21	4.27	3.44	2.88	2.32	2.21
S-324-CCT	24	4.94	3.99	3.33	2.66	2.57
S-327-CCT	27	5.62	4.50	3.77	3.02	2.87
S-330-CCT	30	6.32	5.10	4.24	3.41	3.25
S-333-CCT	33	6.96	5.57	4.69	3.76	3.54
SOCKETS WITH CABLE CLAMPS/TOP & KEEPERS						
S-302-CCT-K	2	$1.64	$1.33	$1.17	$0.90	$0.85
S-303-CCT-K	3	1.78	1.46	1.20	.96	.93
S-304-CCT-K	4	1.88	1.51	1.27	1.00	.96
S-306-CCT-K	6	2.07	1.65	1.41	1.17	1.11
S-308-CCT-K	8	2.29	1.87	1.55	1.27	1.20
S-310-CCT-K	10	2.57	2.03	1.67	1.39	1.32
S-312-CCT-K	12	2.84	2.28	1.93	1.52	1.48
S-315-CCT-K	15	3.50	2.84	2.35	1.93	1.83
S-318-CCT-K	18	3.95	3.18	2.65	2.13	2.02
S-321-CCT-K	21	4.61	3.69	3.09	2.52	2.34
S-324-CCT-K	24	5.25	4.23	3.51	2.84	2.70
S-327-CCT-K	27	5.94	4.75	3.99	3.23	3.02
S-330-CCT-K	30	6.65	5.37	4.45	3.54	3.41
S-333-CCT-K	33	7.29	5.80	4.88	3.92	3.71
SOCKETS WITH CABLE CLAMPS/END						
S-306-CCE	6	$1.87	$1.49	$1.30	$1.00	$0.96
S-308-CCE	8	2.06	1.64	1.41	1.17	1.11
S-310-CCE	10	2.32	1.88	1.58	1.27	1.20
S-312-CCE	12	2.62	2.07	1.76	1.41	1.33
S-315-CCE	15	3.29	2.65	2.21	1.78	1.66
S-318-CCE	18	3.69	2.95	2.53	2.01	1.93
S-321-CCE	21	4.37	3.50	2.90	2.34	2.25
S-324-CCE	24	5.02	4.03	3.40	2.70	2.62
S-327-CCE	27	5.68	4.58	3.85	3.08	2.89
S-330-CCE	30	6.36	5.12	4.27	3.44	3.27
S-333-CCE	33	7.02	5.65	4.72	3.78	3.62
SOCKETS WITH DEEP BRACKETS						
S-302-DB	2	$1.58	$1.31	$1.12	$0.89	$0.84
S-303-DB	3	1.58	1.30	1.12	.89	.84
S-304-DB	4	1.66	1.37	1.18	.93	.89
S-306-DB	6	1.93	1.52	1.31	1.01	.97
S-308-DB	8	2.11	1.66	1.48	1.18	1.11
S-312-DB	12	2.62	2.06	1.76	1.41	1.33
S-315-DB	15	3.04	2.48	2.06	1.64	1.57
S-318-DB	18	3.51	2.84	2.35	1.94	1.86
S-321-DB	21	4.20	3.36	2.79	2.25	2.14
S-324-DB	24	4.85	3.90	3.27	2.64	2.52
S-327-DB	27	5.48	4.38	3.68	2.92	2.79
S-330-DB	30	6.16	4.94	4.16	3.33	3.18
S-333-DB	33	6.79	5.46	4.58	3.65	3.47
SOCKETS WITH SHALLOW BRACKETS						
S-315-SB	15	$3.04	$2.48	$2.06	$1.64	$1.60
S-318-SB	18	3.51	2.84	2.35	1.94	1.86
S-321-SB	21	4.20	3.36	2.79	2.25	2.14
S-324-SB	24	4.85	3.90	3.27	2.64	2.52
S-327-SB	27	5.48	4.38	3.68	2.92	2.79
S-330-SB	30	6.16	4.94	4.16	3.33	3.18
S-333-SB	33	6.79	5.46	4.58	3.65	3.47
SOCKETS WITH FLUSH PLATE						
S-302-FP	2	$1.15	$0.90	$0.78	$0.63	$0.59
S-303-FP	3	1.16	.95	.81	.68	.63
S-304-FP	4	1.27	1.00	.85	.73	.70
S-306-FP	6	1.48	1.19	.97	.81	.78
S-308-FP	8	1.65	1.33	1.17	.93	.89
S-310-FP	10	1.92	1.51	1.30	1.01	.97
S-312-FP	12	2.13	1.67	1.47	1.19	1.15

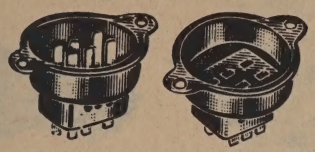
*Available on special order.

LARGER QUANTITY PRICING AVAILABLE ON REQUEST

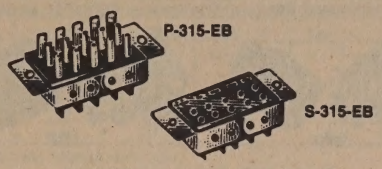
PRICES LISTED ARE FOR GUIDANCE ONLY

"JONES" PLUGS AND SOCKETS

300 SERIES "JONES" PLUGS AND SOCKETS (CONTINUED)



P-306-RP S-306-RP



P-315-EB S-315-EB

PLUGS WITH RECESSED PLATES

Cinch Number	Contacts	Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
P-302-RP	2	$1.24	$0.97	$0.84	$0.72	$0.70
P-303-RP	3	1.30	1.01	.89	.74	.72
P-304-RP	4	1.37	1.12	.93	.78	.74
P-306-RP	6	1.57	1.27	1.00	.84	.82
P-308-RP	8	1.78	1.46	1.20	.96	.93
P-310-RP	10	2.03	1.58	1.33	1.12	1.01
P-312-RP	12	2.21	1.78	1.49	1.20	1.17

SOCKETS WITH RECESSED PLATES

Cinch Number	Contacts	Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
S-302-RP	2	$1.30	$1.01	$0.85	$0.73	$0.72
S-303-RP	3	1.32	1.11	.90	.74	.73
S-304-RP	4	1.41	1.17	.96	.80	.76
S-306-RP	6	1.61	1.31	1.12	.89	.84
S-308-RP	8	1.93	1.52	1.31	1.05	.97
S-310-RP	10	2.21	1.78	1.49	1.20	1.17
S-312-RP	12	2.56	2.02	1.67	1.39	1.31

PLUGS WITH END BRACKETS

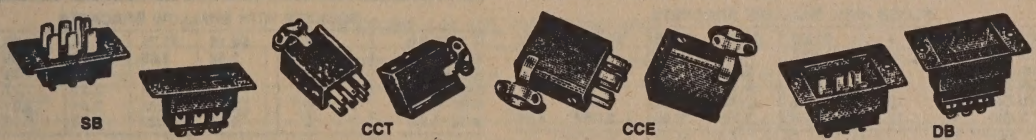
P-315-EB	15	$1.97	$1.57	$1.32	$1.11	$1.00
P-318-EB	18	2.33	1.92	1.57	1.27	1.24
P-321-EB	21	2.88	2.32	1.96	1.57	1.49
P-324-EB	24	3.46	2.78	2.33	1.92	1.83
P-327-EB	27	4.03	3.25	2.72	2.18	2.07
P-330-EB	30	4.62	3.69	3.09	2.53	2.35
P-333-EB	33	5.15	4.16	3.46	2.78	2.65

SOCKETS WITH END BRACKETS

S-315-EB	15	$2.25	$1.86	$1.51	$1.24	$1.19
S-318-EB	18	3.59	2.07	1.76	1.41	1.33
S-321-EB	21	3.18	2.57	2.13	1.67	1.62
S-324-EB	24	3.71	2.99	2.56	2.02	1.94
S-327-EB	27	4.30	3.46	2.88	2.33	2.21
S-330-EB	30	4.92	3.95	3.30	2.66	2.56
S-333-EB	33	5.48	4.38	3.68	2.92	2.79

400 SERIES PLUGS AND SOCKETS are rated for duty beyond the range of 300 Series: 1100 V rms at 15 amps. Contact resistance .001 ohm avg. Polarized and suitable for either cap or panel mounting in 2, 4, 6, 8, 10 and 12 contact sizes.

"Knife-switch" type socket contacts of cadmium-plated phosphor bronze engage both sides of flat plug contacts. Plug prongs are cadmium-plated brass ¼" wide, 1/16" thick. Caps finished in black wrinkle and fiber lined.



SB CCT CCE DB

PLUGS WITH ANGLE BRACKETS

Cinch Number	Contacts	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
P-402-AB	2	$1.60	$1.29	$1.09	$0.87	$0.84
P-404-AB	4	1.96	1.58	1.33	1.03	.98
P-406-AB	6	2.27	1.82	1.56	1.26	1.20
P-408-AB	8	2.64	2.09	1.73	1.41	1.35
P-410-AB	10	2.94	2.37	2.02	1.61	1.55
P-412-AB	12	3.30	2.67	2.21	1.77	1.68

SOCKETS WITH ANGLE BRACKETS

Cinch Number	Contacts	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
S-402-AB	2	$1.87	$1.50	$1.26	$0.98	$0.96
S-404-AB	4	2.37	1.90	1.60	1.29	1.22
S-406-AB	6	2.89	2.33	1.98	1.58	1.51
S-408-AB	8	3.40	2.71	2.27	1.86	1.71
S-410-AB	10	3.88	3.13	2.64	2.09	2.02
S-412-AB	12	4.41	3.53	2.95	2.38	2.27

PLUGS WITH CABLE CLAMPS/TOP

P-402-CCT	2	$2.62	$2.09	$1.73	$1.41	$1.35
P-404-CCT	4	2.95	2.38	2.02	1.61	1.55
P-406-CCT	6	3.40	2.71	2.29	1.87	1.73
P-408-CCT	8	3.75	2.98	2.53	2.05	1.96
P-410-CCT	10	4.32	3.46	2.92	2.34	2.21
P-412-CCT	12	4.69	3.76	3.14	2.56	2.39

SOCKETS WITH CABLE CLAMPS/TOP

S-402-CCT	2	$2.94	$2.37	$2.01	$1.60	$1.55
S-404-CCT	4	3.48	2.80	2.37	1.90	1.78
S-406-CCT	6	4.06	3.29	2.71	2.19	2.07
S-408-CCT	8	4.58	3.72	3.10	2.49	2.38
S-410-CCT	10	5.19	4.16	3.48	2.84	2.69
S-412-CCT	12	5.77	4.58	3.85	3.10	2.95

PLUGS WITH CABLE CLAMPS/END

P-402-CCE	2	$2.69	$2.18	$1.82	$1.49	$1.40
P-404-CCE	4	3.04	2.41	2.06	1.65	1.58
P-406-CCE	6	3.47	2.78	2.34	1.90	1.78
P-408-CCE	8	3.85	3.08	2.61	2.07	2.01
P-410-CCE	10	4.37	3.50	2.95	2.38	2.25
P-412-CCE	12	4.79	3.84	3.23	2.61	2.41

SOCKETS WITH CABLE CLAMPS/END

S-402-CCE	2	$3.00	$2.40	$2.05	$1.65	$1.58
S-404-CCE	4	3.57	2.89	2.40	1.96	1.87
S-406-CCE	6	4.16	3.33	2.78	2.25	2.16
S-408-CCE	8	4.70	3.76	3.15	2.56	2.40
S-410-CCE	10	5.26	4.23	3.53	2.84	2.70
S-412-CCE	12	5.83	4.67	3.91	3.14	2.97

PLUGS WITH DEEP BRACKETS

P-402-DB	2	$2.09	$1.68	$1.41	$1.17	$1.09
P-404-DB	4	2.56	2.05	1.70	1.36	1.34
P-406-DB	6	2.95	2.36	2.02	1.61	1.55
P-408-DB	8	3.40	2.71	2.29	1.87	1.73
P-410-DB	10	3.84	3.07	2.61	2.07	2.01
P-412-DB	12	4.28	3.43	2.89	2.29	2.19

SOCKETS WITH DEEP BRACKETS

S-402-DB	2	$2.37	$1.90	$1.60	$1.29	$1.22
S-404-DB	4	2.95	2.38	2.02	1.61	1.55
S-406-DB	6	3.57	2.89	2.40	1.98	1.87
S-408-DB	8	4.17	3.36	2.80	2.25	2.16
S-410-DB	10	4.80	3.84	3.23	2.62	2.43
S-412-DB	12	5.40	4.33	3.60	2.93	2.77

PLUGS WITH SHALLOW BRACKETS

P-402-SB	2	$2.04	$1.63	$1.36	$1.09	$1.03
P-404-SB	4	2.41	2.01	1.65	1.34	1.28
P-406-SB	6	2.89	2.33	1.98	1.58	1.51
P-408-SB	8	3.33	2.66	2.22	1.78	1.70
P-410-SB	10	3.75	2.98	2.56	2.05	1.96
P-412-SB	12	4.17	3.33	2.80	2.25	2.16

SOCKETS WITH SHALLOW BRACKETS

S-402-SB	2	$2.27	$1.82	$1.56	$1.26	$1.20
S-404-SB	4	2.89	2.33	1.98	1.58	1.51
S-406-SB	6	3.48	2.83	2.37	1.90	1.78
S-408-SB	8	4.09	3.31	2.77	2.21	2.09
S-410-SB	10	3.75	3.15	2.66	2.57	2.40
S-412-SB	12	5.31	4.28	3.57	2.89	2.71

PLUGS LESS ANGLE BRACKETS, DRILLED*

P-402-LAB	2	$0.93	$0.76	$0.64	$0.51	$0.49
P-404-LAB	4	1.28	.96	.86	.74	.70
P-406-LAB	6	1.67	1.35	1.17	.93	.87
P-408-LAB	8	2.04	1.63	1.36	1.09	.98
P-410-LAB	10	2.56	2.06	1.71	1.40	1.34
P-412-LAB	12	2.94	2.37	2.01	1.60	1.55

*For 6-32 self-tapping screw; except in 2-contact size.

SOCKETS LESS ANGLE BRACKETS, DRILLED*

S-402-LAB	2	$1.19	$0.94	$0.81	$0.64	$0.59
S-404-LAB	4	1.68	1.35	1.17	.94	.91
S-406-LAB	6	2.19	1.73	1.50	1.21	1.17
S-408-LAB	8	2.70	2.18	1.86	1.50	1.40
S-410-LAB	10	3.23	2.62	2.18	1.71	1.67
S-412-LAB	12	3.74	2.98	2.50	2.04	1.95

*For 6-32 self-tapping screw; except in 2-contact size.

LARGER QUANTITY PRICING AVAILABLE ON REQUEST

"JONES" PLUGS AND SOCKETS 2400 SERIES

2400 SERIES PLUGS AND SOCKETS are designed for excellent electrical and mechanical performance. Ratings are the same as 400 Series, except for higher (1700 volts) voltage rating. Fully interchangeable with corresponding units of the 400 Series.

PLUGS WITH CABLE CLAMPS/TOP

Cinch Number	Contacts	Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
P-2402-CCT	2	$2.74	$2.21	$1.87	$1.50	$1.41
P-2404-CCT	4	3.10	2.49	2.09	1.68	1.61
P-2406-CCT	6	3.47	2.78	2.34	1.90	1.78
P-2408-CCT	8	3.84	3.08	2.62	2.07	2.01
P-2410-CCT	10	4.23	3.40	2.83	2.27	2.18
P-2412-CCT	12	4.41	3.54	2.97	2.38	2.25

PLUGS WITH CABLE CLAMPS/END

P-2402-CCE	2	$2.80	$2.27	$1.91	$1.55	$1.49
P-2404-CCE	4	3.20	2.57	2.16	1.71	1.65
P-2406-CCE	6	3.54	2.84	2.39	1.96	1.87
P-2408-CCE	8	3.91	3.14	2.67	2.10	2.04
P-2410-CCE	10	4.31	3.47	2.92	2.33	2.21
P-2412-CCE	12	4.68	3.75	3.13	2.50	2.39

PLUGS WITH DEEP BRACKETS

P-2402-DB	2	$2.18	$1.71	$1.49	$1.20	$1.14
P-2404-DB	4	2.50	1.96	1.68	1.36	1.33
P-2406-DB	6	2.89	2.29	1.96	1.58	1.50
P-2408-DB	8	3.23	2.62	2.18	1.71	1.67
P-2410-DB	10	3.57	2.89	2.39	1.96	1.87
P-2412-DB	12	3.91	3.14	2.67	2.10	2.04

PLUGS WITH SHALLOW BRACKETS

P-2402-SB	2	$2.02	$1.61	$1.35	$1.09	$1.03
P-2402-SB	4	2.37	1.90	1.60	1.29	1.22
P-2406-SB	6	2.70	2.18	1.82	1.50	1.40
P-2408-SB	8	3.07	2.49	2.06	1.85	1.77
P-2410-SB	10	3.41	2.74	2.29	1.87	1.73
P-2412-SB	12	3.79	3.00	2.56	2.05	1.96

PLUGS LESS ANGLE BRACKETS, DRILLED AND TAPPED*

P-2402-LAB	2	$1.17	$0.93	$0.79	$0.59	$0.57
P-2404-LAB	4	1.50	1.21	.98	.82	.79
P-2406-LAB	6	1.87	1.50	1.26	.98	.96
P-2408-LAB	8	2.19	1.73	1.50	1.21	1.17
P-2410-LAB	10	2.57	2.05	1.70	1.40	1.34
P-2412-LAB	12	2.92	2.34	1.98	1.58	1.51

*Except in 2 contact size.

SOCKETS WITH CABLE CLAMPS/TOP

Cinch Number	Contacts	Net Each, Lots of 1-24	25:49	50-99	100-249	250 Up
S-2402-CCT	2	$2.97	$2.50	$2.04	$1.61	$1.56
S-2404-CCT	4	3.30	2.67	2.21	1.77	1.68
S-2406-CCT	6	3.69	2.94	2.43	2.02	1.90
S-2408-CCT	8	4.06	3.29	2.71	2.19	2.07
S-2410-CCT	10	4.46	3.54	2.97	2.39	2.27
S-2412-CCT	12	4.82	3.86	3.24	2.62	2.49

SOCKETS WITH CABLE CLAMPS/END

S-2402-CCE	2	$3.07	$2.43	$2.06	$1.65	$1.60
S-2404-CCE	3	3.36	2.70	2.27	1.82	1.71
S-2406-CCE	6	3.75	2.98	2.56	2.05	1.96
S-2408-CCE	8	4.14	3.33	2.78	2.22	2.10
S-2410-CCE	10	4.52	3.60	3.04	2.41	2.33
S-2412-CCE	12	4.94	3.95	3.31	2.67	2.50

SOCKETS WITH DEEP BRACKETS

S-2402-DB	2	$2.33	$1.89	$1.58	$1.28	$1.21
S-2404-DB	4	2.69	2.18	1.82	1.49	1.40
S-2406-DB	6	3.07	2.43	2.06	1.65	1.60
S-2408-DB	8	3.43	2.74	2.33	1.89	1.73
S-2410-DB	10	3.78	3.04	2.56	2.06	1.98
S-2412-DB	12	4.16	3.35	2.80	2.25	2.16

SOCKETS WITH SHALLOW BRACKETS

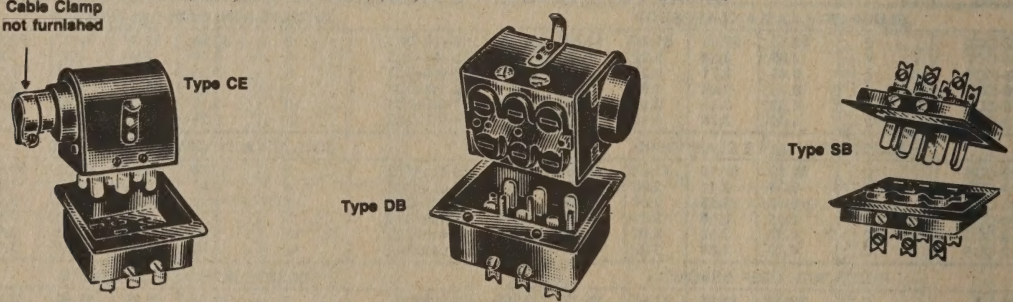
S-2402-SB	2	$2.18	$1.71	$1.49	$1.20	$1.14
S-2404-SB	4	2.53	2.05	1.70	1.36	1.33
S-2406-SB	6	2.92	2.34	1.98	1.58	1.51
S-2408-SB	8	3.29	2.64	2.21	1.77	1.68
S-2410-SB	10	3.66	2.93	2.41	2.01	1.89
S-2412-SB	12	4.03	3.23	2.70	2.18	2.06

SOCKETS LESS ANGLE BRACKETS, DRILLED AND TAPPED*

S-2402-LAB	2	$1.29	$1.03	$0.87	$0.74	$0.73
S-2404-LAB	4	1.65	1.34	1.17	.93	.87
S-2406-LAB	6	2.05	1.63	1.36	1.14	1.03
S-2408-LAB	8	2.39	1.96	1.63	1.33	1.26
S-2410-LAB	10	2.77	2.22	1.89	1.51	1.43
S-2412-LAB	12	3.13	2.56	2.10	1.68	1.61

*Except in 2 contact size.

"JONES" PLUGS AND SOCKETS 500 SERIES



500 SERIES PLUGS AND SOCKETS feature three types—**Type DB** with deep bracket for recessed mounting; **Type CE** for cable clamp in end; **Type SB** with shallow bracket for flush mounting. **Rated Voltage:** 3 kV, max. **Rated Current:** 25 amperes per contact. **Power Capacity:** 5 kW, max. **Contacts:** Male, cadmium plated brass; Female, cadmium plated phosphor. **Caps and Brackets:** Parkerized steel.

DEEP BRACKET FOR RECESSED MOUNTING

Cinch Number Plug	Cinch Number Socket	Contacts	Net Each, Lots of 1-24	25-49	50-99	100-249
P-502-DB	S-502-DB	2	$19.02	$15.30	$11.99	$10.33
P-504-DB	S-504-DB	4	21.82	17.45	14.16	12.51
P-506-DB	S-506-DB	6	24.41	19.54	16.26	14.60
P-508-DB	S-508-DB	8	26.65	21.35	18.06	16.33
P-510-DB	S-510-DB	10	28.88	23.14	19.86	18.17
P-512-DB	S-512-DB	12	30.50	24.53	21.22	19.54

CABLE CLAMP IN END

Cinch Number Plug	Cinch Number Socket	Contacts	Net Each, Lots of 1-24	25-49	50-99	100-249
P-502-CE	S-502-CE	2	$22.51	$18.02	$14.71	$13.06
P-504-CE	S-504-CE	4	25.98	20.76	17.45	15.82
P-506-CE	S-506-CE	6	28.39	22.71	19.41	17.75
P-508-CE	S-508-CE	8	29.77	23.78	20.52	18.79
P-510-CE	S-510-CE	10	32.52	26.06	22.71	21.07
P-512-CE	S-512-CE	12	34.60	27.71	24.40	22.71

SHALLOW BRACKET FOR FLUSH MOUNTING

P-502-SB	S-502-SB	2	$19.02	$15.30	$11.99	$10.33
P-504-SB	S-504-SB	4	21.82	17.45	14.16	12.51
P-506-SB	S-506-SB	6	24.41	19.54	16.26	14.60
P-508-SB	S-508-SB	8	26.65	21.35	18.06	16.33
P-510-SB	S-510-SB	10	28.88	23.14	19.86	18.17
P-512-SB	S-512-SB	12	30.50	24.53	21.22	19.54

LARGER QUANTITY PRICING AVAILABLE ON REQUEST

PRICES LISTED ARE FOR GUIDANCE ONLY

BARRIER TERMINAL BLOCKS

Barrier design for high voltage rating. Molded phenolic base, nickel plated brass eyelets, steel screws with nickel over copper flash, and electro-tinned terminals. Marker strips and fanning strips for terminal blocks are listed on other pages. Terminals available: ¾ W for soldered wires on one side of block; Y for soldered wires underneath block; W for soldered wires on both sides of block (available as standard on 172 series—special order on others); E for Sems screws; no suffix for standard binder-head screws.

	Type 140	Type 141	Type 142	Type 150*	Type 151*	Type 152*
Size, W. × H.	⅞" × 13/32"	1⅛" × ½"	15/16" × ⅝"	1 13/16" × ¾"	2" × 15/16"	2½" × 1⅛"
Barrier spacing	¾"	7/16"	9/16"	11/16"	⅞"	1⅛"
Mtg. centers	5/16"	27/64"	½"	¾"	¾"	⅞"
Mtg. hole dia.	.160"	.175"/.185"	.209"	.160"	.180"	.209"
Screw size	5-40	6-32	8-32	10-32	12-32	¼"-28
Max. wire size	#16	#14	#10	#10	#8	#6
Max. V rmst	1100	1100	1600	1700	1800	2100

*Have .136" hole centered between mounting holes. †Without marker strip.

SERIES 140 (UL RECOGNIZED)

Contacts	TYPE 140 Net Each, Lots of				TYPE 140-E Net Each, Lots of				TYPE 140-¾W Net Each, Lots of				TYPE 140-Y Net Each, Lots of			
	Cinch No.	1-24	25-49	50-99	Cinch No.	1-24	25-49	50-99	Cinch No.	1-24	25-49	50-99	Cinch No.	1-24	25-49	50-99
1	1-140	$0.48	$0.39	$0.34	1-140-E	.....	.....	.....	1-140-¾ W	$0.53	$0.47	$0.42	1-140-Y	$0.53	$0.47	$0.42
2	2-140	.53	.48	.42	2-140-E	$0.71	$0.56	$0.51	2-140-¾ W	.66	.53	.50	2-140-Y	.66	.53	.50
3	3-140	.59	.52	.47	3-140-E	.90	.74	.59	3-140-¾ W	.82	.66	.55	3-140-Y	.82	.66	.55
4	4-140	.79	.59	.53	4-140-E	1.06	.88	.75	4-140-¾ W	1.13	.90	.79	4-140-Y	1.06	.88	.78
5	5-140	.94	.78	.63	5-140-E	1.35	1.09	.91	5-140-¾ W	1.36	1.09	.94	5-140-Y	1.29	1.03	.90
6	6-140	1.09	.88	.78	6-140-E	1.57	1.26	1.06	6-140-¾ W	1.60	1.28	1.06	6-140-Y	1.60	1.28	1.06
7	7-140	1.26	.99	.87	7-140-E	1.68	1.36	1.15	7-140-¾ W	1.79	1.49	1.26	7-140-Y	1.73	1.41	1.22
8	8-140	1.41	1.15	.97	8-140-E	1.87	1.51	1.27	8-140-¾ W	2.08	1.67	1.41	8-140-Y	2.00	1.60	1.35
9	9-140	1.59	1.27	1.02	9-140-E	2.19	1.76	1.49	9-140-¾ W	2.29	1.81	1.59	9-140-Y	2.19	1.74	1.50
10	10-140	1.70	1.40	1.21	10-140-E	2.39	1.91	1.61	10-140-¾W	2.52	2.06	1.70	10-140-Y	2.41	2.00	1.64
11	11-140	1.81	1.49	1.27	11-140-E	2.54	2.07	1.73	11-140-¾ W	2.79	2.21	1.87	11-140-Y	2.63	2.11	1.76
12	12-140	2.06	1.63	1.36	12-140-E	2.81	2.24	1.88	12-140-¾ W	2.97	2.40	2.06	12-140-Y	2.86	2.29	1.98
13	13-140	2.17	1.73	1.49	13-140-E	3.07	2.44	2.07	13-140-¾ W	3.24	2.58	2.18	13-140-Y	3.09	2.46	2.10
14	14-140	2.33	1.87	1.60	14-140-E	3.27	2.65	2.19	14-140-¾ W	3.48	2.81	2.33	14-140-Y	3.32	2.68	2.24
15	15-140	2.46	2.03	1.67	15-140-E	3.45	2.79	2.33	15-140-¾ W	3.69	2.95	2.46	15-140-Y	3.56	2.85	2.39
16	16-140	2.63	2.11	1.76	16-140-E	3.68	2.95	2.46	16-140-¾ W	3.93	3.12	2.67	16-140-Y	3.73	2.99	2.52
17	17-140	2.80	2.21	1.87	17-140-E	3.89	3.11	2.63	17-140-¾ W	4.18	3.33	2.81	17-140-Y	3.96	3.16	2.70
18	18-140	2.93	2.36	2.01	18-140-E	4.11	3.30	2.80	18-140-¾ W	4.39	3.53	2.94	18-140-Y	4.21	3.40	2.82
19	19-140	3.09	2.44	2.08	19-140-E	4.34	3.48	2.92	19-140-¾ W	4.63	3.71	3.10	19-140-Y	4.39	3.56	2.95
20	20-140	3.23	2.58	2.18	20-140-E	4.56	3.65	3.07	20-140-¾ W	4.86	3.87	3.25	20-140-Y	4.63	3.71	3.10

Series 140 terminal blocks are available with up to 25 positions; price on request.

SERIES 141 (UL RECOGNIZED)

Contacts	TYPE 141 Net Each, Lots of				TYPE 141-E Net Each, Lots of				TYPE 141-¾ W Net Each, Lots of				TYPE 141-Y Net Each, Lots of			
	Cinch No.	1-24	25-49	50-99	Cinch No.	1-24	25-49	50-99	Cinch No.	1-24	25-49	50-99	Cinch No.	1-24	25-49	50-99
1	1-141	$0.53	$0.47	$0.42	.....	.....	.....	.....	1-141-¾ W	$0.63	$0.52	$0.48	1-141-Y	$0.63	$0.52	$0.48
2	2-141	.58	.50	.44	2-141-E	$0.75	$0.59	$0.52	2-141-¾ W	.82	.63	.53	2-141-Y	.82	.63	.53
3	3-141	.79	.59	.53	3-141-E	1.06	.87	.74	3-141-¾ W	1.13	.90	.79	3-141-Y	1.09	.88	.78
4	4-141	.99	.83	.71	4-141-E	1.35	1.09	.91	4-141-¾ W	1.44	1.21	.98	4-141-Y	1.41	1.15	.97
5	5-141	1.26	.97	.90	5-141-E	1.59	1.27	1.06	5-141-¾ W	1.74	1.41	1.22	5-141-Y	1.68	1.36	1.14
6	6-141	1.36	1.09	.94	6-141-E	1.74	1.41	1.21	6-141-¾ W	2.06	1.63	1.36	6-141-Y	1.95	1.59	1.34
7	7-141	1.61	1.28	1.09	7-141-E	2.06	1.64	1.40	7-141-¾ W	2.36	1.86	1.61	7-141-Y	2.28	1.79	1.57
8	8-141	1.76	1.42	1.24	8-141-E	2.33	1.87	1.59	8-141-¾ W	2.68	2.12	1.77	8-141-Y	2.52	2.06	1.70
9	9-141	2.00	1.60	1.35	9-141-E	2.53	2.06	1.73	9-141-¾ W	2.94	2.36	2.01	9-141-Y	2.81	2.24	1.88
10	10-141	2.18	1.74	1.49	10-141-E	2.90	2.33	1.95	10-141-¾ W	3.28	2.63	2.19	10-141-Y	3.10	2.46	2.10
11	11-141	2.36	1.88	1.63	11-141-E	3.11	2.52	2.10	11-141-¾ W	3.56	2.86	2.40	11-141-Y	3.41	2.77	2.29
12	12-141	2.53	2.07	1.70	12-141-E	3.33	2.68	2.24	12-141-¾ W	3.86	3.09	2.58	12-141-Y	3.68	2.94	2.44
13	13-141	2.79	2.19	1.81	13-141-E	3.60	2.90	2.41	13-141-¾ W	4.16	3.32	2.81	13-141-Y	3.96	3.16	2.70
14	14-141	2.94	2.36	2.01	14-141-E	4.00	3.24	2.58	14-141-¾ W	4.48	3.60	2.97	14-141-Y	4.27	3.45	2.90
15	15-141	3.11	2.50	2.11	15-141-E	4.21	3.41	2.80	15-141-¾ W	4.73	3.79	3.16	15-141-Y	4.54	3.65	3.07

Series 141 terminal blocks are available with up to 20 positions; prices on request.

SERIES 142 (UL RECOGNIZED)

Contacts	TYPE 142 Net Each, Lots of				TYPE 142-E Net Each, Lots of				TYPE 142-¾ W Net Each, Lots of				TYPE 142-Y Net Each, Lots of			
	Cinch No.	1-24	25-49	50-99	Cinch No.	1-24	25-49	50-99	Cinch No.	1-24	25-49	50-99	Cinch No.	1-24	25-49	50-99
1	1-142	$0.58	$0.50	$0.44	.....	.....	.....	.....	1-142-¾ W	$0.78	$0.58	$0.52	1-142-Y	$0.74	$0.56	$0.51
2	2-142	.71	.55	.50	2-142-E	$0.91	$0.75	$0.63	2-142-¾ W	.98	.82	.68	2-142-Y	.94	.79	.63
3	3-142	.91	.75	.59	3-142-E	1.20	.97	.82	3-142-¾ W	1.40	1.14	.97	3-142-Y	1.28	1.02	.88
4	4-142	1.22	.97	.83	4-142-E	1.49	1.21	1.01	4-142-¾ W	1.79	1.49	1.26	4-142-Y	1.68	1.36	1.15
5	5-142	1.42	1.15	.97	5-142-E	1.74	1.41	1.21	5-142-¾ W	2.19	1.74	1.50	5-142-Y	2.06	1.63	1.40
6	6-142	1.67	1.35	1.15	6-142-E	2.03	1.63	1.40	6-142-¾ W	2.58	2.10	1.74	6-142-Y	2.41	1.98	1.63
7	7-142	1.95	1.57	1.29	7-142-E	2.41	1.95	1.73	7-142-¾ W	2.97	2.40	2.06	7-142-Y	2.80	2.21	1.87
8	8-142	2.17	1.73	1.48	8-142-E	2.70	2.18	1.88	8-142-¾ W	3.40	2.71	2.28	8-142-Y	3.11	2.50	2.11
9	9-142	2.39	1.95	1.61	9-142-E	2.97	2.40	2.07	9-142-¾ W	3.73	2.99	2.52	9-142-Y	3.48	2.81	2.33
10	10-142	2.67	2.12	1.76	10-142-E	3.32	2.68	2.21	10-142-¾ W	4.19	3.33	2.82	10-142-Y	3.87	3.10	2.58
11	11-142	2.90	2.31	1.98	11-142-E	3.53	2.82	2.41	11-142-¾ W	4.54	3.65	3.07	11-142-Y	4.21	3.41	2.85
12	12-142	3.11	2.50	2.11	12-142-E	3.71	2.97	2.67	12-142-¾ W	4.97	3.96	3.32	12-142-Y	4.56	3.68	3.09
13	13-142	3.40	2.71	2.28	13-142-E	3.92	3.12	2.85	13-142-¾ W	5.32	4.28	3.60	13-142-Y	4.97	3.96	3.32
14	14-142	3.61	2.92	2.42	14-142-E	4.16	3.32	3.07	14-142-¾ W	5.77	3.92	3.86	14-142-Y	5.29	4.26	3.58
15	15-142	3.87	3.10	2.58	15-142-E	4.85	3.89	3.25	15-142-¾ W	6.16	4.95	4.16	15-142-Y	5.69	4.54	3.79
16	16-142	4.12	3.30	2.80	16-142-E	5.22	4.16	3.48	16-142-¾ W	6.53	5.26	4.36	16-142-Y	6.06	4.87	4.07
17	17-142	4.34	3.49	2.93	17-142-E	5.49	4.39	3.68	17-142-¾ W	6.92	5.57	4.66	17-142-Y	6.42	5.12	4.28

SERIES 150, 151 AND 152 (UL RECOGNIZED)

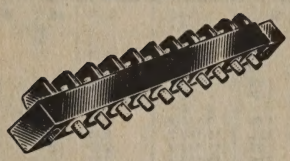
Contacts	TYPE 150 Net Each, Lots of				TYPE 150-Y Net Each, Lots of				TYPE 151 Net Each, Lots of				TYPE 152 Net Each, Lots of			
	Cinch No.	1-24	25-49	50-99	Cinch No.	1-24	25-49	50-99	Cinch No.	1-24	25-49	50-99	Cinch No.	1-24	25-49	50-99
1	1-150	$1.67	$1.31	$1.10	1-150-Y	$2.00	$1.60	$1.31	1-151	$2.30	$1.85	$1.56	1-152	$4.62	3.70	$3.10
2	2-150	2.08	1.67	1.38	2-150-Y	2.86	2.29	1.92	2-151	3.76	3.01	2.50	2-152	6.82	5.28	4.40
3	3-150	3.05	2.45	2.04	3-150-Y	3.96	3.18	2.66	3-151	5.57	4.47	3.73	3-152	9.15	7.32	6.10
4	4-150	3.83	3.07	2.59	4-150-Y	5.26	4.23	3.51	4-151	7.24	5.80	4.84	4-152	11.59	9.28	7.73
5	5-150	4.67	3.76	3.14	5-150-Y	6.42	5.15	4.31	5-151	8.95	7.18	5.99	5-152	14.02	11.22	9.35
6	6-150	5.59	4.48	3.76	6-150-Y	7.59	6.09	5.09	6-151	10.62	8.50	7.10	6-152	16.55	13.24	11.04
7	7-150	6.44	5.16	4.32	7-150-Y	8.68	6.96	5.80	7-151	12.35	9.89	8.23	7-152	.....	.....	.....
8	8-150	7.39	5.92	4.92	8-150-Y	9.93	7.95	6.63	8-151	14.02	11.22	9.35	8-152	.....	.....	.....
9	9-150	8.18	6.56	5.45	9-150-Y	11.14	8.91	7.44	9-151	.....	.....	.....	9-152	.....	.....	.....
10	10-150	9.05	7.24	6.04	10-150-Y	12.35	9.89	8.23	10-151	.....	.....	.....	10-152	.....	.....	.....

BARRIER TERMINAL BLOCKS

	Type 164	Type 171	Type 172	Type 173	Type 174	Type 540	Type 541	Type 542
Size, W. × H.	⅞" × 13/32"	13/32" × 5/16"	⅝" × 5/16"	⅜" × ½"	⅜" × ½" × ½"	1⅛" × 39/64"	1⅜" × 11/16"	1½" × ⅞"
Barrier spacing	⅜"	¼"	¼"	⅜"	⅜"	⅜"	7/16"	9/16"
Mtg. centers	5/16"	.....	.250"	.....	.....	5/16"	27/64"	½"
Mtg. hole dia.	.171/.175"	.125"	.125"	.125"	.156"	.160"	.175/.185"	.209"
Screw size	6-32	2-56	2-56	4-40"	4-40	5-40	6-32	8-32
Max. wire size	#14	#18	#18	#16	#16	#16	#14	#10
Max. Vrms.	1100	1000	1000	1000	1000	2300	2800	4000

*Sems type with lockwasher.

SERIES 176



Barrier terminal strips designed for flow solder termination to P.C. board conductor paths. Blocks listed are for 1/16" P.C. boards. To order blocks for ⅛" P.C. boards, change last digit to 3 (e.g., 2-176-3); same prices apply.

Cinch No.	Contacts	Net Each, Lots of 1-24	25-49	50-99
2-176-2	2	$1.68	$1.35	$1.14
3-176-2	3	1.91	1.56	1.28
4-176-2	4	2.12	1.73	1.48
5-176-2	5	2.33	1.87	1.59
6-176-2	6	2.55	2.07	1.74
7-176-2	7	2.78	2.21	1.86
8-176-2	8	2.97	2.40	2.03
9-176-2	9	3.24	2.58	2.18
10-176-2	10	3.48	2.81	2.36

ACCESSORIES FOR BARRIER TERMINALS

JUMPERS

Cinch No.	For Series	Net Each, Lots of 1-24	25-49	50-99
95B	142	$0.59	$0.44	$0.40
140J-1	140	.30	.27	.23
141J	141	.30	.27	.23
141J-1	141	.40	.30	.27
142J-1	142*	.40	.30	.27
142J-2	142*	.30	.27	.23
540J	540	.97	.91	.76
541J	541	1.21	.95	.79
542J	542	1.26	1.00	.91

*Also fits 542 series.

SOLDER TERMINALS

Cinch Number W-Type	¾ W-Type	Net Each, Lots of 1-24	25-49	50-99
W-140†	¾ W-140	$0.40	$0.38	$0.35
W-141†	¾ W-141	.40	.38	.35
W-142†	¾ W-142	.47	.40	.38
W-150	.....	.73	.63	.51
W-151	.....	1.03	.83	.71
W-152	.....	1.92	1.54	1.26

†Change prefix W to Y for Y-type terminals; prices slightly higher

QUICK-CLAMP TERMINALS

Simplifies engaging of wires to barrier blocks. Set includes two mating clamps and one screw. No. QC-1 accommodates wire sizes 14 thru 22. No. QC-2 accommodates wires sizes 8 thru 16.

Cinch No.	For Series	Net Each, Lots of 1-24	25-49	50-99
QC-1	141/541	$0.44	$0.33	$0.31
QC-2	142/542	.44	.33	.31

CABLE CLAMPS

For use with series 160, 161 and 162 fanning strips. Nickel plated brass. Screw Furnished.

Cinch No.	I.D.	Net Each, Lots of 1-24	25-49	50-99
CC-161-4	¼"	$1.06	$0.85	$0.70
CC-161-6	⅜"	1.25	1.06	.91
CC-161-8	½"	1.53	1.21	1.06
CC-161-10	⅝"	1.70	1.37	1.21
CC-161-12	¾"	1.92	1.56	1.36
CC-161-14	⅞"	2.03	1.70	1.45

SERIES 164 (UL RECOGNIZED)

Contacts	TYPE 164 Cinch No.	Net Each, Lots of 1-24	25-49	50-99	TYPE 164-¾ W Cinch No.	Net Each, Lots of 1-24	25-49	50-99	TYPE 164-Y Cinch No.	Net Each, Lots of 1-24	50-49	25-99
1	1-164	$0.51	$0.44	$0.36	1-164-¾ W	$0.53	$0.48	$0.42	1-164-Y	$0.53	$0.48	$0.42
2	2-164	.58	.50	.44	2-164-¾ W	.71	.55	.50	2-164-Y	.71	.55	.50
3	3-164	.75	.58	.51	3-164-¾ W	.91	.75	.59	3-164-Y	.91	.75	.59
4	4-164	.91	.78	.63	4-164-¾ W	1.24	.97	.86	4-164-Y	1.24	.97	.86
5	5-164	1.09	.90	.79	5-164-¾ W	1.42	1.21	.98	5-164-Y	1.42	1.21	.98
6	6-164	1.29	1.01	.88	6-164-¾ W	1.68	1.36	1.20	6-164-Y	1.68	1.36	1.20
7	7-164	1.48	1.21	.98	7-164-¾ W	1.95	1.57	1.29	7-164-Y	1.95	1.57	1.29
8	8-164	1.63	1.34	1.13	8-164-¾ W	2.17	1.73	1.48	8-164-Y	2.17	1.73	1.48
9	9-164	1.73	1.44	1.22	9-164-¾ W	2.34	1.95	1.60	9-164-Y	2.34	1.95	1.60
10	10-164	2.01	1.61	1.35	10-164-¾ W	2.67	2.12	1.76	10-164-Y	2.67	2.12	1.76
11	11-164	2.17	1.73	1.48	11-164-¾ W	2.90	2.33	2.00	11-164-Y	2.90	2.33	2.00
12	12-164	2.33	1.87	1.60	12-164-¾ W	3.05	2.50	2.11	12-164-Y	3.05	2.50	2.11
13	13-164	2.50	2.06	1.68	13-164-¾ W	3.41	2.77	2.29	13-164-Y	3.41	2.77	2.29
14	14-164	2.71	2.18	1.79	14-164-¾ W	3.62	2.93	2.42	14-164-Y	3.62	2.93	2.42
15	15-164	2.92	2.31	1.98	15-164-¾ W	3.87	3.11	2.63	15-164-Y	3.87	3.11	2.63

Series 164 terminal blocks are available with up to 21 positions, prices on request.

SERIES 172 (UL RECOGNIZED)

Contacts	TYPE 172 Cinch No.	Net Each, Lots of 1-24	25-49	50-99	TYPE 172-¾ W Cinch No.	Net Each, Lots of 1-24	25-49	50-99	TYPE 172-Y Cinch No.	Net Each, Lots of 1-24	50-49	25-99
2	2-172	$1.09	$0.88	$0.78	2-172-¾ W	$1.26	$0.99	$0.86	2-172-Y	$1.26	$0.99	$0.86
3	3-172	1.36	1.09	.94	3-172-¾ W	1.60	1.28	1.06	3-172-Y	1.60	1.28	1.06
4	4-172	1.64	1.35	1.13	4-172-¾ W	1.95	1.57	1.29	4-172-Y	1.95	1.57	1.29
5	5-172	1.95	1.57	1.29	5-172-¾ W	2.28	1.79	1.57	5-172-Y	2.28	1.79	1.57
6	6-172	2.19	1.74	1.50	6-172-¾ W	2.63	2.10	1.74	6-172-Y	2.63	2.10	1.74
7	7-172	2.46	2.03	1.67	7-172-¾ W	2.99	2.39	2.03	7-172-Y	2.99	2.39	2.03
8	8-172	2.79	2.19	1.81	8-172-¾ W	3.30	2.68	2.20	8-172-Y	3.30	2.68	2.20
9	9-172	2.99	2.41	2.07	9-172-¾ W	3.61	2.93	2.42	9-172-Y	3.61	2.93	2.42
10	10-172	3.30	2.68	2.21	10-172-¾ W	3.96	3.16	2.70	10-172-Y	3.96	3.16	2.70
11	11-172	3.58	2.86	2.40	11-172-¾ W	4.33	3.48	2.92	11-172-Y	4.33	3.48	2.92
12	12-172	3.86	3.09	2.58	12-172-¾ W	4.66	3.73	3.12	12-172-Y	4.86	3.73	3.12
13	13-172	4.12	3.30	2.80	13-172-¾ W	5.02	4.05	3.40	13-172-Y	5.02	4.05	3.40
14	14-172	4.39	3.53	2.94	14-172-¾ W	5.32	4.28	3.60	14-172-Y	5.32	4.28	3.60

*For two-sided W series, change ¾ W to W; same prices.

SERIES 171, 173 AND 174 (UL RECOGNIZED)

Contacts	TYPE 171 Cinch No.	Net Each, Lots of 1-24	25-49	50-99	TYPE 173 Cinch No.	Net Each, Lots of 1-24	25-49	50-99	TYPE 174 Cinch No.	Net Each, Lots of 1-24	25-49	50-99
2	2-171	$0.59	$0.52	$0.47	2-173	$0.63	$0.52	$0.46	2-174	$0.53	$0.47	$0.39
3	3-171	.79	.59	.53	3-173	.87	.71	.56	3-174	.71	.55	.50
4	4-171	.91	.76	.63	4-173	1.09	.90	.79	4-174	.88	.74	.58
5	5-171	1.06	.88	.78	5-173	1.34	1.06	.90	5-174	1.01	.86	.75
6	6-171	1.26	.96	.86	6-173	1.57	1.26	1.02	6-174	1.24	.97	.86
7	7-171	1.36	1.09	.91	7-173	1.74	1.41	1.22	7-174	1.36	1.09	.94
8	8-171	1.49	1.24	.99	8-173	2.00	1.59	1.34	8-174	1.57	1.26	1.02
9	9-171	.....	.....	.....	9-173	2.17	1.73	1.49	9-174	1.68	1.36	1.15
10	.....	.....	.....	.....	10-173	2.39	1.95	1.60	10-174	1.81	1.49	1.27

SERIES 540, 541 AND 542 (UL RECOGNIZED)

Contacts	TYPE 540 Cinch No.	Net Each, Lots of 1-24	25-49	50-99	TYPE 541 Cinch No.	Net Each, Lots of 1-24	25-49	50-99	TYPE 542 Cinch No.	Net Each, Lots of 1-24	25-49	50-99
2	2-540	$1.21	$0.94	$0.83	2-541	$1.42	$1.21	$0.98	2-542	$1.57	$1.26	$1.02
3	3-540	1.60	1.28	1.06	3-541	1.70	1.40	1.20	3-542	1.88	1.57	1.29
4	4-540	1.95	1.57	1.29	4-541	2.03	1.61	1.36	4-542	2.28	1.79	1.57
5	5-540	2.03	1.61	1.36	5-541	2.28	1.79	1.57	5-542	2.63	2.11	1.76
6	6-540	2.70	2.17	1.81	6-541	2.70	2.17	1.81	6-542	2.97	2.40	2.06
7	7-540	2.44	2.07	1.70	7-541	2.96	2.31	1.96	7-542	3.40	2.71	2.28
8	8-540	2.82	2.28	1.95	8-541	3.12	2.52	2.11	8-542	3.73	2.97	2.50
9	9-540	3.09	2.46	2.10	9-541	3.44	2.79	2.31	9-542	4.09	3.28	2.79
10	10-540	3.40	2.71	2.28	10-541	3.69	2.95	2.46	10-542	4.48	3.60	2.97
11	11-540	3.65	2.93	2.44	11-541	3.96	3.16	2.66	11-542	4.86	3.87	3.25
12	12-540	3.92	3.12	2.67	12-541	4.33	3.47	2.90	12-542	5.22	4.18	3.48
13	13-540	4.21	3.40	2.82	13-541	4.54	3.65	3.07	13-542	5.57	4.48	3.73
14	14-540	4.48	3.60	2.99	14-541	4.86	3.87	3.25	14-542	5.91	4.75	3.96
15	15-540	4.73	3.79	3.16	15-541	5.12	4.12	3.45	15-542	5.88	5.03	4.24
16	16-540	5.02	4.05	3.40	16-541	5.37	4.31	3.61	16-542	6.69	5.32	4.48
17	17-540	5.29	4.26	3.58	17-541	5.76	4.56	3.81	17-542	7.07	5.62	4.71
18	18-540	5.57	4.48	3.73	18-541	5.93	4.76	4.00	18-542	7.41	5.91	4.97
19	19-540	5.86	4.67	3.92	19-541	6.21	5.02	4.21	19-542	7.81	6.20	5.22
20	20-540	6.11	4.91	4.12	20-541	6.52	5.24	4.36	20-542	8.10	6.51	5.48
21	21-540	6.41	5.12	4.27	21-541	6.78	5.48	4.54	21-542	8.48	6.79	5.69
22	22-540	6.69	5.32	4.48	22-541	7.13	5.69	4.76	22-542	8.85	7.12	5.92
23	23-540	6.92	5.57	4.66	23-541	7.42	5.92	4.98	23-542	9.21	7.41	6.18
24	24-540	7.21	5.82	4.86	24-541	7.64	6.16	5.14	24-542	9.58	7.64	6.44
25	25-540	7.48	5.96	5.02	25-541	7.96	6.41	5.30	25-542	9.96	7.97	6.69
26	26-540				26-541				26-542			

Series 540 terminal blocks are available with up to 31 positions, Series 541 up to 30 positions; prices on request.

PRICES LISTED ARE FOR GUIDANCE ONLY

MARKER STRIPS AND ACCESSORIES

MARKER STRIPS FOR BARRIER TERMINAL BLOCKS

100 SERIES MARKER STRIPS

For labelling terminal positions on barrier terminal blocks and insulating exposed portions of terminals from metallic mounting surface. Mounting holes correspond with those on appropriate barrier terminal block. Made of $^{1}/_{32}$" flame-retardant material and numbered sequentially from 1 with legible white numerals.

Cinch Number*	For Plain, -W or -¾ W Terminals Net Each, Lots of			For -Y Terminals Net Each, Lots of		
	1-24	25-49	50-99	1-24	25-49	50-99
FOR ALL SERIES 140						
MS-2-140	$0.32	$0.24	$0.22	$0.36	$0.28	$0.24
MS-3-140	.32	.24	.22	.36	.28	.24
MS-4-140	.32	.24	.22	.36	.28	.24
MS-5-140	.32	.24	.22	.36	.28	.24
MS-6-140	.32	.24	.22	.36	.28	.24
MS-7-140	.36	.28	.24	.40	.32	.26
MS-8-140	.36	.28	.24	.40	.32	.26
MS-9-140	.36	.28	.24	.40	.32	.26
MS-10-140	.40	.32	.26	.44	.36	.32
MS-11-140	.40	.32	.26	.44	.36	.32
MS-12-140	.40	.32	.26	.44	.36	.32
MS-13-140	.44	.36	.32	.50	.40	.34
MS-14-140	.44	.36	.32	.50	.40	.34
MS-15-140	.44	.36	.32	.50	.40	.34
MS-16-140	.50	.40	.34	.54	.44	.38
MS-17-140	.50	.40	.34	.54	.44	.38
MS-18-140	.50	.40	.34	.54	.44	.38
MS-19-140	.54	.44	.38	.61	.48	.40
MS-20-140	.54	.44	.38	.61	.48	.40
MS-22-140	1.30	1.04	.88	1.39	1.12	.93
MS-23-140	1.30	1.04	.88	1.39	1.12	.93
MS-24-140	1.58	1.26	1.04	1.62	1.30	1.10
MS-25-140	1.58	1.26	1.04	1.62	1.30	1.10
FOR ALL SERIES 141						
MS-2-141	$0.32	$0.24	$0.22	$0.36	$0.28	$0.24
MS-3-141	.32	.24	.22	.40	.32	.26
MS-4-141	.32	.24	.22	.40	.32	.26
MS-5-141	.36	.28	.24	.40	.32	.26
MS-6-141	.36	.28	.24	.40	.32	.26
MS-7-141	.36	.28	.24	.44	.36	.32
MS-8-141	.40	.32	.26	.44	.36	.32
MS-9-141	.40	.32	.26	.44	.36	.32
MS-10-141	.40	.32	.26	.50	.40	.34
MS-11-141	.44	.36	.32	.50	.40	.34
MS-12-141	.44	.36	.32	.54	.44	.38
MS-13-141	.50	.40	.34	.54	.44	.38
MS-14-141	.50	.40	.34	.61	.48	.40
MS-15-141	.54	.44	.38	.61	.48	.40
MS-16-141	.54	.44	.38	.63	.52	.42
MS-17-141	.61	.48	.40	.63	.52	.42
MS-18-141	.61	.48	.40	.63	.52	.48
MS-19-141	.63	.52	.42	.68	.54	.48
MS-20-141	.63	.52	.42	.68	.54	.48
FOR ALL SERIES 142						
MS-2-142	$0.32	$0.24	$0.22	$0.36	$0.28	$0.24
MS-3-142	.32	.24	.22	.40	.32	.26
MS-4-142	.36	.29	.24	.40	.32	.26
MS-5-142	.36	.28	.24	.40	.32	.26
MS-6-142	.36	.28	.24	.44	.36	32
MS-7-142	.40	.32	.26	.44	.36	.32
MS-8-142	.40	.32	.26	.50	.40	.34
MS-9-142	.44	.36	.32	.50	.40	.34
MS-10-142	.50	.40	.34	.54	.44	.38
MS-11-142	.50	.40	.34	.54	.44	.38
MS-12-142	.54	.44	.38	.61	.48	.40
MS-13-142	.54	.44	.38	.61	.48	.40
MS-14-142	.61	.48	.40	.63	.52	.42
MS-15-142	.61	.48	.40	.68	.54	.48
MS-16-142	.68	.54	.48	.80	.63	.54
MS-17-142	.74	.58	.50	.80	.63	.54
FOR ALL SERIES 150						
MS-2-150	$0.40	$0.32	$0.26	$0.50	$0.40	$0.34
MS-3-150	.40	.32	.26	.50	.40	.34
MS-4-150	.44	.36	.32	.54	.44	.38
MS-5-150	.44	.36	.32	.54	.44	.38
MS-6-150	.44	.36	.32	.54	.44	.38
MS-7-150	.50	.40	.34	.61	.48	.40
MS-8-150	.50	.40	.34	.61	.48	.40
MS-9-150	.54	.44	.38	.61	.48	.40
MS-10-150	.61	.48	.40	.63	.52	.42

MARKER STRIPS FOR SERIES 151 and 152

Cinch Number#	For Series 151 Net Each, Lots of			For Series 152 Net Each, Lots of		
	1-24	25-49	50-99	1-24	25-49	50-99
MS-2-	$0.44	$0.36	$0.32	$0.44	$0.36	$0.32
MS-3-	.44	.36	.32	.54	.44	.38
MS-4-	.50	.40	.34	.63	.52	.42
MS-5-	.54	.44	.38	.68	.58	.50
MS-6-	.63	.52	.42	.82	.66	.56
MS-7-	.68	.54	.48	.....	.....	.....
MS-8-	.74	.58	.50	.....	.....	.....

*To order marker strips to fit -Y terminals, add suffix -Y to Cinch Part Number; i.e., MS-3-140-Y.
#Add desired series number as suffix to Cinch Part Number; i.e., MS-4-151.

500 SERIES MARKER STRIPS

For labelling terminal positions on "500" series barrier terminal blocks. Made of $^{1}/_{16}$" Bakelite, ¼" wide. Numbered sequentially from 1 with ⅛" legible white numerals. Mounted on top of terminal block as illustrated. Mounting screws furnished.

MARKER STRIPS FOR 540

Cinch No.	Term.	Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
MSX-2-540	2	$0.40	$0.32	$0.26	$0.24	$0.22
MSX-3-540	3	.40	.32	.26	.24	.22
MSX-4-540	4	.40	.32	.26	.24	.22
MSX-5-540	5	.40	.32	.26	.24	.22
MSX-6-540	6	.40	.32	.26	.24	.22
MSX-7-540	7	.40	.32	.26	.24	.22
MSX-8-540	8	.40	.32	.26	.24	.22
MSX-9-540	9	.40	.32	.26	.24	.22
MSX-10-540	10	.40	.32	.26	.24	.22
MSX-11-540	11	.44	.36	.32	.26	.24
MSX-12-540	12	.44	.36	.32	.26	.24
MSX-13-540	13	.44	.36	.32	.26	.24
MSX-14-540	14	.44	.36	.32	.26	.24
MSX-15-540	15	.44	.36	.32	.26	.24
MSX-16-540	16	.44	.36	.32	.26	.24
MSX-17-540	17	.50	.40	.34	.28	.26
MSX-18-540	18	.50	.40	.34	.28	.26
MSX-19-540	19	.50	.40	.34	.28	.26
MSX-20-540	20	.50	.40	.34	.28	.26
MSX-21-540	21	.50	.40	.34	.28	.26
MSX-22-540	22	.54	.44	.38	.32	.28
MSX-23-540	23	.54	.44	.38	.32	.28
MSX-24-540	24	.63	.52	.42	.36	.34
MSX-25-540	25	.63	.52	.42	.36	.34
MSX-26-540	26	.63	.52	.42	.36	.34
MSX-27-540	27	.63	.52	.42	.36	.34
MSX-28-540	28	.63	.52	.42	.36	.34
MSX-29-540	29	.68	.54	.48	.38	.36
MSX-30-540	30	.68	.54	.48	.38	.36
MSX-31-540	31	.68	.54	.48	.38	.36

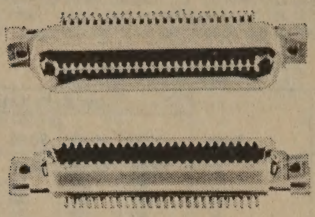
MARKER STRIPS FOR 541

Cinch No.	Term.	Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
MSX-2-541	2	$0.40	$0.32	$0.26	$0.24	$0.22
MSX-3-541	3	.40	.32	.26	.24	.22
MSX-4-541	4	.40	.32	.26	.24	.22
MSX-5-541	5	.40	.32	.26	.24	.22
MSX-6-541	6	.40	.32	.26	.24	.22
MSX-7-541	7	.40	.32	.26	.24	.22
MSX-8-541	8	.40	.32	.26	.24	.22
MSX-9-541	9	.40	.32	.26	.24	.22
MSX-10-541	10	.40	.32	.26	.24	.22
MSX-11-541	11	.40	.32	.26	.24	.22
MSX-12-541	12	.44	.36	.32	.26	.24
MSX-13-541	13	.44	.36	.32	.26	.24
MSX-14-541	14	.44	.36	.32	.26	.24
MSX-15-541	15	.44	.36	.32	.26	.24
MSX-16-541	16	.44	.36	.32	.26	.24
MSX-17-541	17	.50	.40	.34	.28	.26
MSX-18-541	18	.50	.40	.34	.28	.26
MSX-19-541	19	.50	.40	.34	.28	.26
MSX-20-541	20	.50	.40	.34	.28	.26
MSX-21-541	21	.50	.40	.34	.28	.26
MSX-22-541	22	.50	.40	.34	.28	.26
MSX-23-541	23	.61	.48	.40	.34	.32
MSX-24-541	24	.63	.52	.42	.36	.34
MSX-25-541	25	.63	.52	.42	.36	.34
MSX-26-541	26	.63	.52	.42	.36	.34
MSX-27-541	27	.63	.52	.42	.36	.34
MSX-28-541	28	.63	.52	.42	.36	.34
MSX-29-541	29	.68	.54	.48	.38	.36
MSX-30-541	30	.68	.54	.48	.38	.36

MARKER STRIPS FOR 542

Cinch No.	Term.	Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
MSX-2-542	2	$0.40	$0.32	$0.26	$0.24	$0.22
MSX-3-542	3	.40	.32	.26	.24	.22
MSX-4-542	4	.40	.32	.26	.24	.22
MSX-5-542	5	.40	.32	.26	.24	.22
MSX-6-542	6	.40	.32	.26	.24	.22
MSX-7-542	7	.40	.32	.26	.24	.22
MSX-8-542	8	.44	.36	.32	.26	.24
MSX-9-542	9	.44	.36	.32	.26	.24
MSX-10-542	10	.44	.36	.32	.26	.24
MSX-11-542	11	.44	.36	.32	.26	.24
MSX-12-542	12	.50	.40	.34	.28	.26
MSX-13-542	13	.50	.40	.34	.28	.26
MSX-14-542	14	.50	.40	.34	.28	.26
MSX-15-542	15	.50	.40	.34	.28	.26
MSX-16-542	16	.61	.48	.40	.34	.32
MSX-17-542	17	.61	.48	.40	.34	.32
MSX-18-542	18	.61	.48	.40	.34	.32
MSX-19-542	19	.63	.52	.42	.36	.34
MSX-20-542	20	.63	.52	.42	.36	.34
MSX-21-542	21	.63	.52	.42	.36	.34
MSX-22-542	22	.63	.52	.42	.36	.34
MSX-23-542	23	.63	.52	.42	.36	.34
MSX-24-542	24	.68	.54	.48	.38	.36
MSX-25-542	25	.68	.54	.48	.38	.36
MSX-26-542	26	.68	.54	.48	.38	.36

SUPERIBBON® CONNECTOR SYSTEM



The Superibbon drastically reduces connector assembly costs by combining a completely new hardware-eliminating connector design with the industry-accepted Cinch-Ribbon solderless termination system. • Mating is instantaneous, without separate hardware. An integral spring clip locks the male and female together. • The plastic hood snaps in place, is separate from the cable clamp and is easily removed. • Cable clamp is part of the connector and requires no additional hardware; just pliers. • Unmating is accomplished by inserting any pointed object into a window at either end of the connector. • Intermateable and interchangeable with other ribbon connectors now in use. • Fast panel mounting clips eliminate nuts, bolts, tapped holes and special tools. • Wire restraints replace cable clamps on rack and panel installations.

RACK AND PANEL CONNECTORS
FOR TERMINATION OF SOLID WIRE

Cinch Number	No. of Contacts	Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
THREADED MOUNTING HOLE						
97-12140-01	14	$2.005	$1.695	$1.395	$1.255	$1.055
97-12240-01	24	2.403	2.043	1.693	1.533	1.293
97-12360-01	36	2.954	2.524	2.094	1.904	1.604
97-12500-01	50	3.619	3.099	2.589	2.349	1.989
97-12640-01	64	4.174	3.584	2.994	2.714	2.314
PLAIN MOUNTING HOLE						
97-12140-11	14	$1.645	$1.405	$1.165	$1.055	$0.875
97-12240-11	24	2.073	1.763	1.463	1.323	1.123
97-12360-11	36	2.594	2.214	1.844	1.674	1.414
97-12500-11	50	3.229	2.759	2.309	2.099	1.789
97-12640-11	64	3.814	3.274	2.734	2.494	2.134
PLAIN MOUNTING HOLE						
97-22140-01	14	$2.305	$1.955	$1.615	$1.455	$1.205
97-22240-01	24	2.683	2.293	1.893	1.703	1.423
97-22360-01	36	3.224	2.744	2.284	2.064	1.744
97-22500-01	50	3.809	3.259	2.719	2.469	2.079
97-22640-01	64	4.444	3.794	3.164	2.884	2.444
THREADED MOUNTING HOLE						
97-22140-11	14	$1.935	$1.645	$1.355	$1.225	$1.025
97-22240-11	24	2.303	1.963	1.623	1.473	1.243
97-22360-11	36	2.854	2.434	2.034	1.844	1.554
97-22500-11	50	3.489	2.989	2.499	2.269	1.919
97-22640-11	64	4.114	3.524	2.944	2.684	2.274

CABLE-TO-CABLE CONNECTORS
FOR TERMINATION OF SOLID WIRE

Cinch Number	No. of Contacts	Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
THREADED MOUNTING HOLE—END ENTRY HOODS						
97-12140-91	14	$3.085	$2.605	$2.145	$1.925	$1.605
97-12240-91	24	3.493	2.923	2.433	2.193	1.833
97-12360-91	36	4.044	3.434	2.844	2.554	2.154
97-12500-91	50	4.679	3.989	3.309	2.989	2.519
97-12640-91	64	5.244	4.494	3.734	3.394	2.854
PLAIN MOUNTING HOLE—END ENTRY HOODS						
97-12140-90	14	$2.705	$2.285	$1.885	$1.695	$1.405
97-12240-90	24	3.143	2.663	2.203	1.983	1.663
97-12360-90	36	3.624	3.084	2.544	2.304	1.944
97-12500-90	50	4.329	3.689	3.059	2.769	2.329
97-12640-90	64	4.904	4.184	3.494	3.164	2.684
THREADED MOUNTING HOLE—END ENTRY HOODS						
97-22140-91	14	$3.395	$2.875	$2.355	$2.115	$1.755
97-22240-91	24	3.783	3.203	2.633	2.363	1.973
97-22360-91	36	4.324	3.674	3.034	2.734	2.284
97-22500-91	50	4.909	4.189	3.469	3.129	2.629
97-22640-91	64	5.534	4.724	3.914	3.554	2.994
PLAIN MOUNTING HOLE—END ENTRY HOODS						
97-22140-90	14	$2.985	$2.515	$2.065	$1.855	$1.545
97-22240-90	24	3.393	2.883	2.373	2.143	1.783
97-22360-90	36	3.924	3.334	2.754	2.494	2.084
97-22500-90	50	4.479	3.819	3.179	2.879	2.419
97-22640-90	64	5.174	4.424	3.674	3.334	2.814
THREADED MOUNTING HOLE—TOP ENTRY HOODS						
97-12140-181	14	$3.245	$2.745	$2.255	$2.035	$1.675
97-12240-181	24	3.773	3.203	2.633	2.363	1.973
97-12360-181	36	4.324	3.674	3.034	2.744	2.294
97-12500-181	50	5.149	4.399	3.629	3.279	2.749
97-12640-181	64	5.824	4.974	4.124	3.744	3.144
PLAIN MOUNTING HOLE—TOP ENTRY HOODS						
97-12140-180	14	$2.955	$2.505	$2.055	$1.855	$1.535
97-12240-180	24	3.443	2.923	2.453	2.173	1.813
97-12360-180	36	3.944	3.364	2.784	2.514	2.104
97-12500-180	50	4.709	4.019	3.329	3.019	2.529
97-12640-180	64	5.344	4.554	3.794	3.444	2.904
THREADED MOUNTING HOLE—TOP ENTRY HOODS						
97-22140-181	14	$3.575	$3.025	$2.485	$2.235	$1.845
97-22240-181	24	4.073	3.453	2.843	2.563	2.123
97-22360-181	36	4.714	3.984	3.294	2.954	2.474
97-22500-181	50	5.349	4.569	3.769	3.409	2.859
97-22640-181	64	6.164	5.244	4.354	3.934	3.294
PLAIN MOUNTING HOLE—TOP ENTRY HOODS						
97-22140-180	14	$3.275	$2.765	$2.265	$2.035	$1.685
97-22240-180	24	3.723	3.153	2.593	2.343	1.953
97-22360-180	36	4.304	3.654	3.014	2.714	2.274
97-22500-180	50	4.899	4.179	3.459	3.129	2.629
97-22640-180	64	5.644	4.804	4.004	3.624	3.044

HOODS—BUFF GOLD

Cinch Number	No. of Positions	Net Each, Lots of 1-24	25-49	50-99	100-249
TOP ENTRY HOODS					
97-14-180	14	$0.807	$0.679	$0.552	$0.494
97-24-180	24	.842	.706	.574	.514
97-36-180	36	.872	.733	.596	.533
97-50-180	50	.901	.759	.617	.551
97-64-180	64	.953	.801	.651	.582

Cinch Number	No. of Positions	Net Each, Lots of 1-24	25-49	50-99	100-249★
END ENTRY HOODS					
97-14-90	14	$0.792	$0.666	$0.542	$0.483
97-24-90	24	.833	.701	.57	.508
97-36-90	36	.869	.73	.593	.529
97-50-90	50	.908	.762	.62	.554
97-64-90	64	.949	.798	.648	.579

ACCESSORIES FOR SUPERIBBON® CONNECTORS

WIRE RESTRAINTS—2 PER CONNECTOR REQUIRED

Cinch Number	No. of Positions	Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
RESTRAINTS FOR PLUGS						
97-WR-P14	14	$0.129	$0.108	$0.088	$0.078	$0.063
97-WR-P24	24	0.129	0.108	0.088	0.078	0.063
97-WR-P36	36	0.129	0.108	0.088	0.078	0.063
97-WR-P50	50	0.129	0.108	0.088	0.078	0.063
97-WR-P64	64	.129	.108	.088	.078	.063
RESTRAINTS FOR RECEPTACLES						
97-WR-S14	14	$0.129	$0.108	$0.088	$0.078	$0.063
97-WR-S24	24	0.129	0.108	0.088	0.078	0.063
97-WR-S36	36	0.129	0.108	0.088	0.078	0.063
97-WR-S50	50	0.129	0.108	0.088	0.078	0.063
97-WR-S64	64	.129	.108	.088	.078	.063

PANEL MOUNTING CLIPS—2 PER MOUNTING REQUIRED

Cinch Number	Chassis Thickness	Net Each, Lots of 1-24	25-49	50-99	100-249
97-MC-062	.062"	$0.086	$0.072	$0.058	$0.052
97-MC-093	.093"	.086	.072	.058	.052
97-MC-125	.125"	.086	.072	.058	.052

CINCH-RIBBON CONNECTOR SYSTEMS

SOLDERLESS CINCH-RIBBON CONNECTOR SYSTEM

FOR TERMINATION OF SOLID WIRE

Cinch No.	Description	Net Each, Lots of 1-9	10-49	50-99	100-249
77-22140	Plug	$2.935	$2.485	$2.035	$1.895
77-22140	Receptacle	3.005	2.565	2.075	1.925
77-12240	Plug	3.973	3.373	2.933	2.513
77-22240	Receptacle	4.043	3.433	2.843	2.553
77-12360	Plug	4.584	3.904	3.234	2.924
77-22360	Receptacle	4.704	3.984	3.294	3.004
77-12500	Plug	6.059	5.159	4.239	3.839
77-22500	Receptacle	6.109	5.219	4.309	3.899

Intermateable and interchangeable with over 300 million ribbon connectors currently in use. Terminates with semi-automatic or field assembly tools. Four gas-tight connections for each conductor. Termination speeds far exceed conventional soldering techniques. Accommodates 24 and 26 gauge solid wire, insulated with either standard or irradiated PVC. Built-in strain relief for each conductor prevents inadvertant wire removal. Compatible with existing Cinch-Ribbon hardware. No stripping of wires required for perfect connections, when terminated with Cinch Auto-Clinch, Certi-Clinch or Mini-Clinch tools.

CONSTRUCTION DETAILS

The wire-terminating end of the contact has four indents, constructed and shaped to peel the insulation off the wire at these points. As the wire enters, the insulation is peeled off by the ramp area of the contact indents. The remaining inside areas of the indents are coined and relatively sharp. As the wire, with the insulation removed, progresses into the remaining contact pocket, the transition area permits the conductor to be deformed (pinched) and held between each set of the two opposing indented sections, resulting in four gas-tight connections on each conductor. Strain-relief tabs, at the end of the contact, hold the conductor in place.

FEATURES

Miniaturized solderless Clinch-Ribbon connectors utilize the "ribbon" contact feature. Smooth, easy mating/unmating action plus the double-sided, self-cleaning, wiping action of both mating contact members provide added reliability. Insulation material of 30% glass-filled polyester; UL rated 94V-O. Contact material of copper-base alloy with gold finish per MIL-G—45204, Type 2 over .00005" copper per MIL-C-14550. Selectivity gold plated with .00004" in contact-mating area and .00005" in contact-terminating area. Shells of zinc-plated steel with clear chromate finish.

RACK AND PANEL PLUGS AND RECEPTACLES

Shell-type polarization and float-mounted receptacle assure proper alignment. Available with 14, 24, 36 or 50 contacts.

CABLE TO CHASSIS PLUGS AND RECEPTACLES

Plug equipped with hood and cable clamp; receptacle has sturdy, spring-type latches, guided and held by cutouts in plug hood flanges. Available with 14, 24, 36 ot 50 contacts.

Cinch No.	Description	Net Each, Lots of 1-9	10-49	50-99	100-249
77-32140	Plug	$5.535	$4.815	$3.805	$3.435
77-42140	Receptacle	3.975	3.135	2.565	2.325
77-32240	Plug	6.153	5.173	4.233	3.823
77-42240	Receptacle	4.433	3.753	3.073	2.793
77-32360	Plug	7.544	6.404	5.224	4.714
77-42360	Receptacle	4.834	4.124	3.384	3.064
77-32500	Plug	8.349	7.089	5.829	5.259
77-42500	Receptacle	6.349	5.399	4.429	4.019

CABLE TO CABLE PLUGS AND RECEPTACLES

Both plug and receptacle equipped with hood and cable clamp. Available in 50-contact size only. Standard (deep) hood type listed; shallow hoods available on request.

Cinch No.	Description	Net Each, Lots of 1-9	10-49	50-99	100-249
77-72500	Plug	$5.949	$5.069	$4.189	$3.779
77-82500	Receptacle	5.949	5.069	4.189	3.779

CINCH RIBBON TOOLS

Part No.	Factory No.	Description	Net Ea.
SRT-358	599-11-11-358	Repair tool pliers	★
SCT-334	599-11-11-334	Certi-Clinch for solid wire	★
SCTU-359	599-11-11-359	Certi-Clinch for both solid and stranded wire	★

★Prices on Request

CINCH-RIBBON SOLDER CONNECTORS

Extremely small, ribbon-contact connectors suited for airborne and computer applications with high reliability. Shell type polarization; easily inserted or withdrawn without visual aid; self-wiping, self-cleaning contacts in units up to 50 per connector. Float-mounted receptacle prevents misalignment. **Current:** 5 amps. **Voltage:** 700 VDC at sea level; 200 VDC at 70,000 ft. **Insulator:** Diallyl phthalate per MIL-M-14F. **Contacts:** Copper alloy with a finish of gold per MIL-G-45204, Type 2 over copper per MIL-C-14550. **Shells:** Steel with a finish of zinc and clear chromate, 10500, 20500-6, -7 have additional insulator between opposite rows of contacts. Dimensions on request. Cable plugs with hoods, chassis-mounted sockets with spring latches.

•DUE TO THE INSTABILITY IN THE COST OF GOLD, ALL PRICES FOR CONNECTORS HAVING GOLD TERMINALS WILL VARY. CHECK US FOR THE LATEST QUOTATIONS.

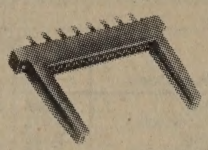
Cinch No. 57-	Type	Contacts	•Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
10140	R & P Plug	14	$3.095	$2.605	$2.135	$1.985	$1.625
10240	R & P Plug	24	4.173	3.543	3.063	2.633	2.193
10360	R & P Plug	36	4.804	4.104	3.374	3.064	2.544
10500	R & P Plug	50	6.349	5.419	4.439	3.999	3.379
10500-6	R & P Plug	50	6.409	5.499	4.509	4.079	3.449
10500-7	R & P Plug	50	7.159	6.119	5.039	4.459	3.779
20140	R & P Sckt.	14	3.165	2.695	2.165	2.025	1.645
20240	R & P Sckt.	24	4.243	3.603	2.983	2.673	2.213
20360	R & P Sckt.	36	4.934	4.174	3.454	3.134	2.614
20500	R & P Sckt.	50	6.399	5.489	4.499	4.079	3.409
20500-6	R & P Sckt.	50	6.679	5.709	4.709	4.259	3.559
20500-7	**R & P Sckt.**	50	7.519	6.429	5.279	4.709	3.959
30140	Cable Plug	14	5.815	5.045	3.995	3.615	2.995
30240	Cable Plug	24	6.443	5.433	4.453	4.023	3.313
30360	Cable Plug	36	7.924	6.714	5.474	4.944	4.124
30500	Cable Plug	50	8.759	7.399	6.099	5.509	4.609
40140	Chassis Skt.	14	4.165	3.275	2.695	2.425	2.035
40240	Chassis Skt.	24	4.643	3.933	3.233	2.933	2.443
40360	Chassis Skt.	36	5.074	4.324	3.544	3.224	2.694
40500	Chassis Skt.	50	6.659	5.659	4.649	4.209	3.519
10140-4	PC Plug	14	3.445	2.925	2.395	2.145	1.775
10240-3	PC Plug	24	4.693	3.993	3.253	2.933	2.443
10360-13	PC Plug	36	5.654	4.794	3.934	3.544	2.954
10500-27	PC Plug	50	7.579	6.409	5.289	4.739	4.029
20140-8	PC Skt.	14	3.945	3.335	2.725	2.455	2.055
20240-8	PC Skt.	24	4.743	4.033	3.313	2.993	2.463
20360-9	PC Skt.	36	5.764	4.914	4.024	3.634	2.994
20500-31	PC Skt.	50	7.639	6.479	5.329	4.809	4.079

HOW TO ORDER ELCO CONNECTORS

00	0000	000	000	000
(A)	(B)	(C)	(D)	(E)

(A) Product Code
(B) Series Number
(C) Number of Contacts
(D) Contact Code
(E) Variation Code

SERIES 6030 PC CARD-EDGE CONNECTORS



Series 6030 PC card-edge connectors have extended card guides to facilitate PC card insertion and reduce effects of vibration. Contacts are on .156″ centers. For 1/16″ printed circuit card. **Current Rating:** 5 amps. **Contact Material and Plating:** Phosphor bronze per QQ-B-750, composition A, nickel plate, 30 to 100 μinches, followed by gold plate, 10 μinches. **Insulator Material:** Polyester meeting UL 94 V requirements.

Number of Contacts:
15 Single-readout contacts
30 Double-readout contacts

Contact Code:

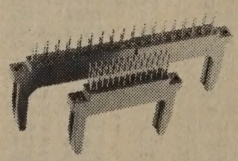
Single-Readout Contact:
457—60 6007 06 52—wire hole (two terminals), special
551—60 6007 16 23—wire hole (single sided card)
552—60 6007 16 33—PC tab (single sided card)
936—60 6007 06 43—solderless wrap .016″ x .047″, special
938—60 6007 06 33—PC tab, special
940—60 6007 06 23—wire hole, special

Double Readout Contact:
450—60 6007 19 23—wire hole
451—60 6007 19 33—PC tab
452—60 6007 18 13—wire wrap .016″ x .044″
453—60 6007 18 23—PC tab
454—60 6007 18 33—PC tab .016″ x .044″
*498—60 6007 05 33—switching/PC tab
*941—60 6007 05 13—switching/wire hole
*Used only in pairs.

Variation Code:
001—15 single readout contacts staggered (936, 938, 940 only)
002—30 dual readout contacts loaded in all insulator positions
003—15 single readout contacts loaded on numbered side only (551, 552, 936, 938, 940)
004—15 single readout contacts loaded on lettered side only (551, 552, 936, 938, 940)

Polarization: Order inserts by part number.
A type: Eliminates contact position. No. 60 6007 33 14.
B type: Fits between contact positions. No. 60 6002 31 24.
C type: Fits between contact positions. No. 60 6061 31 18.

SERIES 6114 PC CARD EDGE CONNECTORS



Series 6114 PC card edge connectors feature extended card guides to facilitate card insertion and optional center guide for two cards. Available as 30 and 36 single readout contacts or as 60 and 72 double readout contacts on .156″ centers. **Current Rating:** 5 amps. **Contact Material and Plating:** Phosphor bronze per QQ-B-750, composition A, nickel plate, 30 to 100 μinches, followed by gold plate, 10 μinches. **Insulator Material:** Polycarbonate. **Dielectric Withstanding Voltage:** 1800 VAC rms between contacts at sea level.

Number of Contacts:
30, 36 single readout contacts
60, 72 double readout contacts

Contact Code:
Single Readout:
430—60 6112 02 13—wire wrap, .280″ tail length
431—60 6112 02 23—wire wrap, .530″ tail length
433—60 6112 02 43—wire wrap, .780″ tail length
Double Readout:
432—60 6112 02 33—wire wrap, .780″ tail length

Variation Code:
001—Without center guide (36 or 72 contacts)
002—With snap-on center guide (30 or 60 contacts)

Polarization: Order separately by No. 60 6018 3219; fits between contacts.

SERIES 6042 PC CARD EDGE CONNECTORS

Available with crimp type contacts either loose or in reel form for automatic insertion machines. Contacts are on .100″ centers. **Current Rating:** 4 amps. **Contact Material and Plating:** Phosphor bronze per QQ-B-750, composition A, nickel plate, 30 to 100 μinches, followed by gold plate, 10 μinches. **Insulator Material:** Thermoplastic polyester with glass fiber reinforcement. **Dielectric Withstanding Voltage:** 1500 VAC rms between contacts at sea level.

Insulators and contacts to be ordered separately by numbers listed.

No. of Contacts	Insulator Number	With Mtg. Holes	Without Mtg. Holes
80	60 6042 3070	X	
100	60 6042 3090	X	
100	60 6042 3190		X

Contact Numbers:
60 6042 02 13 00—crimp type loose
60 6042 02 13 99—crimp type reeled

Polarization: Must be ordered separately by No. 60 6042 3318; eliminates one contact position.

SERIES 6044 PC CARD EDGE CONNECTORS

Available with crimp type contacts either loose or in reel form for automatic insertion machines. Contacts are on .156″ centers **Current Rating:** 4 amps. **Contact Material and Plating:** Phosphor bronze per QQ-B-750, composition A, nickel plate, 30 to 100 μinches, followed by gold plate, 10 μinches. **Insulator Material:** Thermoplastic polyester with glass fiber reinforcement. **Dielectric Withstanding Voltage:** 1800 VAC rms between contacts at sea level.

Insulators and contacts to be ordered separately by numbers listed.

Insulator with mounting holes: 60 6044 3010, 44-pos. dual readout.

Contact Numbers:
000—60 6042 0213—crimp type loose
000—60 6042 0213 99—crimp type reeled

Polarization: Order inserts separately by No.
Type A: No. 60 6042 3318.
Type B: No. 60 6007 4828.

SERIES 6337 PC CARD EDGE CONNECTORS

Series 6337 PC card edge connectors are available as discrete connectors and also as part of "Variframe"™ backpanels with connectors mounted and wired; prices and information available on request. Contacts are on .156″ x .200″ centers and are bifurcated bellows type with .025″ square tails which will accept three levels of wrapped wire. **Current Rating:** 3 amps. **Contact Material and Plating:** Phosphor bronze per QQ-W-321, nickel plate, 30 to 100 μinches, followed by gold plate, 10 μinches. **Insulator Material:** Polyester per UL 94 V-0. **Dielectric Withstanding Voltage:** 1500 VAC rms between contacts at sea level.

Number of Contacts:
20, 30, 44, 50, 56, 72 and 86 double readout contacts.

Contact Code:
671—Tail length .585″

Variation Code:
001—With mounting holes.

Polarization Code: Order inserts separately by No. 60 6007 4828; fits between contacts.

SERIES 6007 PC CARD-EDGE CONNECTORS

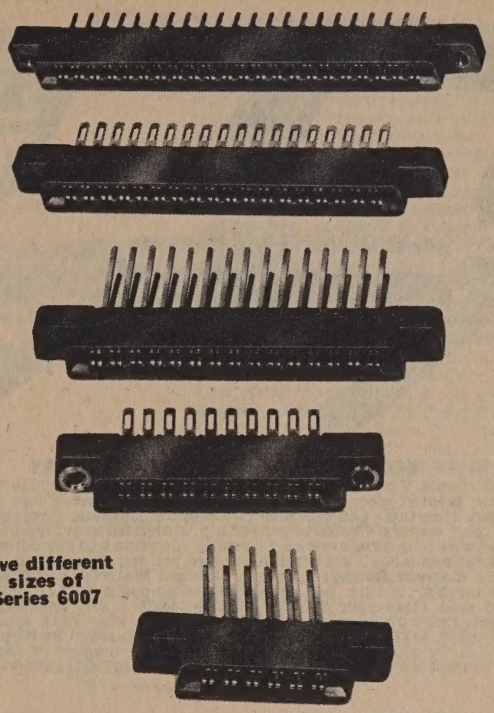
Single and dual readout contacts in standard MIL spec connector design. Available in nine sizes, 6/12, 10/20, 12/24, 15/30, 18/36 22/44, 28/56, 36/72 and 43/86 contacts. Three mounting styles—mounting holes, floating eyelets and threaded inserts. Ribbon-type contacts with bifurcated nose. Contacts are on .156″ centers. Terminations available in solder (wire hole and PC tab), taper tab, or low cost solderless wrap contacts. For .062″ printed circuit card. Meet MIL spec MIL-C-21097. **Current Rating:** 5 amps. **Contact Material:** Phosphor bronze per QQ-B-750, composition A. **Standard Plating:** Gold, 10–20 μinches over nickel, 30–150 μinches. **Insulator Material:** Diallyl phthalate, glass filled, flame resistant, per MIL-M-14F, Type SDGF. **Withdrawal Force:** 2 to 16 oz. per contact pair. **HOW TO ORDER:** Specify Elco series number, number of contacts, contact code and variation code. Example: 6007-030-450-012 is a Series 6007 dual readout connector with 30 contacts, wire hole terminations, and .128″ diameter mounting holes.

Number of Contacts:
Single-Readout—006, 010, 012, 015, 018, 022, 028, 036, 043
Dual-Readout—012, 020, 024, 030, 036, 044, 056, 072, 086

Contact Code:
Single-Readout Contacts:
457—60 6007 06 53—Wire hole, two terminals.
551—60 6007 16 23—wire hole, single sided.
552—60 6007 16 33—PC tab, single sided.
936—60 6007 06 43—Solderless wrap.
938—60 6007 06 33—PC tab.
939—60 6007 06 13—Taper tab.
940—60 6007 06 23—Wire hole, one terminal.
Dual-Readout Contacts:
449—60 6007 19 13—Taper tab.
450—60 6007 19 23—Wire hole.
451—60 6007 19 33—PC tab.
452—60 6007 18 13—Solderless wrap.
453—60 6007 18 23—PC tab.
454—60 6007 18 33—Solderless wrap.
*498—60 6007 05 33—Switching/PC tabs.
*941—60 6007 05 13—Switching/wire hole.
*Used only in pairs.

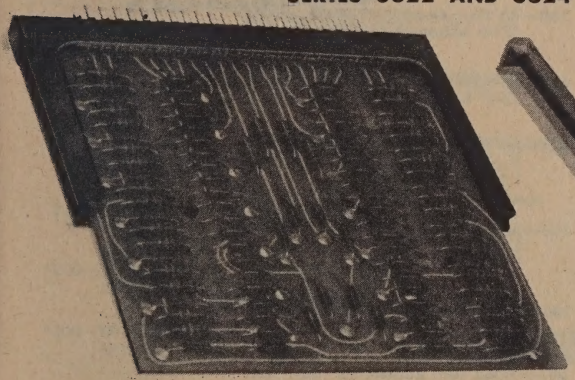
Variation Code:
012—.128″ dia. mounting holes.
013—.117″ I.D. floating eyelets.
018—#4/40 threaded insert.

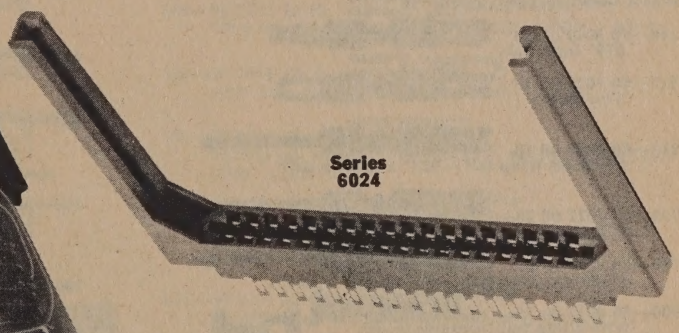
Polarization: Order polarizing key separately by part number.
60 6007 4828—Between contacts.
60 6007 3314—In contact positions.



Five different sizes of Series 6007

SERIES 6022 AND 6024 PC CARD EDGE CONNECTORS





Series 6024

Extended card guides facilitate printed circuit card insertions and minimize effects of vibration. Series 6022 offers choice of 22 single-readout and 44 dual-readout contacts. Series 6024 offers 18 single-readout and 36 dual-readout contacts. Contacts are on .156″ centers. For 1/16″ printed circuit cards. **Contact Rating:** 5 amps. **Contact Material:** Phosphor bronze per QQ-B-750, composition A. **Contact Plating:** 10–20 μinches gold over 30–150 μinches nickel. **Insulator Material:** Polyester per UL94VO. To order, specify Elco series number, number of contacts, contact code and variation code. Example: 6022-044-449-001 is a Series 6022 dual-readout connector with 44 contacts, taper tab terminations, contacts installed in all positions, and polycarbonate insulator.

Series 6022

Number of Contacts: Single-Readout—022. Dual-Readout—044.

Contact Code:
Single-Readout Contacts:
457—60 6007 06 53—Wire hole special.
551—60 6007 16 23—Wire hole, single sided.
552—60 6007 16 33—PC tab, single sided.
936—60 6007 06 43—Solderless wrap.
938—60 6007 06 33—PC tab.
939—60 6007 06 13—.078″ taper tab.
940—60 6007 06 23—Wire hole.
Dual-Readout Contacts:
449—60 6007 19 13—Taper tab.
450—60 6007 19 23—Wire hole.
451—60 6007 19 33—PC tab.
452—60 6007 18 13—Solderless wrap.
453—60 6007 18 23—PC tab.
454—60 6007 18 33—PC tab.
*498—60 6007 05 33—Switching/PC tabs.
*941—60 6007 05 13—Switching/wire hole.
*Used only in pairs.

Variation Code:
001—44 dual-readout contacts installed in all positions.
002—22 single-readout contacts installed on numbered side only.
003—22 single-readout contacts installed on lettered side only.
004—22 contacts installed staggered with position 1, B, 3, D etc
005—22 contacts installed staggered with position A, 2, C, 4 etc

Polarization: Must be specified separately.

Series 6024

Number of Contacts: Single-Readout—018. Dual Readout—036.

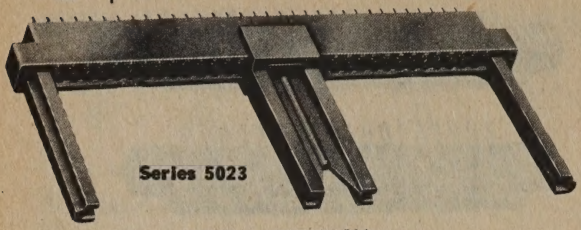
Contact Code:
Single-Readout Contacts:
457—60 6007 06 53—Wire hole special.
551—60 6007 16 23—Wire hole, single sided.
552—60 6007 16 33—PC tab, single sided.
936—60 6007 06 43—Solderless wrap.
938—60 6007 06 33—PC tab.
939—60 6007 06 13—.078″ Taper tab.
940—60 6007 06 23—Wire hole.
Dual-Readout Contacts:
449—60 6007 19 13—Taper tab.
450—60 6007 19 23—Wire hole.
451—60 6007 19 33—PC tab.
452—60 6007 18 13—Solderless wrap.
453—60 6007 18 23—PC tab.
454—60 6007 18 33—PC tab.
941—60 6007 05 13—Switching (used only in pairs).

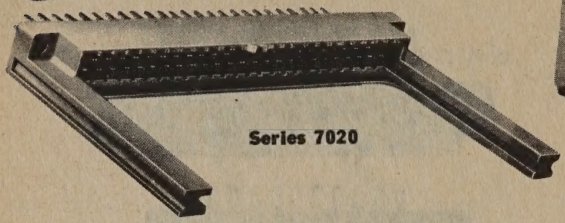
Variation Code:
001—Dual-readout contacts.
002—Single-readout contacts with tails in positions 1 to 18.
003—Single-readout contacts with tails in positions A to V.
004—Single-readout contacts with tails in positions 1-B-3 etc.
005—Single-readout contacts with tails in positions A-2-C etc.

Polarization: Order inserts separately.
B Type: Fits at right of contact positions. Specify 60 6002 31 24.
D Type: Fits between opposing contacts. Specify 60 6007 33 14.

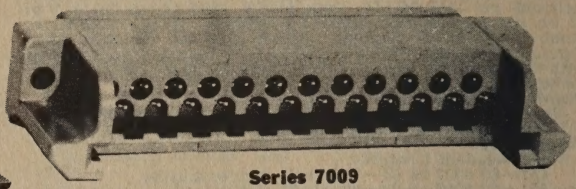
SEE FIRST PAGE OF ELCO LISTING FOR ORDERING CODE

ASK FOR QUANTITY PRICING


Series 5023


Series 7020

Series 7001


Series 7009

SERIES 5023 PC VARICON CONNECTORS

Printed circuit Varicon connectors have extended card guides to facilitate printed circuit card insertion and minimize effects of vibration. Insertable and removable Varilok™ contacts. Contacts are on .200″ centers. Choice of wire crimp, solderless wrap, tapered tab, and wire hole terminations. Crimping, insertion and extraction equipment available. Center guide for two printed circuit cards is optional. **Current Rating:** 8.5 amps. **Contact Material and Plating:** Phosphor bronze per QQ-B-750. Composition A. 10–20 μinches gold plate over 30–150 μinches nickel plate. **Insulator Material:** Polycarbonate per OS-12531 BuWeps. Meet MIL specs MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-E-19600 BuWeps, par. 3.5.5. To order, specify Elco series number, number of contacts, contact code, variation code. Example: 5023-014-000-001.

Number of Contacts:
014, 033

Contact Code:

216—60 8017 04 13
.078″ taper tab.

217—60 8017 05 13
Wire hole.

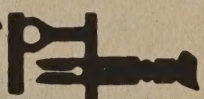
218—60 8017 06 13
Solderless wrap tail—.024″ x .050″ x .567″.

750—60 8017 06 23
Solderless wrap tail—.024″ x .050″ x .760″.

296—60 8017 06 33
Solderless wrap tail—.024″ x .026″ x .580″.

*000—60 8017 03 13
Wire crimp tail (contacts loose).

*000—60 8017 03 23
Wire crimp tail (contacts on a reel).



*Order separately by part number. Example: 60-8017-03-13.

Variation Code:
001—For 1/16″ thick card without center guide.*
002—For 1/16″ thick card with snap-on guide.

*Center guide available for use only on 33 contact size.

Polarization: Must be specified separately.

SERIES 7008, 7020 VARICON CONNECTORS

Series 7008 printed circuit Varicon connectors are available with or without card guides. For 1/16″ or 3/32″ printed circuit cards. Series 7020 is available only with 51 contacts, card guides, and 1/16″ boards. Choose from wide range of contact terminations. Contacts are on .100″ centers. **Current Rating:** 10 amps. **Contact Material and Plating:** Phosphor bronze per QQ-B-750, Composition A. 10–20 μinches gold plate over 30–150 μinches nickel plate. **Insulator Material:** Diallyl phthalate, glass-filled, flame resistant, per MIL-M-14F, Type SDGF. Meet MIL specs MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-E-19600 BuWeps, par. 3.5.5. To order, specify Elco series number, number of contacts, contact code, and variation code. Example: 7008-017-146-001 is a Series 7008 connector with 17 contacts, .078″ base taper tab termination with card guides, and for 1/16″ card slot.

SERIES 7008, 7020 (CONT'D)

Number of Contacts:
017, 023, 029, 035, 041, 047.

Contact Code:

141—60 7001 06 33
PC termination for 1/8″ card.

146—60 7001 13 13
.078″ base taper tab.

156—60 7001 18 13
Wire wrapping (.026″ x .062″ x .600″).

158—60 7001 18 33
Wire wrapping with wire hole (.026″ x .062″ x .600″).

163—60 7001 19 13
.098″ base taper tab with wire hole.

165—60 7001 20 13
Forked tail solder termination for bus line connection (.056″ x .125″ slot).

166—60 7001 20 23
Dual solder termination for 2 wires or bus line (.056″ x .125″ slot).

189—60 7004 02 13
Connectional solder termination for 3 wires.

Variation Code:
001—With card guides, 1/16″ card slot.
002—Without card guides, 1/16″ card slot.
003—With card guides, 3/32″ card slot.
004—Without card guides, 3/32″ card slot.

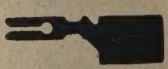
Polarization: Described separately by contact position.

SERIES 7009 PC VARICON CONNECTOR

Series 7009 connectors with contacts designed for Series 53 tapered pins. Two tapered pins per contact. Contacts on .100″ centers. For 1/16″ or 3/32″ printed circuit cards. Available with or without card guides. **Current Rating:** 10 amps. **Contact Material and Plating:** Phosphor bronze per QQ-B-750, composition A. 10–20 μinches gold plate over 30–150 μinches nickel plate. **Insulator Material:** Diallyl phthalate, glass-filled, flame resistant, per MIL-M-14F, Type SDGF. MIL specs MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-E-19600 BuWeps, par. 3.5.5. To order, specify series number, number of contacts, contact code, and variation code. Example: 7009-024-193-001.

Number of Contacts: 034, 040.

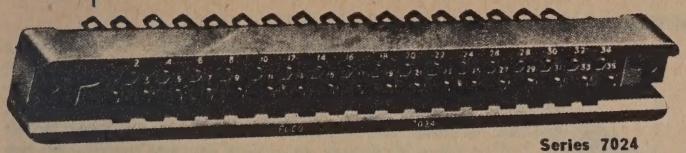
Contact Code: 193—60 7009 02 13—
Varitwin Pin™ contact.



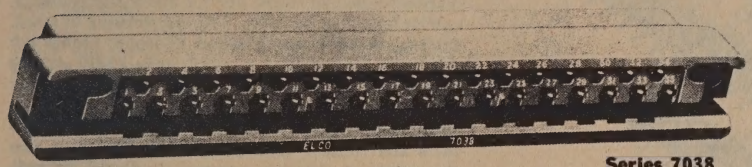
Variation Code:
001—With card guides, 1/16″ card slot.
002—Without card guides, 1/16″ card slot.
003—With card guides, 3/32″ card slot.
004—Without card guides, 3/32″ card slot.

Polarization: Must be specified separately.

SEE FIRST PAGE OF ELCO LISTING FOR ORDERING CODE



Series 7024



Series 7038

SERIES 7024
PC VARICON CONNECTORS

Guide sockets facilitate mating, ensure correct alignment. Open-ended card slot permits use with printed circuit card of any width. For 1/16″ or 3/32″ printed circuit cards. Contacts are on .100″ centers. Features wide range of contact terminations. **Current Rating:** 10 amps. **Contact Material and Plating:** Phosphor bronze per QQ-B-750, composition A. 10–20 μinches gold plate over 30–150 μinches nickel plate. **Insulator Material:** Diallyl phthalate, glass-filled, flame resistant, per MIL-M-14F, Type SDGF. Meet MIL specs MIL-C-21097, MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-E-19600 par. 3.5.5, MIL-STD-454. QPL Approved. To order, specify Elco series number, number of contacts, contact code and variation code. Example: 7024-023-163-001 is a Series 7024 connector with 23 contacts, .098″ base taper tab with wire hole termination, for 1/16″ thick card.

Number of Contacts: 017, 023, 029, 035, 041.

Contact Code:

141—60 7001 06 33
PC termination for 1/8″ card.

146—60 7001 13 13
.078″ base taper tab.

156—60 7001 18 13
Wire wrapping (.026″ x .062″ x .600″).

158—60 7001 18 33
Wire wrapping with wire hole (.026″ x .062″ x .600″).

163—60 7001 19 13
.098″ base taper tab with wire hole.

165—60 7001 20 13
Forked tail solder termination for bus line connection (.056″ x .125″ slot).

166—60 7001 20 23
Dual solder termination for 2 wires or bus line (.056″ x .125″ slot).

189—60 7004 02 13
Conventional solder termination for 3 wires.

Variation Code:

001—1/16″ thick card.
002—3/32″ thick card.
110—1/16″ thick card. For conformance to MIL-C-21097D.
111—3/32″ thick card. For conformance to MIL-C-21097D.

Polarization: Must be specified separately.

SERIES 7015, 7038 PC VARICON CONNECTORS

Insertable and removable Varilok™ contacts. Contacts lock in position by spring lances. Choice of wire crimp, solderless wrap, tapered tab, and wire hole terminations. Contacts are on .100″ centers. For 1/16″ or 3/32″ printed circuit cards. All crimping, insertion and extraction equipment available. Series 7015 is available with or without card guides. Series 7038 has open-ended card slot. **Current Rating:** 8.5 amps. **Contact Material and Plating:** Phosphor bronze per QQ-B-750, composition A. 10–20 μinches gold plate over 30–150 μinches nickel plate. **Insulator Material:** Diallyl phthalate, glass-filled, flame resistant, per MIL-M-14F, Type SDGF. Meet MIL specs MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-E-19600, BuWeps, par. 3.5.5. To order, specify Elco series number, number of contacts, contact code and variation code. Example: 7015-017-000-001.

Number of Contacts: 017, 023, 029, 035, 041, 047, 059.

Contact Code:

216—60 8017 04 13
.078″ taper tab.

217—60 8017 05 13
Wire hole.

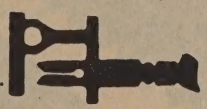
218—60 8017 06 13
Solderless wrap tail—.024″ x .050″ x .567″.

750—60 8017 06 23
Solderless wrap tail—.024″ x .050″ x .760″.

296—60 8017 06 33
Solderless wrap tail—.024″ x .026″ x .580″.

*000—60 8017 03 13
Wire crimp tail (contacts loose).

*000—60 8017 03 23
Wire crimp tail (contacts on a reel).



Variation Code:

Series 7015:
001—1/16″ thick card with card guides.
002—1/16″ thick card without card guides.
003—3/32″ thick card with card guides.
004—3/32″ thick card without card guides.

Series 7038:
001—1/16″ thick card.
002—3/32″ thick card.

Polarization: Must be specified separately.

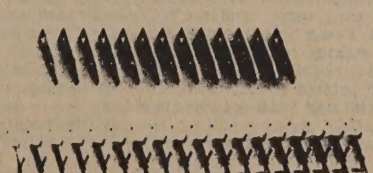
SERIES 5001 PC VARICON PLUG

For Series 5000 receptacles. Consists of contacts staked (soldered, if required) directly to printed circuit card. Require no insulators. Contacts supplied on disposable plastic strips. Staking and strip removing equipment available. Contacts on .200″ centers. For 1/16″ or 3/32″ printed circuit cards. **Current Rating:** 10 amps. Contact material and plating, same as Series 7024. MIL specs, same as Series 7024. To order, specify number of contacts required and contact code number after the first two characters of ordering number. Example: 02-**063-013**-5-200 is a Series 5001 connector with 63 contacts, wire hole termination, for 1/16″ thick card.

Number of Contacts: 001 to 063.

Contact Code No.:
013—60 5001 19 13—Wire hole termination, 1/16″ card.
014—60 5001 19 23—Wire hole termination, 3/32″ card.

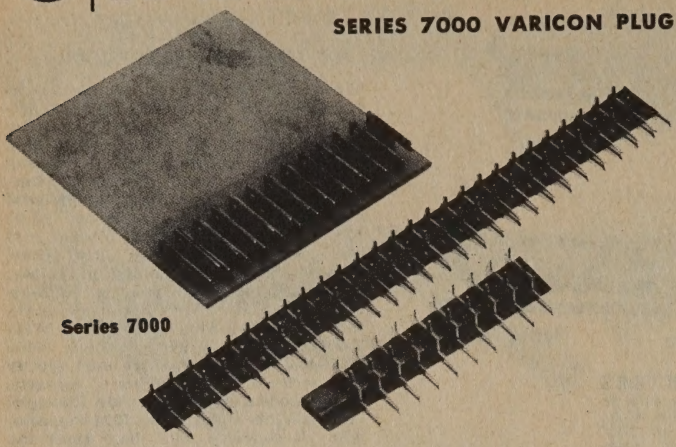
Series 5001



See Series 7024 for Ordering Code

SEE FIRST PAGE OF ELCO LISTING FOR ORDERING CODE

SERIES 7000 VARICON PLUG CONNECTOR

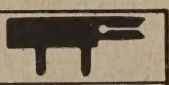
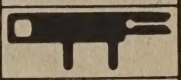
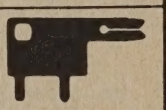
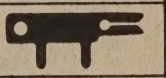


Series 7000

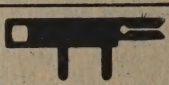
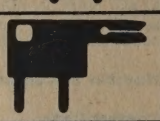
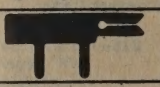
Plug consists only of contacts staked and soldered to printed circuit card, no other insulator needed. For 1/16" and 3/32" thick printed circuit cards. Contacts supplied imbedded in vinyl strips, correctly spaced and ready for insertion and staking into printed circuit card. Complete set of plug contacts supplied on two disposable plastic strips, one for upper tier contacts, one for lower tier contacts. **Current Rating:** 10 amps. **Contact Material and Plating:** Phosphor bronze per QQ-B-750, composition A. Gold plate, 10–20 μinches over 30–150 μinches nickel plate. Meet MIL specs MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-E-19600, par. 3.5.5. To order, specify number of contacts and contact code number after the first two characters of ordering number. Example: **02-063-147-5-200** is a Series 7000 Varicon plug with 63 contacts, lower tier contact termination, for 1/16" thick card.

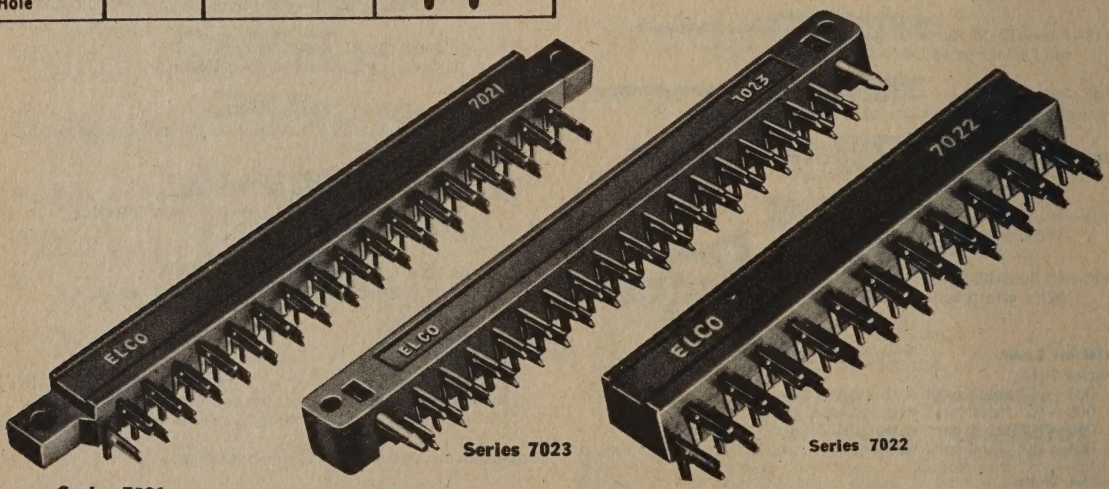
Number of Contacts: 001 to 063.

SERIES 7000 CONTACT CODE FOR 1/16" CARD

Lower Tier	147	60 7001 15 13	
Lower Tier with Wire Hole	135	60 7001 04 13	
Upper Tier with Wire Hole	137	60 7001 05 13	
Lower Tier with Wire Hole	144	60 7001 11 13	

SERIES 7000 CONTACT CODE FOR 3/32" CARD

Lower Tier with Wire Hole	136	60 7001 04 23	
Upper Tier with Wire Hole	138	60 7001 05 23	
Lower Tier	148	60 7001 15 23	



Series 7021

Series 7023

Series 7022

SERIES 7021, 7022 AND 7023 VARICON CONNECTORS

Series 7021 connectors designed for use with Series 7000 receptacles with card guides. Series 7022 connectors for use with Series 7000 receptacles without card guides. Series 7023 connector mates with Series 7024 receptacle. Guide pins facilitate mating, ensure correct alignment. Contacts are on .100" centers. Insulator rigidity reduces printed circuit card warp. Insulator maintains exact spacing between contacts. Fewer holes reduces cost of card punching operation. Contact staking reduced to one operation instead of two. Assembly time is reduced because of no plastic strips to remove. For 1/16" or 3/32" printed circuit cards. **Current Rating:** 10 amps. **Contact Material and Plating:** Phosphor bronze, per QQ-B-750, composition A. Gold plate over nickel. **Insulator Material:** Diallyl phthalate, glass-filled, flame resistant per MIL-M-14F, Type SDGF. Meet MIL specs MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-E-19600, par. 3.5.5. MIL-C-21097*. To order, specify Elco series number, number of contacts and variation code. Example: 7021-023-000-001 is a Series 7021 connector with 23 contacts, for 1/16" thick card.

Series: 7021, 7022.

Number of Contacts:

017, 023, 029, 035, 041, 047—For Series 7008 receptacles.
016, 022, 024, 028, 034, 040—For Series 7009 receptacles.
(Number 1 contact omitted.)

Variation Code:

001—For 1/16" thick card.
002—For 3/32" thick card.

Series: 7023.

Number of Contacts:

017, 023, 029, 035, 041, 047.

Variation Code:

001—For 1/16" thick card.
002—For 3/32" thick card.
*110—For 1/16" thick card. Conforms to MIL-C-21097D.
*111—For 3/32" thick card. Conforms to MIL-C-21097D.

SEE FIRST PAGE OF ELCO LISTING FOR ORDERING CODE

SERIES 8129 PC MINIATURE 2-PIECE METAL-TO-METAL CONNECTORS

Two piece connector permits parallel or perpendicular printed circuit card mounting. Brackets provide flat or upright mounting. Guide pins facilitate mating action. Suitable for cable to cable applications. This series intermateable with Series 8229. Contacts are on .100″ centers. **Current Rating:** 5 amps. **Contact Material and Plating:** Phosphor bronze per QQ-B-750, composition A. 10–20 μinches gold plate over 30–150 μinches nickel plate. **Insulator Material:** Diallyl phthalate, glass-filled, flame resistant, per MIL-M-14F, Type SDGF. MIL specs, MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-E-19600, par. 3.5.5. To order, specify Elco series, number of contacts, contact code, and variant code. Example: 8129-006-610-001.

Number of Contacts: 006, 009, 010, 012, 015.

Contact Code:

Use with Variant 001 or 005

610—60 8106 02 43

Use with Variant 002 or 006

603—60 8101 02 23

612—60 8106 03 23

Use with Variant 003 or 007

603—60 8101 02 23

605—60 8101 04 13

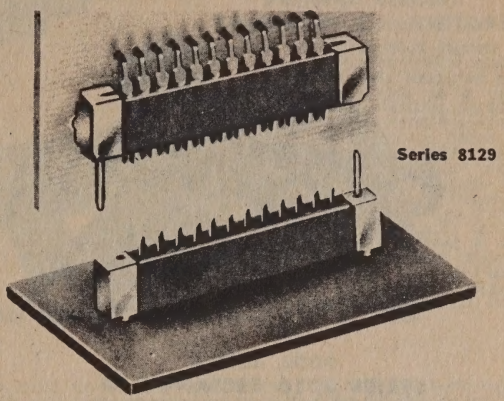
610—60 8106 02 43

612—60 8106 03 23

Use with Variant 004 or 008

605—60 8101 04 13

610—60 8106 02 43

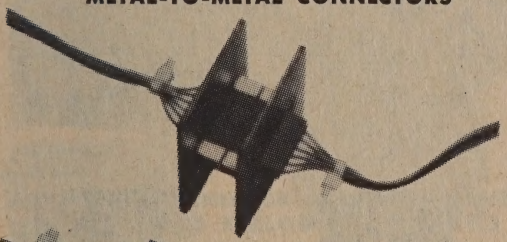


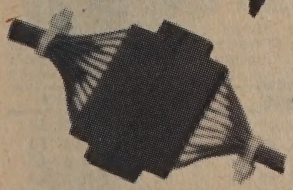
Series 8129

SERIES 8129 (CONT'D)

Variant Code: Without keying.
001—With side mounting brackets for recessed or flush mounting to edge of printed circuit card. Contact tails are formed.
002—With upright mounting brackets.
003—Without mounting brackets.
004—With side mounting brackets for recessed or flush mounting to edge of printed circuit card. Contact tails not formed.
Variant Code: With keying.
005—With side mounting brackets for recessed or flush mounting to edge of printed circuit card. Contact tails formed.
006—With upright mounting brackets.
007—Without mounting brackets.
008—With side mounting brackets for recessed or flush mounting to edge of printed circuit card. Contact tails not formed.
Polarization: Must be specified separately.

SERIES 8229 PC MINIATURE 2-PIECE METAL-TO-METAL CONNECTORS

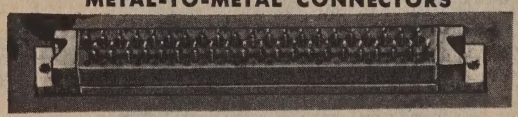


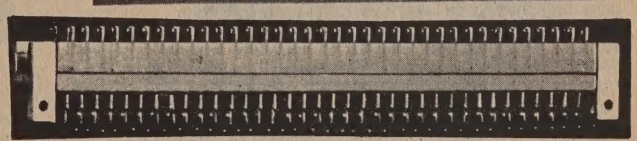


Series 8229

Series 8229 connectors have insertable and removable mini-Varilok™ contacts. Available with or without keying. Contacts are on .100″ centers. **Current Rating:** 3 amps. **Contact Material and Plating:** Phosphor bronze per QQ-B-750, composition A. 10–20 μinches gold plate over 50–100 μinches nickel plate. **Insulator Material:** Diallyl phthalate glass-filled, flame resistant, per MIL-M-14F, Type SDGF. Meet MIL specs (applicable portions of) MIL-C-28731 and MIL-C-8384. To order, specify Elco series number, number of contacts, contact code and variation code for each mating part. Example: 8229-012-000-001. Contacts are ordered separately by part number.
Number of Contacts: 006, 009, 010, 012, 015.
Contact Code: 491—60 8216 0413.
Variation Code: Without keying.
001—With side mounting brackets.
002—With upright mounting brackets.
003—Without mounting brackets.
Variation Code: With keying.
005—With side mounting brackets.
006—With upright mounting brackets.
007—Without mounting brackets.
Contacts: Order separately.
60 8216 0313—Loose contacts, crimp.
60 8216 0323—3000 contacts on reel, crimp.
491—60 8216 0413—Wire wrap, removable.
Polarization: Must be specified separately.

SERIES 8219 PC MINIATURE 2-PIECE METAL-TO-METAL CONNECTORS

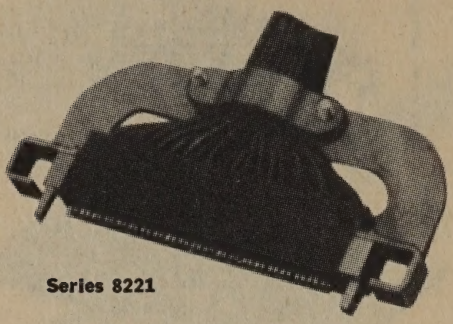




Series 8219 two-piece connectors with and without keying. Metal guidance hardware. Left hand guides, gold color; right hand guides, silver color. Contacts are on .050″ centers. Connectors supplied with mounting screws or eyelets, as applicable. **Current Rating:** 5 amps, max. **Contact Material and Plating:** Phosphor bronze per QQ-B-750, composition A. 10–20 μinches gold plate over 30–150 μinches nickel plate. **Insulator Material:** Diallyl phthalate, glass-filled, flame resistant, per MIL-M-14F, Type SDGF. Meet applicable portions of MIL spec MIL-C-55302. To order, specify Elco series number, number of contacts, contact code, and variation code. Example: 8219-042-722-001 is a Series 8219 2-piece connector with 42 contacts, wire hole tail contact type, receptacle without keying variation.
Number of Contacts: 018, 030, 036, 042, 054, 072.
Contact Code: For variations 001 and 011.
722—Wire hole tail, .187″.
721—PC solder tail, .250″.
736—PC solder tail, .281″.
737—PC solder tail, .562″.
753—PC solder tail, .125″.
771—PC solder tail, .484″.
Contact Code: For variations 002 and 012.
000—PC solder tails, formed.
722—Wire hole tail, unformed.
Contact Code: For variations 005 and 015.
722—Wire hole tail, .157″.
721—PC solder tail, .219″.
736—PC solder tail, .250″.
737—PC solder tail, .531″.
753—PC solder tail, .093″.
771—PC solder tail, .453″.
Variation Code: Without keying.
001—Receptacle.
002—Plug, perpendicular board mounting.
005—Plug, parallel board mounting.
Variation Code: With keying.
011—Receptacle.
012—Plug, perpendicular board mounting.
015—Plug, parallel board mounting.
Polarization: Must be specified separately.

SEE FIRST PAGE OF ELCO LISTING FOR ORDERING CODE

SERIES 8221 PC MINIATURE 2-PIECE METAL-TO-METAL CONNECTORS



Series 8221

Mini-Varilok™ contacts are insertable and removable. Metal guidance hardware includes gold color left hand guides and silver color right hand guides. **Current Rating:** 3 amps. **Contact Material and Plating:** Phosphor bronze per QQ-B-750, composition A, with 10–20 μinches gold over 30–100 μinches nickel. **Insulator Material:** Diallyl phthalate, glass-filled, flame resistant, per MIL-M-14F, type SDGF. Meet applicable portions of MIL spec MIL-C-55302. To order, specify Elco series number, number of contacts, contact code and variation code. Example: 8221-042-000-001. Contacts are ordered separately by part number.

Number of Contacts: 018, 030, 036, 042, 054, 072.

Contact Code:
491—60 8216 04 13—Loose contact, .025″ sq. wrap tail.

Variation Code:

Without Keying	With Keying	
001	011	Receptacle
002	012	Plug, perpendicular board mounting.
005	015	Plug, parallel board mounting.
003	013	Receptacle with small clamp assy.
004	014	Plug (Var. 005) with small clamp assy.
006	016	Receptacle with large clamp assy.
007	017	Plug (Var. 005) with large clamp assy.
008	018	Receptacle with self locking tie.
009	019	Plug (Var. 005) with self locking tie.

Contacts: Order separately.
60 8216 0313—Loose contacts, crimp.
60 8216 0323—3000 contacts on reel, crimp.

Polarization: Must be specified separately.

SERIES 8016 RECTANGULAR RACK-AND-PANEL CONNECTORS

Available in five sizes, 20, 38, 56, 90 and 120 contacts. Have insertable and removable Varilok contacts. Choice of crimp, solder, solderless wrap and taper tab terminations. Polarizing hardware can be set to any of six positions at factory. Can also be reset by user (thirty-six possible polarizing positions, combinations per pair). Optional cover with top or side cable entry and clamp. Guide pins and sockets ensure correct alignment when mating. UL Approved. **Current Rating:** 8.5 amps, maximum. **Contact Material:** Phosphor bronze per QQ-B-750, composition A. **Contact Plating:** Gold, 10–20 μinches over nickel, 30–150 μinches. **Insulator Material:** Diallyl phthalate, glass-filled, flame resistant, per MIL-M-14F, Type SDGF. Aluminum cover and clamp. To order, specify Elco series number, number of contacts, contact code, and variation code. Example: 8016-020-216-803 is a Series 8016, with 20 contacts, .078″ taper tab contact terminations, diallyl insulator, plug type connector with top cable entry on cover, with actuating screw.

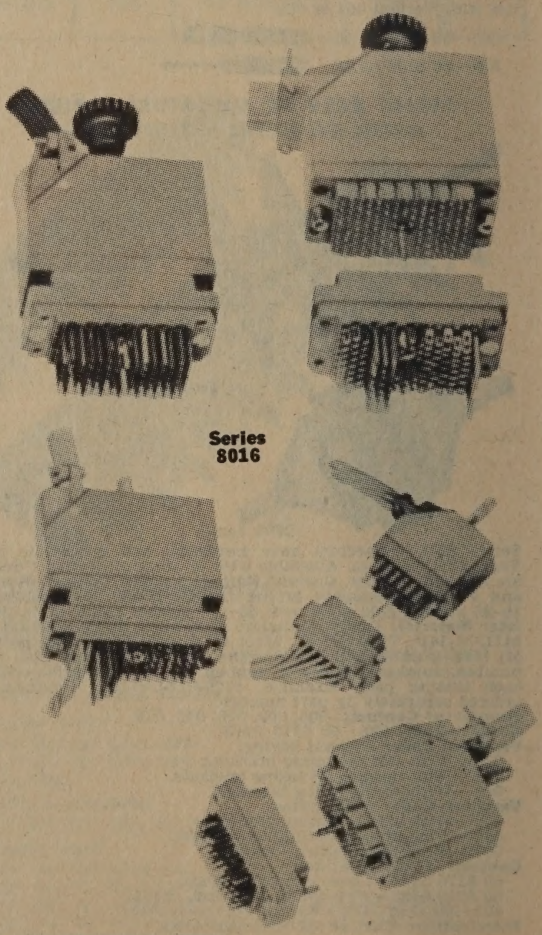
Number of Contacts: 20, 38, 56, 90, 120.

Contact Code:
216*—60 8017 04 13—.078″ taper tab.
217*—60 8017 05 13—Solder/.098″ taper tab.
218*—60 8017 06 13—Solderless wrap tail, .024″ x .050″ x .567″.
750*—60 8017 06 23—Solderless wrap tail, .024″ x .050″ x .760″.
296 —60 8017 06 33—Solderless wrap tail, .024″ x .026″ x .580″.
504 —60 8017 06 63—Solderless wrap tail, .024″ x .026″ x .170″.
000†—60 8017 03 13—Loose contact, crimp.
000†—60 8017 03 23—1800 contacts on reel, crimp.

*Contact terminations should be insulated as they protrude from insulator. †Use 000 code number in complete assembly number, but order loose contacts separately by part no., e.g.: 60 8017 03 13.

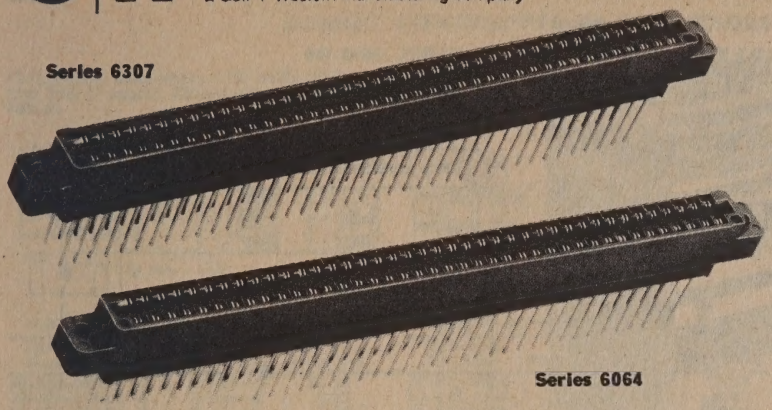
Type Conn.	Std.† Clamp	Large† Clamp	No Cover	Number of Contacts	Cable Entr.
Plug	...	...	701	All	....
Plug	...	...	702	All	....
Plug	803	819	...	All	Top
Plug	804	820	...	All	Side
Plug	805	821	...	All	Top
Plug	806	822	...	All	Side
Recp.	...	...	707	All	....
Recp.	...	...	708	All	....
Recp.	809	823	...	All	Top
Recp.	810	824	...	All	Side
Recp.	811	825	...	All	Top
Recp.	812	826	...	All	Side
Plug	...	...	713	20, 38, 56	....
Plug	814	827	...	20, 38, 56	Top
Plug	815	828	...	20, 38, 56	Side
Recp.	...	...	716	20, 38, 56	....
Recp.	817	829	...	20, 38, 56	Top
Recp.	818	830	...	20, 38, 56	Side
Plug	...	...	001	All	....
Plug	...	...	002	All	....
Plug	903	919	...	All	Top
Plug	904	920	...	All	Side
Plug	905	921	...	All	Top
Plug	906	922	...	All	Side
Recp.	...	...	007	All	....
Recp.	...	...	008	All	....
Recp.	909	923	...	All	Top
Recp.	910	924	...	All	Side
Recp.	911	925	...	All	Top
Recp.	912	926	...	All	Side
Plug	...	...	013	20, 38, 56	....
Plug	914	927	...	20, 38, 56	Top
Plug	915	928	...	20, 38, 56	Side
Recp.	...	...	016	20, 38, 56	....
Recp.	917	929	...	20, 38, 56	Top
Recp.	918	830	...	20, 38, 56	Side

†Standard and large cable clamps are available as per the chart above. Clamps are adjustable for large or small cable bundles. Can be mounted on plug and/or receptacle. For plug and cable-to-cable applications, order by **Elco Part No. 30-8026-9601.** For receptacle applications, order by **Part No. 30-8026-9602.** Note: Use only crimp contacts for 20 contact connectors with covers.



Series 8016

SEE FIRST PAGE OF ELCO LISTING FOR ORDERING CODE



SERIES 6307 AND 6064 PRINTED CIRCUIT CARD-EDGE CONNECTORS

Series 6307 and Series 6064 discrete connectors have bifurcated bellow contacts with .025″ square wire wrapping posts. Series 6307 is available as a double readout connector in five sizes, 50, 60, 72, 86 and 100 contacts. Series 6064 in six sizes, 56, 72, 80, 86, 100 contacts. Series 6307 contacts are on .100″ x .200″ centers; Series 6064 are on .125″ x .250″ centers. Each contact will accept up to three levels of wrapped wire. Diallyl phthalate insulators provide ruggedness, high electrical performance and conformance to MIL specifications. **Current Rating:** 3 amps, maximum. **Contact Material:** Phosphor bronze per QQ-W-401A. **Contact Plating:** Gold, 10μinches, minimum over nickel, 30 to 150 μinches. **Insulator Material:** Diallyl phthalate, per MIL-M-14F.

SERIES 6307

To order, specify Elco series number, number of contacts, contact code, and variation code. Example: 00 6307-050-309-001 is a Series 6307 connector with a double row of 50 contacts, tail length, .645″, a .128″ diameter mounting hole and with contacts in odd and even rows.

Number of Contacts:
Double Row—50, 60, 72, 86, 100

Contact Code:
Code 309—tail length, .645″.
Code 472—tail length, .550″.

Variation Code:
001—.128″ dia. mounting hole
002—Molded insert, 4/40 thread

Polarization: Must be specified separately by No. 60 6307 3117.

SERIES 6064

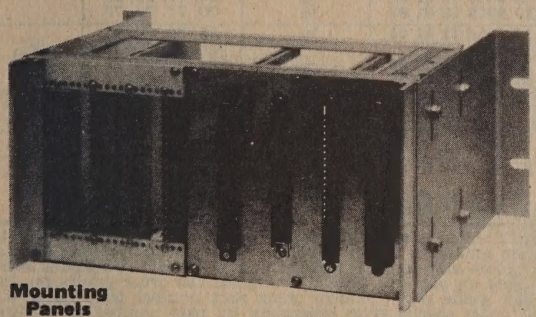
To order, specify Elco series number, number of contacts, contact code, and variation code. Example: 00 6064-100-061-001 is a Series 6064 connector with a double row of 100 contacts, tail length, .560″, a .128″ diameter mounting hole, and with contacts in odd and even rows.

Number of Contacts:
Double Row—56, 72, 80, 86, 100

Contact Code:
Code 060 for .685″ tail length. Code 061 for .580″ tail length.
Code 475—tail length, .230″.

Variation Code:
001—.128″ dia. mounting hole
002—.156″ dia. mounting hole
003—Molded insert, 4/40 thread

Polarization: Must be specified separately by No. 60 6064 3317.



VARIPAK™ CONNECTOR MOUNTING PANELS FOR PC CARD ENCLOSURE ASSEMBLIES

For mounting printed circuit connectors. Offer advantage of mounting various size connectors in one unit. Made of 6061-T4 clear chromate finish aluminum. Panels are shipped blank. Connector cutouts can be made per specification.

Elco Part No.	Will Fit Assemblies	Model
63 9016 11 01 01	01, 05, 09, 13, 20, 24, 28, 32	19″
63 9016 11 01 02	02, 06, 10, 14, 21, 25, 29, 33	
63 9016 11 01 03	03, 07, 11, 15, 22, 26, 30, 34	
63 9016 11 01 04	04, 08, 12, 16, 23, 27, 31, 35	
63 9016 11 01 05	51, 55, 59, 63, 70, 74, 78, 82	24″
63 9016 11 01 06	52, 56, 60, 64, 71, 75, 79, 83	
63 9016 11 01 07	53, 57, 61, 65, 72, 76, 80, 84	
63 9016 11 01 08	54, 58, 62, 66, 73, 77, 81, 85	

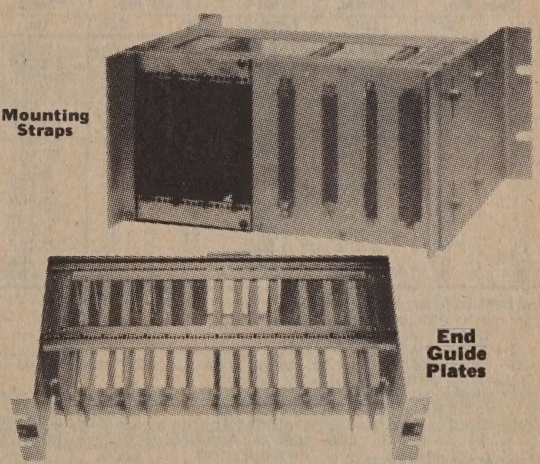
VARIPAK CONNECTOR MOUNTING STRAPS

Elco End Strap—With mounting holes. Part Numbers **63 9016 50 01 00** (19″ with 82 holes); **63 9016 50 01 01** (24″ with 107 holes).

Elco End Strap—Without mounting holes. Part Numbers **63 9016 23 01 01** (19″); **63 9016 23 01 07** (24″).

Elco Center Strap for Double Tier Assemblies—With mounting holes. Part Numbers **63 9016 50 02 00** (19″ with 82 holes); **63 9016 50 02 01** (24″ with 107 holes).

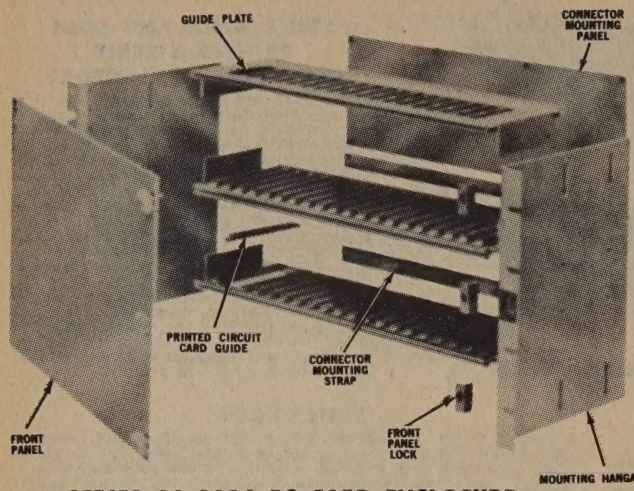
Elco Center Strap for Double Tier Assemblies—Without mounting holes. Part Numbers **63 9016 31 52 00** (19″); **63 9016 31 52 01** (24″).

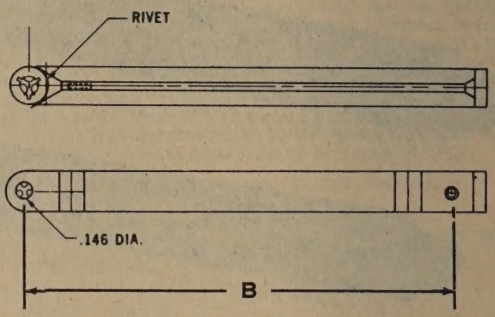


GUIDE PLATES FOR SINGLE AND DOUBLE TIER CARD ENCLOSURES

End guide plates support card guides, connector mounting straps and panels. Constructed of extruded 6023-T6 aluminum. Clear chromate finish. Has 82 card guide mounting holes on .200″ centers. Maximum density is 41 guides on .400″ centers. Complete unit requires two end guide plates. Center guide plate required for double tier units.

Elco Part No.	Will Fit Assemblies	Model
END GUIDE PLATES		
33 9016 13 01 01	01, 02, 03, 04, 20, 21, 22, 23	19″
33 9016 13 01 02	05, 06, 07, 08, 24, 25, 26, 27	
33 9016 13 01 03	09, 10, 11, 12, 28, 29, 30, 31	
33 9016 13 01 04	13, 14, 15, 16, 32, 33, 34, 35	
33 9016 13 01 11	51, 52, 53, 54, 70, 71, 72, 73	24″
33 9016 13 01 12	55, 56, 57, 58, 74, 75, 76, 77	
33 9016 13 01 13	59, 60, 61, 62, 78, 79, 80, 81	
33 9016 13 01 14	63, 64, 65, 66, 82, 83, 84, 85	
CENTER GUIDE PLATES		
33 9016 38 01 01	20, 21, 22, 23	19″
33 9016 38 01 02	24, 25, 26, 27	
33 9016 38 01 03	28, 29, 30, 31	
33 9016 38 01 04	32, 33, 34, 35	
33 9016 38 01 11	70, 71, 72, 73	24″
33 9016 38 01 12	74, 75, 76, 77	
33 9016 38 01 13	78, 79, 80, 81	
33 9016 38 01 14	82, 83, 84, 85	





SERIES 03-9016 PC CARD ENCLOSURE COMPLETE PACKAGE ASSEMBLIES

Component parts needed to assemble a complete printed circuit card enclosure package can be ordered under one assembly number. To order, specify Elco series number, assembly code number, connector mounting number and accessories number. Example: 03-9016-20-02-03 is a Varipak double tier unit with blank connector mounting straps, marker strip and front door panel. Card guides must be ordered separately.

Single Tier Units			Nominal PC Card Width	Double Tier Units		
Assembly Code No.		Enclosure Width,		Assembly Code No.		Enclosure Width,
19″	24″	In.	Inches	19″	24″	In.
01	51	4.343	3.625	20	70	8.718
02	52	5.218	4.500	21	71	10.468
03	53	6.968	6.250	22	72	13.968
04	54	8.718	8.000	23	73	17.468
05	55	4.343	3.625	24	74	8.718
06	56	5.218	4.500	25	75	10.468
07	57	6.968	6.250	26	76	13.968
08	58	8.718	8.000	27	77	17.468
09	59	4.343	3.625	28	78	8.718
10	60	5.218	4.500	29	79	10.468
11	61	6.968	6.250	30	80	13.968
12	62	8.718	8.000	31	81	17.468
13	63	4.343	3.625	32	82	8.718
14	64	5.218	4.500	33	83	10.468
15	65	6.968	6.250	34	84	13.968
16	66	8.718	8.000	35	85	17.468

Connector Mounting Number:
00—No connector mounting parts.
01—Blank connector panel.
02—Blank connector mounting straps.
03—Connector mounting straps with 82 (.128″ dia.) holes on .200″ centers.
04—Blank panel and blank connector mounting straps. For double tier models only.
05—Blank panel and connector mounting straps with 82 (.128″ dia.) holes on .200″ centers. For double tier models only.

Accessories Number:
00—None.
01—Marker strip.
02—Front door panel.
03—Marker strip and front door panel.
04—Reinforcement bar.
05—Reinforcement bar and front door panel.

HINGED FRONT PANELS

Constructed of 6061-T4 aluminum, clear anodize finish. Single tier model is hinged at bottom, opens from top; held by two slot-head fasteners. Double tier model can be hinged to open from left or right, is held in place by three wing-head fasteners. Includes mounting hardware.

Single Tier Part Number	Will Fit Assemblies	Double Tier Part Number	Will Fit Assemblies
33 9016 2201 01	01, 05, 09, 13	33 9016 2209 00	20, 24, 28, 32
33 9016 2201 02	02, 06, 10, 14	33 9016 2210 00	21, 25, 29, 33
33 9016 2201 03	03, 07, 11, 15	33 9016 2211 00	22, 26, 30, 34
33 9016 2201 04	04, 08, 12, 16	33 9016 2212 00	23, 27, 31, 35
33 9016 2201 11	51, 55, 59, 63	33 9016 2209 01	70, 74, 78, 82
33 9016 2201 12	52, 56, 60, 64	33 9016 2210 01	71, 75, 79, 83
33 9016 2201 13	53, 57, 61, 65	33 9016 2211 01	72, 76, 80, 84
33 9016 2201 14	54, 58, 62, 66	33 9016 2212 01	73, 77, 81, 85

VARIPAK ACCESSORIES

Elco Reinforcement Bar—Provides additional support. Slides into front guide plate. Aluminum. Part Numbers **63 9016 7504 00** (19″); **63 9016 7504 01** (24″).

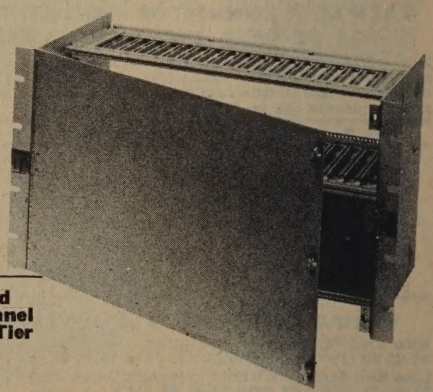
I.D. Marker Strip—White matte finish surface. Extruded flexible polyvinyl. Slides into front guide plate. Part Numbers **63 9016 2402 00** (19″); **63 9016 2402 01** (24″).

PRINTED CIRCUIT CARD GUIDES

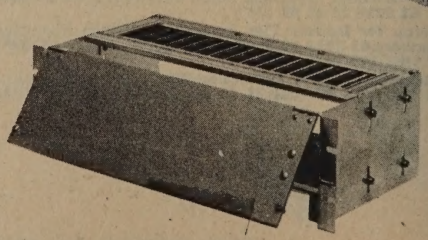
Designed to align card with connector and hold card in place. Features wide beveled lead-in edge for easy card alignment. Guides easily assembled and removed causing no damage to the guide or the enclosure. Special guide float allows for tolerance accumulation between guide and connector. Made of rugged polycarbonate, temperature rating of 280° F to 300° F. Sizes available for 1/16″, 3/32″ and 1/8″ thick printed circuit cards.

Elco Part Number	Nom. Card Thick., In.	Will Fit Assemblies	B
33 9016 12 01 01	1/16	01, 02, 03, 04 51, 52, 53, 54	2.651
33 9016 12 01 02	3/32	20, 21, 22, 23	
33 9016 12 01 03	1/8	70, 71, 72, 73	
33 9016 12 01 04	1/16	05, 06, 07, 08 55, 56, 57, 58	4.151
33 9016 12 01 05	3/32	24, 25, 26, 27	
33 9016 12 01 06	1/8	74, 75, 76, 77	
33 9016 12 01 07	1/16	09, 10, 11, 12 59, 60, 61, 62	5.651
33 9016 12 01 08	3/32	28, 29, 30, 31	
33 9016 12 01 09	1/8	78, 79, 80, 81	
33 9016 12 01 10	1/16	13, 14, 15, 16 63, 64, 65, 66	6.651
33 9016 12 01 11	3/32	32, 33, 34, 35	
33 9016 12 01 12	1/8	82, 83, 84, 85	

NOTE: Snap-in rivet supplied with each card guide. However, to fasten guides to center guide plate (double tier model) special two-piece snap-together rivet is required to hold two guides back-to-back on opposite sides of the plate. To order guides for the center guide plate, change prefix part number from 33 to 63, and order special rivet separately by part number as follows: 33 9016 20 53.



Hinged Front Panel Double Tier

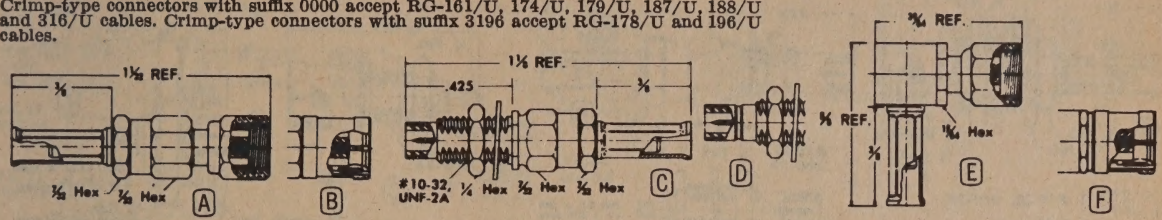


Hinged Front Panel Single Tier

CONHEX SUBMINIATURE RF CONNECTORS (CONT'D)

50 OHM SCREW-ON AND SNAP-ON CABLE CONNECTORS

Crimp-type connectors with suffix 0000 accept RG-161/U, 174/U, 179/U, 187/U, 188/U and 316/U cables. Crimp-type connectors with suffix 3196 accept RG-178/U and 196/U cables.



CRIMP-TYPE STRAIGHT PLUGS

Sealectro Number	Fig.	Straight Plug Type	Net Ea., Lots 1-9
50-024-0000	A	Screw-on	$5.28
50-024-3196	A	Screw-on	6.63
51-024-0000	B	Snap-on	5.30
51-024-3196	B	Snap-on	5.28

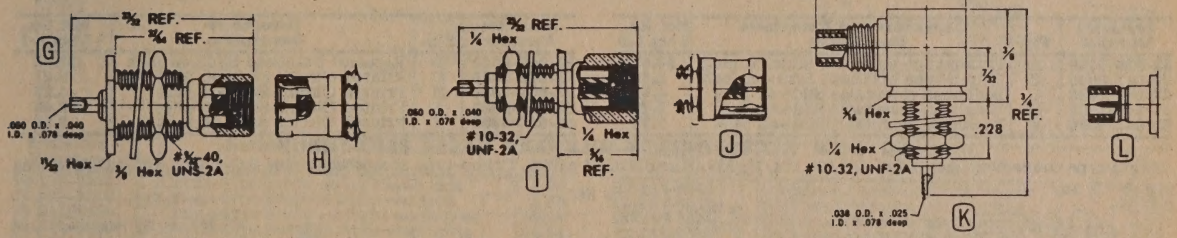
CRIMP-TYPE BULKHEAD JACKS

Sealectro Number	Fig.	Bulkhead Jack Type	Net Ea., Lots 1-9
50-027-0000	C	Screw-on	$5.28
50-027-3196	C	Screw-on	6.89
51-027-0000	D	Snap-on	5.28
51-027-3196	D	Snap-on	5.28

CRIMP-TYPE RIGHT ANGLE PLUGS

Sealectro Number	Fig.	Right Angle Plug Type	Net Ea., Lots 1-9
50-028-0000	E	Screw-on	$7.04
51-028-0000	F	Snap-on	7.04
51-028-3196	F	Snap-on	7.37

50 OHM SCREW-ON AND SNAP-ON RECEPTACLES



REAR MOUNT BULKHEAD PLUG

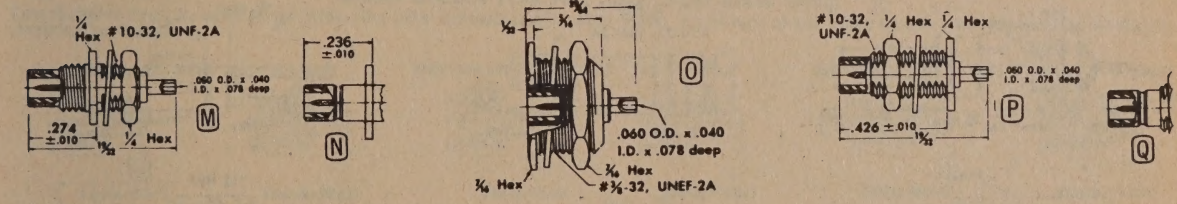
Sealectro Number	Fig.	Rear Mount Plug Type	Net Ea., Lots 1-9
50-044-0000	G	Screw-on	$4.57
51-044-0000	H	Snap-on	4.57

FRONT MOUNT BULKHEAD PLUG

Sealectro Number	Fig.	Front Mount Plug Type	Net Ea., Lots 1-9
50-046-0000	I	Screw-on	$4.51
51-046-0000	J	Snap-on	4.51

RIGHT ANGLE BULKHEAD JACK

Sealectro Number	Fig.	Right Angle Jack Type	Net Ea., Lots 1-9
50-047-0000	K	Screw-on	$6.64
51-047-0000	L	Snap-on	6.64



FRONT MOUNT BULKHEAD JACK

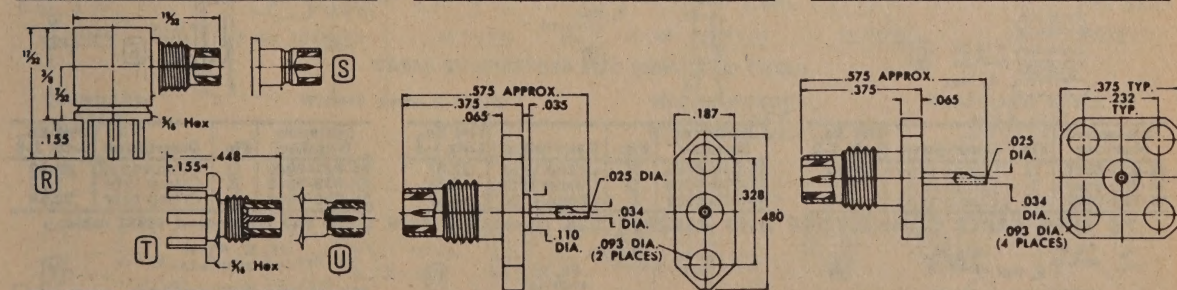
Sealectro Number	Fig.	Rear Mount Jack Type	Net Ea., Lots 1-9
50-045-0000	M	Screw-on	$3.27
51-045-0000	N	Snap-on	3.27

RECESSED BULKHEAD JACK

Sealectro Number	Fig.	Recessed Jack Type	Net Ea., Lots 1-9
51-049-0000	O	Snap-on	$3.95

REAR MOUNT BULKHEAD JACK

Sealectro Number	Fig.	Front Mount Jack Type	Net Ea., Lots 1-9
50-043-0000	P	Screw-on	$2.96
51-043-0000	Q	Snap-on	2.96



PRINTED CIRCUIT MOUNT JACKS

Sealectro Number	Fig.	Jack Type	Net Ea., Lots 1-9
Right Angle Jack			
50-053-0000	R	Screw-on	$6.29
51-053-0000	S	Snap-on	5.82
Straight Jack			
50-051-0000	T	Screw-on	$4.10
51-051-0000	U	Snap-on	4.10

NARROW FLANGE JACK

Sealectro Number	Narrow Flange Jack Type	Net Ea., Lots 1-9
50-045-4524-89	Screw-on	$5.94

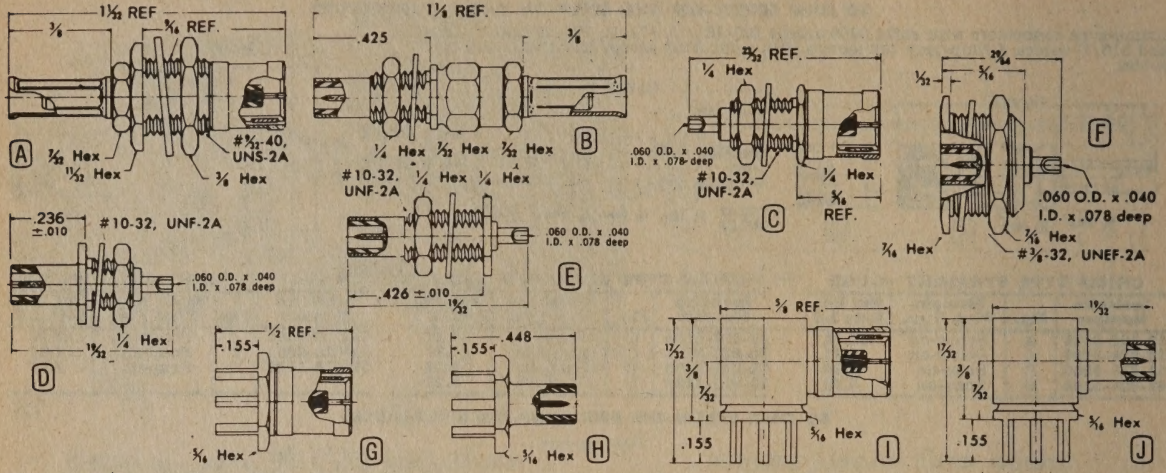
SQUARE FLANGE JACK

Sealectro Number	Square Flange Jack Type	Net Ea., Lots 1-9
50-045-4504-89	Screw-on	$5.82
51-045-4504-89	Snap-on	9.21

CONHEX SUBMINIATURE RF CONNECTORS CONTINUED ON FOLLOWING PAGE

50 OHM SLIDE-ON CABLE CONNECTORS AND RECEPTACLES

Crimp-type connectors accept RG-161/U, 174/U, 179/U, 187/U, 188/U and 316/U cables.

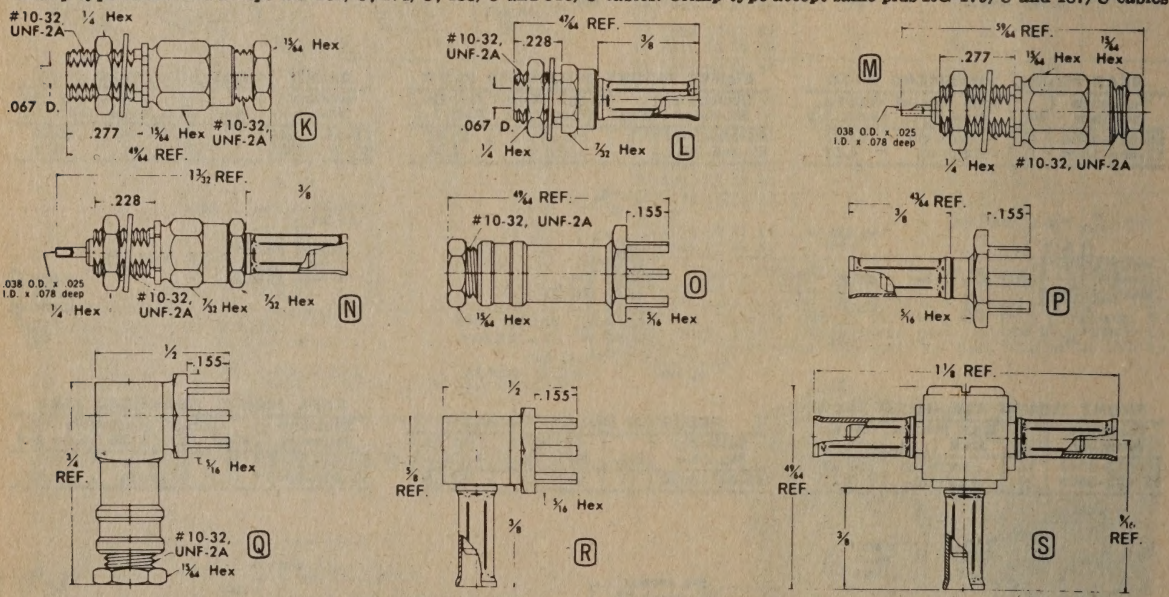


Sealectro Number	Fig.	Connector and Receptacle Description	Net Ea., Lots 1-9
52-026-0000	A	Crimp-type bulkhead Slide-on plug	$6.83
52-027-0000	B	Crimp-type bulkhead Slide-on jack	5.86
52-046-0000	C	Bulkhead receptacle Slide-on plug	4.51
52-045-0000	D	Bulkhead receptacle Slide-on jack	3.27
52-043-0000	E	Bulkhead receptacle Slide-on jack	2.96

Sealectro Number	Fig.	Receptacle Description	Net Ea., Lots 1-9
52-049-0000	F	Recessed bulkhead Slide-on jack	$3.95
52-052-0000	G	Printed Circuit Slide-on plug	6.83
52-051-0000	H	Printed Circuit Slide-on jack	4.10
52-054-0000	I	Printed Circuit Slide-on plug	7.60
52-053-0000	J	Printed Circuit Slide-on jack	6.19

50 OHM ACCESSORIES—BULKHEAD CABLE FEED-THRUS

Clamp-type connectors accept RG-161/U, 174/U, 188/U and 316/U cables. Crimp-type accept same plus RG-179/U and 187/U cables

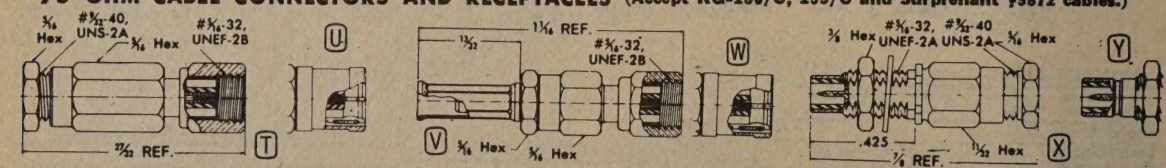


Sealectro Number	Fig.	Description	Net Ea., Lots 1-9
55-013-0000	K	Clamp type	$4.12
55-031-0000	L	Crimp type	4.97
55-018-0000	M	Clamp type	6.81

Sealectro Number	Fig.	Description	Net Ea., Lots 1-9
55-036-0000	N	Crimp type	$7.07
55-020-0000	O	Clamp type	6.71
55-038-0000	P	Crimp type	6.47

Sealectro Number	Fig.	Description	Net Ea., Lots 1-9
55-021-0000	Q	Clamp type	$8.42
55-039-0000	R	Crimp type	7.72
55-069-0000	S	Crimp type	10.19

75 OHM CABLE CONNECTORS AND RECEPTACLES (Accept RG-180/U, 195/U and Surprenant #9872 cables.)



CLAMP-TYPE STRAIGHT PLUGS

Sealectro Number	Fig.	Plug Type	Net Ea., Lots 1-9
50-107-0000	T	Screw-on	$6.56
51-107-0000	U	Snap-on	6.56

CRIMP-TYPE STRAIGHT PLUGS

Sealectro Number	Fig.	Plug Type	Net Ea., Lots 1-9
50-124-0000	V	Screw-on	$6.33
51-124-0000	W	Snap-on	6.33

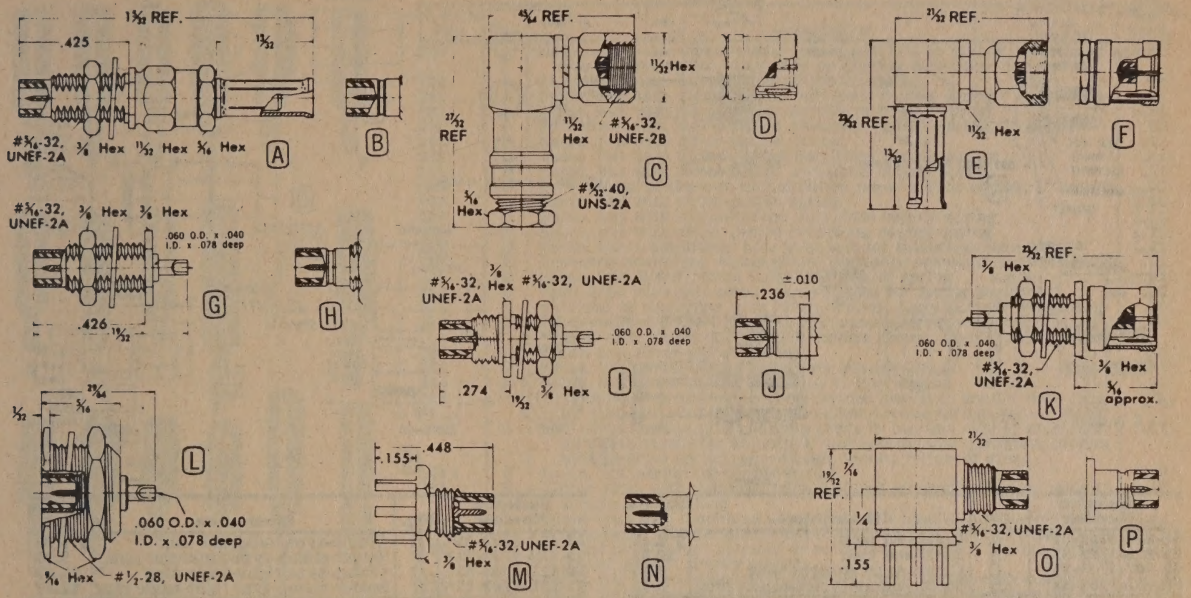
CLAMP-TYPE BULKHEAD JACKS

Sealectro Number	Fig.	Jack Type	Net Ea., Lots 1-9
50-110-0000	X	Screw-on	$10.50
51-110-0000	Y	Snap-on	10.50

PRICES LISTED ARE FOR GUIDANCE ONLY

75 OHM CONHEX CABLE CONNECTORS AND RECEPTACLES (CONT'D)

75 ohm connectors accept RG-180/U, 195/U and Surprenant #9872 cables.



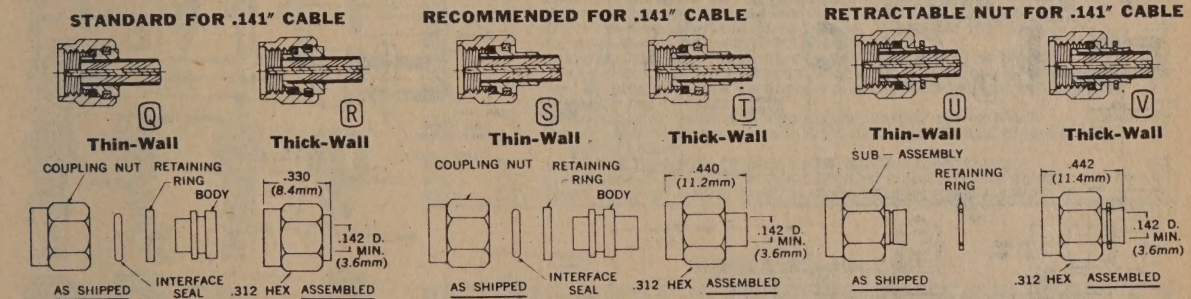
Sealectro Number	Fig.	Connector and Receptacle Description	Net, 1-9
50-127-0000	A	Crimp-type Screw-on bulkhead jack	$ 6.60
51-127-0000	B	Crimp-type Snap-on bulkhead jack	6.60
50-111-0000	C	Clamp-type Screw-on right-angle plug	10.04
51-111-0000	D	Clamp-type Snap-on right-angle plug	10.04
50-128-0000	E	Crimp-type Screw-on right-angle plug	8.57
51-128-0000	F	Crimp-type Snap-on right-angle plug	8.57
50-143-0000	G	Bulkhead receptacle Screw-on rear mount	3.19
51-143-0000	H	Bulkhead receptacle Snap-on rear mount	3.19

Sealectro Number	Fig.	Receptacle Description	Net, 1-9
50-145-0000	I	Bulkhead Screw-on front mount	$3.52
51-145-0000	J	Bulkhead Snap-on front mount	3.52
51-146-0000	K	Bulkhead Snap-on front mount plug	6.73
51-149-0000	L	Bulkhead Snap-on recessed jack	4.49
50-151-0000	M	Printed circuit Screw-on straight jack	6.19
51-151-0000	N	Printed circuit Snap-on straight jack	6.19
50-153-0000	O	Printed circuit Screw-on right-angle jack	8.80
51-153-0000	P	Printed circuit Snap-on right-angle jack	8.80

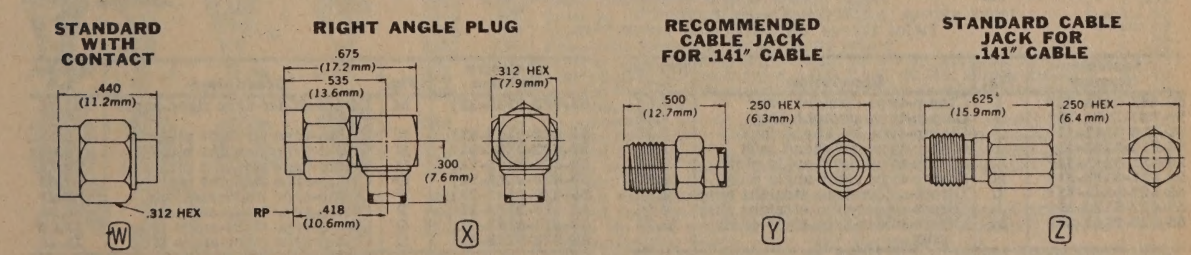
SRM 3mm MINIATURE RF CONNECTORS

DIRECT SOLDER TYPE FOR .141" SEMI-RIGID COAX

Direct-solder type straight plugs utilize the .036" (.914mm) diameter center conductor of the cable as the male contact for optimum electrical performance.



CABLE CONNECTORS FOR SEMI-RIGID CABLE

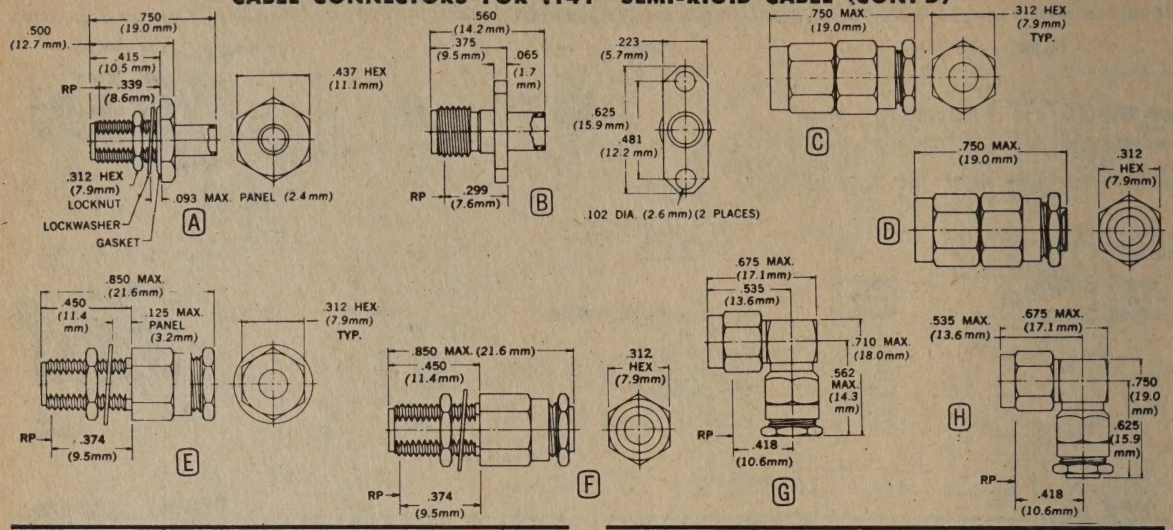


Sealectro Number	Fig.	Connector Description	Net Ea., Lots 1-9
55-607-3703-31	Q	Standard Thin-wall	$3.39
55-624-3703-31	R	Standard Thick-wall	5.09
55-607-2003-31	S	Recommended Thin-wall	3.29
55-624-2003-31	T	Recommended Thick-wall	5.09
55-624-3073-31	V	Retractable nut Thick-wall	5.09

Sealectro Number	Fig.	Connector Description	Net Ea., Lots 1-9
55-607-3702-31†	W	Standard with contact	$ 4.64
55-611-3702-31†	X	Right-angle plug	11.82
55-611-3703-31*	X	Right-angle plug	11.47
55-608-2003-31*	Y	Recommended cable jack	5.71

*For .140"/.142" diameter 50 ohm cable. †For .084"/.0875" diameter 50 ohm cable.

CABLE CONNECTORS FOR .141" SEMI-RIGID CABLE (CONT'D)



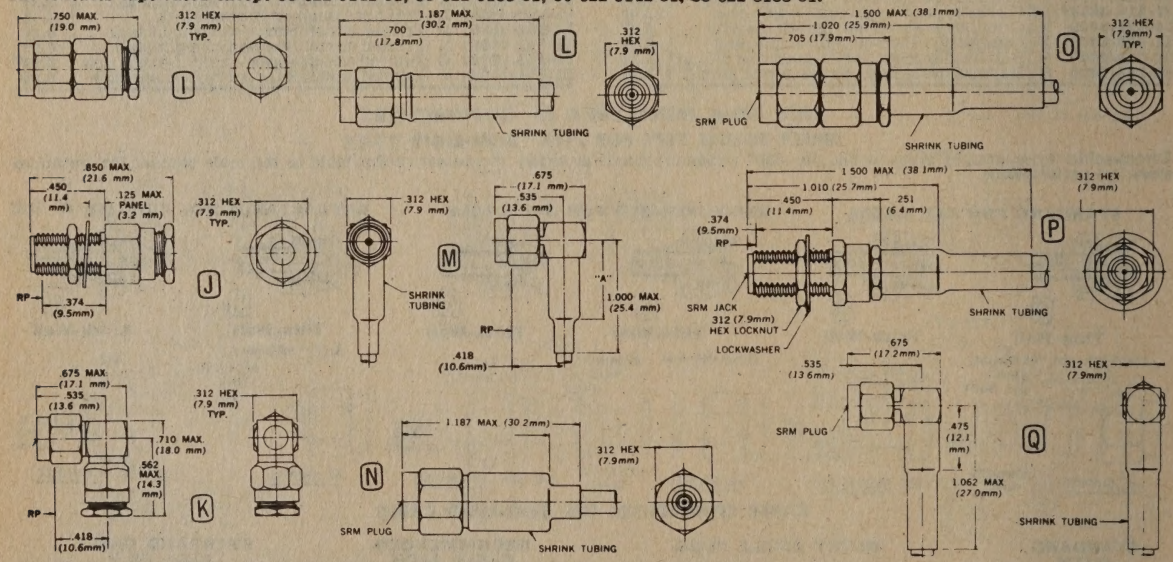
Sealectro Number	Fig.	Description	Net Ea. 1-9
55-610-3703-31*	A	Bulkhead jack	$ 9.40
55-610-3702-31†	A	Bulkhead jack	10.33
50-607-3703-31*	C	Clamp-type straight plug	8.65
50-607-9703-31*	D	Solder-clamp-type straight plug	8.65

Sealectro Number	Fig.	Description	Net Ea. 1-9
50-610-3703-31*	E	Clamp-type bulkhead jack	$ 9.29
50-610-9703-31*	F	Solder-clamp-type bulkhead jack	9.29
50-611-3703-31*	G	Clamp-type right-angle plug	11.47
50-611-9703-31*	H	Solder-clamp-type right-angle plug	11.47

*For .140"/.142" dia. 50 ohm cable. †For .084"/.087" dia. 50 ohm cable.

CABLE CONNECTORS FOR BRAIDED COAXIAL CABLE

All contacts captivated except 55-622-9141-31, 55-622-9188-31, 50-622-9142-31, 55-622-8188-31.



Sealectro Number	Fig.	Description	Net Ea. 1-9
50-607-3141-31*	I	Clamp-type straight plug	$ 8.65
50-607-3188-31†	I	Clamp-type straight plug	8.65
50-610-3141-31*	J	Clamp-type bulkhead jack	9.29
50-610-3188-31†	J	Clamp-type bulkhead jack	9.67
50-611-3141-31*	K	Clamp-type right-angle plug	11.47
50-611-3188-31†	K	Clamp-type right-angle plug	11.80
55-622-9141-31*	L	Direct-solder-type straight plug	8.57
55-622-9188-31†	L	Direct-solder-type straight plug	8.36
55-628-9141-31*	M	Direct-solder-type right-angle plug	11.24

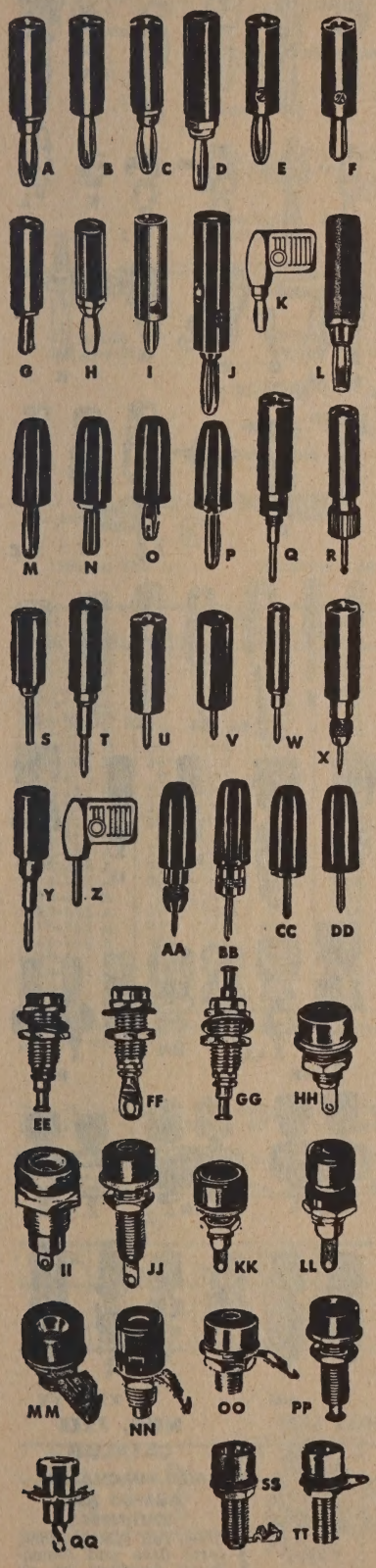
Sealectro Number	Fig.	Description	Net Ea. 1-9
55-628-9188-31†	M	Direct-solder-type right-angle plug	$11.24
50-622-9142-31‡	N	Crimp-type straight plug	8.57
50-622-9188-31‡	N	Crimp-type straight plug	8.36
50-624-9142-31‡	O	Crimp-type straight plug	8.76
50-624-9188-31†	O	Crimp-type straight plug	8.40
50-627-9142-31‡	P	Crimp-type bulkhead jack	10.27
50-627-9188-31†	P	Crimp-type bulkhead jack	10.04
50-628-9142-31‡	Q	Crimp-type right-angle plug	11.18
50-628-9188-31†	Q	Crimp-type right-angle plug	11.18

*RG-55/U, -58/U, -141/U, -142/U, -233/U, -303/U. †RG-174/U, -179/U, -187/U, -188/U, -316/U. ‡RG-55/U, -142/U, -223/U.

SEALECTRO IS NOW QPL'D TO MIL-C-39012, SERIES SMA, FOR A MOST EXTENSIVE LISTING OF VARIOUS SRM CONNECTORS. SEND TODAY FOR A COMPLETE CROSS-REFERENCE

PRICES LISTED ARE FOR GUIDANCE ONLY

H. H. Smith Jacks and Plugs



INSULATED BANANA PLUGS*

H. H. S. No.	Fig.	Description	Net Each
212	A	Solderless with nickel-plated phosphor bronze spring; wire may also be soldered to brass stud or directly into plug; 1" handle	$0.86
232	A	Same as above, but with silver-plated spring	.96
242	A	Same, but with nickel-plated beryllium copper spring	.98
262	A	Same, but with silver-plated beryllium copper spring	1.10
211	B	Solderless with nickel-plated phosphor bronze spring; 1" handle	.72
261	B	Same, but with silver-plated spring	.82
271	B	Same, but with nickel-plated beryllium copper spring	.84
281	B	Same, but with silver-plated beryllium copper spring	.94
295	C	Screw-term. solderless; nickel-plated phos. bronze spring; 1" handle	.98
296	C	Same, but with silver-plated spring	1.10
297	C	Same, but with nickel-plated beryllium copper spring	1.12
298	C	Same, but with silver-plated beryllium copper spring	1.22
236	D	Same, but cross-drilled hole in spacer for solderless connection	1.51
204	E	Set-screw solderless; nickel-plated phosphor bronze spring; 1" handle	.72
254	E	Same, but nickel-plated beryllium copper spring	.84
213	F	Split type with side screw; cross-slotted for spring tension	.65
253	G	Soldered or solderless with internal stud; cross-slotted; 1" handle#	.76
291	H	Stud-soldered midget plug with 5/8" machined butyrate handle; 13/32" plug with nickel-plated phos. bronze spring; specify red or black	.72
292	H	Same, but silver-plated spring	.82
293	H	Same, but nickel-plated beryllium copper spring	.84
294	H	Same, but silver-plated beryllium copper spring	.94
214	I	Adapts tip plug to banana plug; molded butyrate handle with jack for tip plug; nickel-plated phosphor bronze spring; red or black	.78
1511	J	Solderless banana plug; banana plugs in top and side of machined butyrate handle for unlimited, multiple circuits; phosphor bronze nickel-plated spring; specify red, black, yellow or green	1.63
1512	J	Same, but beryllium copper spring	1.83
255	K	Meter plug with 4-leaved nickel-plated phosphor bronze spring; specify red or black	1.12
285	L	Giant type with machined phenolic plastic handle, deep solder well; 6-leaved phosphor bronze nickel-plated spring; specify red or black	3.46
476	M	Molded nylon plug; soldered or solderless; phosphor bronze nickel-plated spring; specify color†	.74
477	M	Same, but silver-plated phosphor bronze spring; specify color†	.84
478	M	Same, but nickel-plated beryllium copper spring; specify color†	.86
479	M	Same, but silver-plated beryllium copper spring; specify color†	.96
494	N	Solderless split-type plug with molded nylon handle; specify color†	.61
426	O	Midget version of No. 476; specify color†	.67
427	O	Midget version of No. 477; specify color†	.78
428	O	Midget version of No. 478; specify color†	.80
429	O	Midget version of No. 479; specify color†	.90
455	P	Solderless wrap-around version of No. 476; specify color†	.74
456	P	Solderless wrap-around version of No. 477; specify color†	.84
457	P	Solderless wrap-around version of No. 478; specify color†	.86
458	P	Solderless wrap-around version of No. 479; specify color†	.96

INSULATED TIP PLUGS*

200	Q	Solderless threaded type; 1" handle; 2 1/8" long	$0.61
201	Q	Same, but slightly smaller; 1" handle; 1 19/32" long	.61
237	S	Easy-solder hollow tip; 5/8" molded butyrate handle#	.23
229	T	Heavy duty, easy solder connection; 1" handle, 2 1/8" long#	.61
203	U	Short tip plug inserts flush to handle; 1" handle; 1 1/2" long	.55
283	V	Same as above, but solderless connection	.53
270	W	Subminiature tip with 1" fiber handle; specify red or black	.72
216	X	Phono needle tip with removable chuck; 1" handle; 1 7/8" long#	.86
215	Y	Std. tip plug with jack for banana plug; 3/4" molded butyrate handle; specify red or black	.61
235	Z	Meter tip plug molded in two halves; specify red or black	.82
493	AA	Removable chuck type with molded nylon handle and phono needle; specify color†	.86
490	BB	Solderless type with molded nylon handle; specify color†	.61
492	CC	Short version of above without knurled collar; specify color†	.53
491	DD	Short tip plug; inserts flush to nylon handle; specify color†	.55

INSULATED JACKS‡

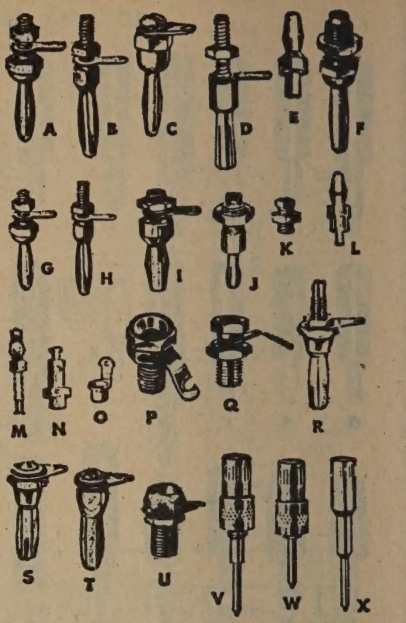
1501	EE	Nylon tip jack with metal shell; wrap-around type; specify color†	$1.35
1502	FF	Same, but spade terminal type; specify color†	1.59
1503	GG	Same, but feed-thru type; specify color†	.82
1505	EE	Same as 1501 but all-nylon construction; specify color†	.61
1506	FF	Spade terminal version of 1505; specify color†	.82
1507	GG	Feed-thru version of 1505; specify color†	.72
202	HH	Molded thermosetting plastic head; phone tip; mounted in 3/16" hole	.59
240	II	Molded nylon tip jack rated 5,000 VAC, 60 Hz; specify color§	.72
206	JJ	Molded thermosetting plastic head combo jack takes standard phone or banana plugs	.76
282	KK	Thermosetting plastic head meter type; phone tip; specify color§	.86
241	LL	Molded nylon head; insulated from panel; phone tip; specify color§	1.02
219	MM	Molded thermosetting plastic head banana jack; recessed body#	.72
221	NN	Nylon head and washer; insulated from panel; for standard banana plugs; specify color§	1.02
205	OO	Molded thermosetting plastic head banana jack	.47
256	PP	Molded thermosetting plastic head banana jack; turret terminal	.65
279	QQ	Phone tip jack with dished lockwasher "speedi-mount"; molded thermosetting plastic body; 13/32" dia. head	.25
286	SS	Giant banana jack; fits 1/2" hole; panel to 3/4"; tinned copper lug; machined butyrate head; specify red or black	2.24
287	TT	Same as 286 except brass tinned lug	2.24

*Molded thermosetting plastic handle unless otherwise noted. Standard colors: red, black, yellow, green, blue or white except as otherwise noted. †For colors add suffix: **-101**, white; **-102**, red; **-103**, black; **-104**, green; **-105**, blue; **-106**, orange; **-107**, yellow; **-108**, brown; **-112**, purple; **-113**, gray. ‡Standard colors: Red, black, yellow, green, blue or white except as otherwise noted. §Specify red, black, yellow, green or blue. #Red or black only.

H. H. Smith JACKS, PLUGS AND BINDING POSTS

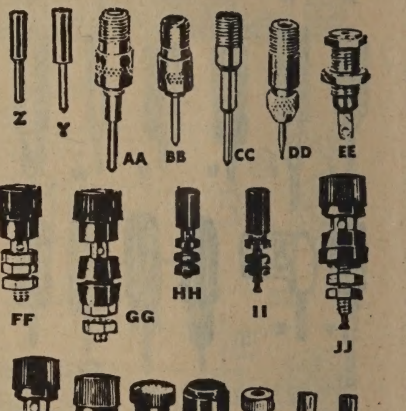
NON-INSULATED BANANA PLUGS AND JACKS

H. H. S. No.	Fig.	Description	Net Each*
102	A	3/8" threaded stud; hex brass body; nickel-plated phos. bronze spring	$0.80
103	B	1/2" threaded stud; hex brass body; nickel-plated phos. bronze spring	.76
100	C	Screw-on type; hex brass body; nickel-plated phos. bronze spring	.80
190	C	Same, but with beryllium copper spring	.92
104	D	1/2" threaded stud; hex brass body; split type banana plug	.53
121	E	Midget rivet type; silver-pl. brass body; phos. bronze silvered spring	.55
145	F	Soldered or solderless type with hex body; phos. bronze spring	.80
135	F	Same, but beryllium copper spring	.92
431	G	6-32 x 3/4" stud type; hex body; phos. bronze spring nickel-plated	.80
432	G	Same, but 6-32 x 1/2" stud; 1 5/16" h.	.86
433	G	Same, but 6-32 x 3/4" stud; 1 9/16" h.	.92
434	G	Same, but 8-32 x 3/8" stud; 1 3/16" h.	.80
435	G	Same, but 8-32 x 1/2" stud; 1 5/16" h.	.86
436	G	Same, but 8-32 x 3/4" stud; 1 9/16" h.	.92
401	H	6-32 x 3/8" stud type; hex body; phos. bronze spring nickel-plated	.70
403	H	Same, but 6-32 x 1/2" stud; 1 3/32" h.	.76
404	H	Same, but 6-32 x 3/4" stud; 1 17/32" h.	.82
405	H	Same, but 8-32 x 3/8" stud; 1 5/32" h.	.70
406	H	Same, but 8-32 x 1/2" stud; 1 3/32" h.	.76
407	H	Same, but 8-32 x 3/4" stud; 1 17/32" h.	.82
460	I	Midget 4-40 x 3/8" stud; nickel-plated phos. bronze spring; 1 5/16" h.	.65
461	I	Same, but 4-40 x 1/2" stud; 1 1/16" h.	.72
462	I	Same, but 6-32 x 3/8" stud; 1 5/16" h.	.65
463	I	Same, but 6-32 x 1/2" stud; 1 1/16" h.	.72
111	J	Midget cross-slotted body type; 10-32 x 2 1/4" stud; 2 3/32" h	.39
191	L	Submin. rivet type plug; silver-plated beryl. copper spring; 37/64" h.	.51
192	M	Submin. 2-56 stud type plug similar to No. 191	.72
193	N	Submin. jack rivets direct to chassis or PC board	.39
194	O	Submin. jack rivets direct to chassis or PC (Package of 100)	3.93
101	P	Hex body jack with recessed head; fits 1/4" hole; panels to 5/16" thick	.41
109	Q	Std. hex head banana jack fits 1/4" hole; panels to 3/8" thick	.41
185	R	Giant plug with deep solder well; 6-leaved phos. bronze spring	2.14
186	S	Same, but screw fit instead of stud	1.93
188	T	Same as No. 186 but slimmer base	1.63
187	U	Giant banana jack fits 3/8" hole; panels to 1/2" thick	1.28



NON-INSULATED TIP PLUGS AND JACKS

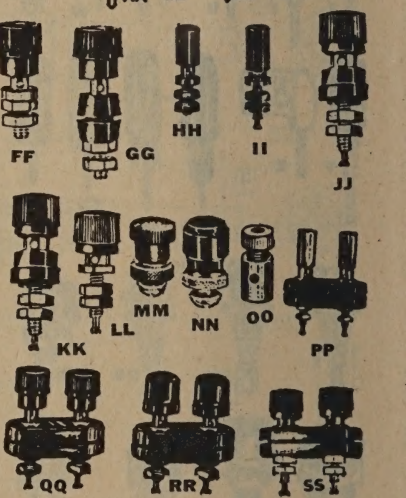
105	V	Solderless with knurled collar force fit; 1 29/64" h.	$0.45
106	W	Smaller version of above; 1 3/16" h.	.45
156	X	Heavy-duty force fit type; accepts standard banana plugs	.45
108	Y	Standard solder type; 1" long (Package of 100)	.13
123	Y	Large I.D. solder type; 1" long (Package of 100)	.29
158	Z	Drawn (all-hollow) solder type; 13/16" long (Package of 100)	.07
124	AA	Threaded solderless type; knurled collar; will fit plastic handle	.45
127	BB	Smaller version of above; 1 3/16" h.	.45
125	CC	Heavy duty threaded type; extra large solder well; 1 3/8" h.	.45
128	DD	Needle tip with removable chuck; 1 5/32" h.	.65
107	EE	Phone tip jack with hex nut; fits 1/4" hole; panels to 3/8" thick	.65
101	EE	Banana jack with hex nut and lug; fits 1/4" hole; panels to 5/16" thick	.41



BINDING POSTS

220	FF	5-way grounding type, red or black plastic, captive head; 8-32 thd.	$0.74
230	FF	Same, but 6-32 threaded stud	.74
260	GG	All insulated version of No. 220; red or black plastic, captive head	1.18
259	GG	Same, but 6-32 threaded stud	1.18
137	HH	Metal 5-way post has captive hex nickel-plated brass head	1.41
208	II	Same as No. 137 but with wrap-around terminal	1.41
377	JJ	Molded nylon grd. type with nickel-plated brass insert; red or black	1.28
378	KK	Same, but with Bakelite washer to insulate from chassis; red or black	1.28
379	LL	Molded nylon grounding type; nickel-plated brass insert; red or black	1.18
265	MM	Molded plastic post; brass threaded insert; specify red or black	.98
266	NN	Molded plastic post; brass threaded insert; specify red or black	.65
136	OO	Nickel-plated brass post for phone tips or banana plugs	.76
110	MM	Nickel-plated brass post with screw and lockwasher	.76
209	PP	Dual assembly; metal heads; black styrene cross-slotted	2.89
224BB	QQ	Dual assembly; black plastic heads; styrene washer cross-slotted	2.04
224RR	QQ	Same, both heads red	2.04
224RB	QQ	Same, one red and one black head	2.04
269BB	RR	Same as No. 263, but heads are molded nylon; both heads black	2.65
269RR	RR	Same, both heads red	2.65
269RB	RR	Same, one red and one black head	2.65
284BB	SS	Same as No. 263, but heads are molded nylon; both heads black	2.04
284RR	SS	Same, both heads red	2.04
284RB	SS	Same, one red and one black head	2.04

*Lots of 1–499, Net; 500–999, −16⅔%.



LEXAN 5-WAY BINDING POSTS

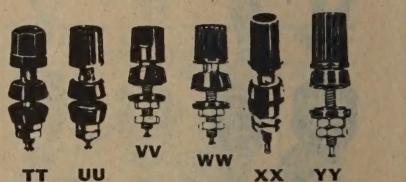
Supplied in six colors except where specified. Red, **-102**; black, **-103**; yellow, **-107**; green, **-104**; white, **-101**; blue, **-105**.

MOUNT IN 1/2" DIAM. HOLE

257	TT	Hex head, gold plated	$2.65
459	UU	Fluted head, gold plated	2.65
267	TT	Hex head, gold plated, MIL Spec. PB01FA03, red only	2.65
267	TT	Hex head, gold plated, MIL Spec. PB01FA04, black only	2.65
495	UU	Fluted head, gold plated, MIL Spec. PB01FA03, red only	2.65
495	UU	Fluted head, gold plated, MIL Spec. PB01FA04, black only	2.65
1257	VV	Hex head, gold plated, Lexan back-up washer	2.30
1259	WW	Fluted head, gold plated, flat Lexan back-up washer	2.30
899	TT	Hex head, bright tin plate	1.73
799	UU	Fluted head, bright tin plate	1.73
898	VV	Hex head, bright tin plate, flat Lexan back-up washer	1.53
897	WW	Same, fluted head	1.53

MOUNT IN 3/8" DIAM. HOLE

1517	XX	Gold plated	$2.65
1514	XX	Gold plated, MIL Spec. PB01FA01, red only	2.65
1514	XX	Gold plated, MIL Spec. PB01FA02, black only	2.65
1277	YY	Gold plated, flat Lexan back-up washer	2.30
1275	XX	Bright tin plate per MIL-T-10727	1.73
1276	YY	Bright tin plate per MIL-T-10727, flat Lexan back-up washer	1.53



NEW, FREE CATALOG

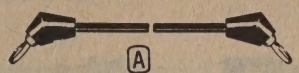
FOR PURCHASING AGENTS AND ENGINEERS

Gives full specifications, parts data and dimensional drawings on all H. H. Smith components. Send for your copy today.

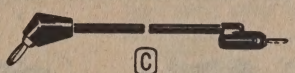
SOLD IN STANDARD PACKAGES ONLY

H. H. Smith Jumpers and Test Leads

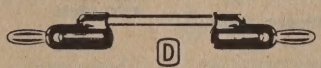
Molded plastic handles per Fed. Spec. L-P349A, Type 3, Class MS. To specify color, add suffix to type number: white, **-101**; red, **-102**; black, **-103**; green, **-104**; blue, **-105**; yellow, **-107**. Unless specified otherwise, all wires are #18 AWG (65/36) flexible wire with 10 KV PVC insulation.



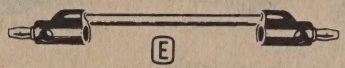
A — Banana Plug — Banana Plug



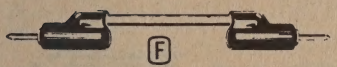
C — Banana Plug — Phone Tip



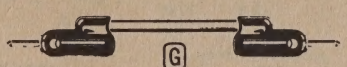
D — Cross Patch Banana Plug — Cross Patch Banana Plug



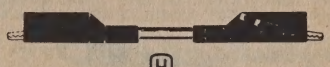
E — Cross Patch Banana Plug — Cross Patch Banana Plug



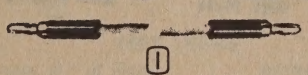
F — Patch Phone Tip — Patch Phone Tip



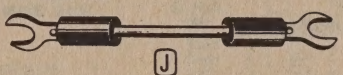
G — Cross Patch Phone Tip — Cross Patch Phone Tip



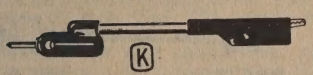
H — Alligator Tip — Alligator Clip



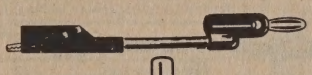
I — Banana Plug — Banana Plug



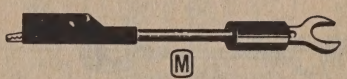
J — Spade Lug — Spade Lug



K — Phone Tip — Alligator Clip



L — Alligator Clip — Cross Patch Banana Plug



M — Alligator Clip — Spade Lug

H.H.S. No.	Fig.	Lgth.	Size End 1	Size End 2	Net Each
1334-8†	A	8″	Std.	Std.	$2.14
1334-12†	A	12″	Std.	Std.	2.14
1334-24†	A	24″	Std.	Std.	2.35
1334-36†	A	36″	Std.	Std.	2.50
1335-8†	B	8″	Std.	Std.	2.14
1335-12†	B	12″	Std.	Std.	2.14
1335-24†	B	24″	Std.	Std.	2.35
1335-36†	B	36″	Std.	Std.	2.50
1336-8†	C	8″	Std.	.....	2.14
1336-12†	C	12″	Std.	.....	2.14
1336-24†	C	24″	Std.	.....	2.35
1336-36†	C	36″	Std.	.....	2.50
1344-8†	A	8″	Min.	Min.	2.14
1344-12†	A	12″	Min.	Min.	2.14
1344-24†	A	24″	Min.	Min.	2.35
1344-36†	A	36″	Min.	Min.	2.50
1349-8†	A	8″	Min.	Std.	2.14
1349-12†	A	12″	Min.	Std.	2.14
1349-24†	A	24″	Min.	Std.	2.35
1349-36†	A	36″	Min.	Std.	2.50
1510-8	D	8″	Std.	Std.	2.20
1510-12	D	12″	Std.	Std.	2.20
1510-24	D	24″	Std.	Std.	2.35
1510-36	D	36″	Std.	Std.	2.50

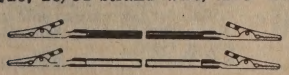
H.H.S. No.	Fig.	Lgth.	Size End 1	Size End 2	Net Each
1590-6	E	6″	Min.	Min.	$2.20
1590-12	E	12″	Min.	Min.	2.20
1590-18	E	18″	Min.	Min.	2.35
1590-24	E	24″	Min.	Min.	2.50
1591-6	F	6″	.....	.....	2.20
1591-12	F	12″	.....	.....	2.20
1591-18	F	18″	.....	.....	2.28
1591-24	F	24″	.....	.....	2.35
1595-8	G	8″	.....	.....	2.35
1595-12	G	12″	.....	.....	2.35
1595-24	G	24″	.....	.....	2.57
1595-36	G	36″	.....	.....	2.72
1596-12	H	12″	Std.	Std.	1.85
1596-24	H	24″	Std.	Std.	1.99
1596-36	H	36″	Std.	Std.	2.14
1596-48	H	48″	Std.	Std.	2.28
1596-60	H	60″	Std.	Std.	2.42
1597-12	H	12″	Min.	Min.	1.85
1597-18	H	18″	Min.	Min.	1.99
1597-24	H	24″	Min.	Min.	1.99
1597-36	H	36″	Min.	Min.	2.14
1597-48	H	48″	Min.	Min.	2.28
1597-60	H	60″	Min.	Min.	2.42

H.H.S. No.	Fig.	Lgth.	Size End 1	Size End 2	Net Each
1860-8†	I	8″	Min.	Min.	$1.93
1860-12†	I	12″	Min.	Min.	1.93
1860-24†	I	24″	Min.	Min.	2.07
1860-36	I	36″	Min.	Min.	2.20
1864-12	J	12″	.....	.....	1.85
1864-24	J	24″	.....	.....	1.99
1864-36	J	36″	.....	.....	2.14
1864-48	J	48″	.....	.....	2.28
1864-60	J	60″	.....	.....	2.42
1865-12†	K	12″	Std.	.....	1.57
1865-24†	K	24″	Std.	.....	1.85
1865-36†	K	36″	Std.	.....	1.99
1865-48†	K	48″	Std.	.....	2.14
1865-60†	K	60″	Std.	.....	2.28
1866-12†	L	12″	Std.	Std.	1.70
1866-24†	L	24″	Std.	Std.	1.85
1866-36†	L	36″	Std.	Std.	1.99
1866-48†	L	48″	Std.	Std.	2.14
1866-60†	L	60″	Std.	Std.	2.28
1867-12	M	12″	Std.	.....	1.85
1867-24	M	24″	Std.	.....	1.99
1867-36	M	36″	Std.	.....	2.14
1867-48	M	48″	Std.	.....	2.28
1867-60	M	60″	Std.	.....	2.42

*Available only in red, black, yellow or green. †Available in red and black only. ‡#24 AWG (19/36) wire with 5 KV PVC. •#18 AWG (16/30) wire with PVC.

ALLIGATOR CLIP TEST LEADS

Test leads supplied with extra-flexible, rubber-covered, kinkless, #20, 26/34 strand wire, .125″ O.D., rated 5000 volts. All have alligator clip on one end and various connectors on other end as specified. Supplied in pairs, one black and one red.



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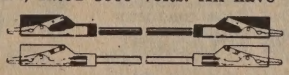

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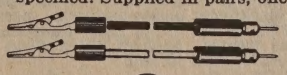

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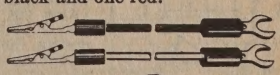


Q

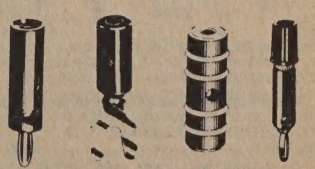
H.H.S. No.	Fig.	Lgth.	Size End 1	Size End 2	Net Each
604	N	12″	Std.	Std.	$1.85
605	N	24″	Std.	Std.	1.99
606	N	36″	Std.	Std.	2.14
607	N	48″	Std.	Std.	2.28

H.H.S. No.	Fig.	Lgth.	Size End 1	Size End 2	Net Each
629	O	12″	Std.	Std.	$2.07
657	O	24″	Std.	Std.	2.20
658	O	36″	Std.	Std.	2.35
659	O	48″	Std.	Std.	2.50

H.H.S. No.	Fig.	Lgth.	Size End 1	Size End 2	Net Each
716	O	12″	Min.	Min.	$2.07
717	O	24″	Min.	Min.	2.20
718	O	36″	Min.	Min.	2.35
719	O	48″	Min.	Min.	2.50
627	P	50″	Std.	.....	2.99
649	Q	50″	Std.	.....	2.28

TEST LEAD ADAPTERS

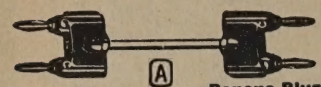
H.H.S. No.	Fig.	Description	Net per 100
214	R	Std. phone tip plug to std. banana plug	$78.00
218	S	Std. banana plug to spade lug	15.00
245	T	Splice, std. banana jack both ends	43.00



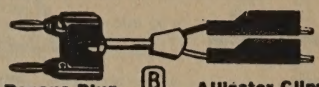
R S T U

H. H. Smith Patch Cords and Test Adapters

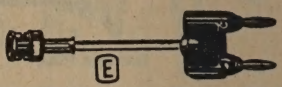
All connectors crimped for reliability. Weatherproof seal on all connectors for greater flexibility and strain relief. Cable is RG58/U, 50-ohm impedance, unless specified otherwise. When cable end splits into separate connectors, one is red and the other is black Unless specified otherwise, all dual banana plugs are on ¾" centers



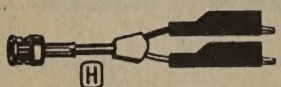
Banana Plug — Banana Plug



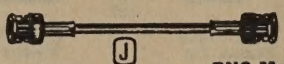
Banana Plug — Alligator Clips



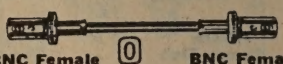
BNC Male — Banana Plug



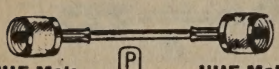
BNC Male — Alligator Clips



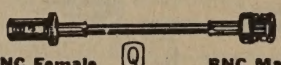
BNC Male — BNC Male



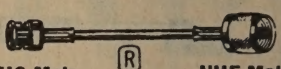
BNC Female — BNC Female



UHF Male — UHF Male



BNC Female — BNC Male



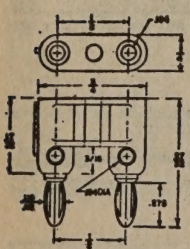
BHC Male — UHF Male

H.H.S. No.	Fig.	Lgth.	Size Left	Size Right	Net Each
1580-12	A	12″	Std.	Std.	$6.85
1580-24	A	24″	Std.	Std.	7.15
1580-36	A	36″	Std.	Std.	7.43
1580-48	A	48″	Std.	Std.	7.72
1580-60	A	60″	Std.	Std.	8.00
1581-12	B	12″	Std.	Std.	8.29
1581-24	B	24″	Std.	Std.	8.58
1581-36	B	36″	Std.	Std.	8.87
1581-48	B	48″	Std.	Std.	9.14
1581-60	B	60″	Std.	Std.	9.44
1584-12	E	12″	.....	Std.	8.29
1584-24	E	24″	.....	Std.	8.58
1584-36	E	36″	.....	Std.	8.87
1584-48	E	48″	.....	Std.	9.14
1584-60	E	60″	.....	Std.	9.44
1587-12	H	12″	.....	Std.	9.14
1587-24	H	24″	.....	Std.	9.37

H.H.S. No.	Fig.	Lgth.	Size Left	Size Right	Net Each
1587-36	H	36″	.....	Std.	$ 9.58
1587-48	H	48″	.....	Std.	9.79
1587-60	H	60″	.....	Std.	10.02
1589-12	J	12″	.....	.....	8.29
1589-24	J	24″	.....	.....	8.58
1589-36	J	36″	.....	.....	8.87
1589-48	J	48″	.....	.....	9.14
1589-60	J	60″	.....	.....	9.44
1791-12	H	12″	.....	Min.	9.14
1791-24	H	24″	.....	Min.	9.37
1791-36	H	36″	.....	Min.	9.58
1791-48	H	48″	.....	Min.	9.79
1791-60	H	60″	.....	Min.	10.02
1869-12	O	12″	.....	.....	10.29
1869-24	O	24″	.....	.....	10.58
1869-36	O	36″	.....	.....	10.87
1869-48	O	48″	.....	.....	11.15

H.H.S. No.	Fig.	Lgth.	Size Left	Size Right	Net Each
1869-60	O	60″	.....	.....	$11.44
1871-12	P	12″	.....	.....	5.33
1871-24	P	24″	.....	.....	5.58
1871-36	P	36″	.....	.....	5.84
1871-48	P	48″	.....	.....	6.09
1871-60	P	60″	.....	.....	6.34
1878-12	Q	12″	.....	.....	10.29
1878-24	Q	24″	.....	.....	10.58
1878-36	Q	36″	.....	.....	10.87
1878-48	Q	48″	.....	.....	11.15
1878-60	Q	60″	.....	.....	11.44
1879-12	R	12″	.....	.....	8.29
1879-24	R	24″	.....	.....	8.58
1879-36	R	36″	.....	.....	8.87
1879-48	R	48″	.....	.....	9.14
1879-60	R	60″	.....	.....	9.44

MINIATURE DUAL TEST ADAPTERS



SPECIFICATIONS

Ratings: 5 amps AC for 10° C temp. rise, continuous duty; 2000 VAC, 60 Hz continuous working voltage; except where limited by coaxial connectors. Capacity, 3.0 pF nominal between ½" spaced conductors. Resistance, 1 milliohm or less per conductor.

Materials: Molded butyrate body, Fed. Spec. L-P349A, Type 3, Class MS; black color unless otherwise specified. Brass conductor per QQ-B-626, Comp. 22, ½ hard. Four-leaded beryllium copper spring, heat treated. Molded nylon head per MIL-P-20693A. Cadmium-plated steel screws.

Finishes: Nickel-plated conductor per QQ-N-290, Class I, Type VII. Nickel-plated spring. Gold washed terminal. Non-tarnish plate connector.

SET SCREW CONNECTION

Rear has dual banana jacks on ½" centers for stacking. Front has set-screws that secure component leads to conductors.

H. H. Smith No. 1749 Banana Plugs—Front has dual banana plugs on ½" centers. Specify red or black.
Net Each.....**$2.11**

H. H. Smith No. 1754 with .080" Phone Tips—Front has dual .080" phone tips on ½" centers. Specify red or black.
Net Each.....**$1.97**

BNC FEMALE TO BANANA PLUGS

H. H. Smith No. 1758—Rear has BNC series coaxial jack; banana jack holes for stacking. Front has dual banana plugs on ½" centers; banana jack holes for side stacking. Black.
Net Each.....**$5.25**

TURRET TERMINAL CONNECTION

H. H. Smith No. 1750—Rear has dual banana jacks on ½" centers for stacking. Front has dual banana plugs on ½" centers. Turret terminals for permanent solder connection of leads. Specify red or black.
Net Each.....**$2.32**

BNC MALE TO BANANA PLUGS

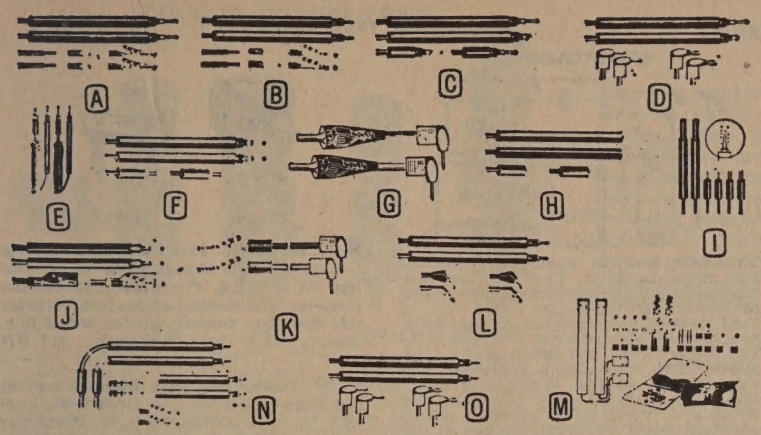
H. H. Smith No. 1759—Rear has BNC series coaxial plug. Front has dual banana plugs on ½" centers; banana jack holes for side stacking. Black. Net Each...**$7.37**

BINDING POST ADAPTER

H. H. Smith No. 1756 Binding Posts to BNC Male—Front has BNC coaxial plug. Rear has insulated, dual 5-way binding posts, with red and black heads on ½" centers. Banana jack holes for side stacking. Black. Net Each...**$7.37**

SOLD IN STANDARD PACKAGES ONLY

H. H. Smith Test Leads & Prods



TEST LEADS

All test leads supplied with 50″ of extra flexible, rubber-covered, kinkless #20 wire, 26/34 strands, 5 KV rating, .125″ O.D. Handles are butyrate plastic per Fed. Spec. L-P349A, Type 3, Class MS, except as noted. Supplied one red, one black.

SOLDERLESS TIP TEST LEADS (FIG. A)

Handles 4″ long x ⅜″ O.D. Solderless tip of nickel-plated brass.

H.H.S. No.	Meter End	Net per Pair
600	Phone Tips	$3.29
601	Spade Lugs	3.20
602	Alligator Clips	3.35

PHONO NEEDLE TEST LEADS (FIG. B)

Nickel-plated brass body. Nickel-plated steel needle tips.

613	Phone Tips	$3.35
614	Spade Lugs	2.88
615	Alligator Clips	3.42

ALL SOLDERLESS TEST LEADS (FIG. C)

Insulated meter plugs. Tip is solderless nickel-plated brass.

603	Phone Tips	$3.85

SOLDERLESS TEST LEADS WITH SLIM HANDLE (FIG. C)

Handles are ¼″ diam. molded nylon per MIL-P-20693A. Tips silver-plated brass with front retention groove. Wire is #18, 65/36 strands, .140″ O.D., 10 KV rating.

684	Phone Tips	$4.79

SOLDERLESS PROD METER TEST LEADS (FIG. D)

Solderless tip of nickel-plated brass. Elbow type meter plugs insulated with molded phenolic plastic. Nickel-plated brass tip.

625	Phone Tips	$3.79
685	Banana Plugs	4.14

SLIM HANDLE TEST LEADS (FIG. C)

Handles and meter plugs ¼″ O.D. fibre per MIL-F-1148A, Grade CH. Nickel-plated brass tips.

678	Phone Tips	$4.72

KOIL-KORD SOLDERLESS TEST LEADS (FIG. E)

Meter plugs of molded phenolic plastic. Solderless nickel-plated brass tips. Wire is #20, 41/36 strands, 4 KV rating, .165″ O.D., 12″ coiled, 72″ extended.

618	Phone Tips	$10.73

BANANA PLUG TEST LEADS (FIG. F)

Insulated meter plugs. Solderless nickel-plated brass tips.

623	Banana Plugs	$4.14

CROCODILE CLIP TEST LEADS (FIG. G)

Cadmium plated steel clips with colored vinyl boots. Right angle phone tips, banana plugs or spade lugs.

675	Phone tips	$3.99
648	Banana plugs	4.22
671	Spade lugs	3.85

SHORT TIP TEST LEADS (FIG. H)

Insulated meter plugs. Nickel-plated brass tips.

624	Phone Tips	$3.42

RETRACTABLE SHIELDED TEST LEADS (FIG. I)

Handles have retractable cover over tip eliminating possibility of shock or shorting.

H.H.S. No.	Meter End	Net per Pair
616	Phone Tips	$5.64
617	Banana Plugs	6.00

ALLIGATOR CLIP TEST LEADS (FIG. J)

Solderless nickel-plated brass tips. Cadmium-plated steel clips covered with colored vinyl boots.

672	Alligator Clips	$3.50

MINIATURE TEST LEADS (FIG. C)

Handles 3″ long x 3/16″ O.D. Machined butyrate plastic per MIL-P-10408A, Type 1, Class 2. Meter plugs same, except ¾″ long.

660	Phone Tips	$2.93

ALLIGATOR CLIP TEST LEADS (FIG. K)

Cadmium plated steel clips with insulated handle.

628	Phone tips	$3.42
647	Banana plugs	3.72

PHONO NEEDLE TEST LEADS (FIG. L)

Nickel-plated steel needle prod. Wire #18, 65/36 strands, 10 KV rating, .140″ O.D.

1331	Banana Plugs	$4.72

PHONO NEEDLE TEST LEADS (FIG. L)

Same as No. 1331 above, except wire #24, 19/36 strands, 5 KV rating, .090″ O.D. Plugs are miniature size.

1341	Banana Plugs	$4.72

SLIM HANDLE TEST LEADS (FIG. C)

Handles 5/16″ O.D. machined butyrate per MIL-P-10408A, Type 1, Class 2.

670	Phone Tips	$3.42

UNIVERSAL TEST LEADS (FIG. M)

Make any required test lead combination. Supplied with phone tips, alligator clips, banana plugs, needle prod tips, spade lugs, all of which adapt into prod handle or plug handle. Complete in plastic kit.

H.H.S. No.	Description	Net per Pair
699	Standard	$10.87
679	Miniature	10.87

TEST LEAD KIT (FIG. N)

One pair of test leads with test prods on one end and banana plugs on other. Supplied with phone tips, alligator clips, and spade lugs.

H.H.S. No.	Test Prod	Net per Pair
610	Solderless	$4.93
611	Needle tips	5.07

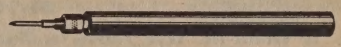
NEEDLE PROD METER TEST LEADS (FIG. O)

Nickel-plated steel needle prod. Elbow type meter plugs insulated with molded phenolic plastic.

H.H.S. No.	Test Prod	Net per Pair
626	Phone Tips	$4.14
686	Banana Plugs	4.29

TEST PRODS

Handles are molded butyrate per Fed. Spec. L-P349A, Type 3, Class MS, except as noted. All available in red or black; **specify color.** Tips are nickel-plated brass except as noted; phono needles are steel.



SOLDERLESS TYPE

H.H.S. No.	Fig.	Handle O.D.	Handle I.D.	Handle Lgth.	Net Each
302†	A	⅜″	3/16″	4″	$0.66
303†	A	⅜″	3/16″	5½″	.74
323*	A	⅜″	.245″	4″	1.24
352	A	⅜″	.245″	4″	1.24
353	A	⅜″	.245″	5½″	.74
382	A	⅜″	3/16″	4″	.66
383	A	⅜″	3/16″	5½″	.74
384	A	5/16″	7/32″	5″	.66

*Handle fibre per MIL-F-1148A, Grade CH. †Tip threads into handle; others force fit.

HEAVY DUTY TYPE

Tip threads into handle.

319	B	⅜″	3/16″	4″	$0.66
329	B	⅜″	3/16″	5½″	.74

SHORT TIP TYPE

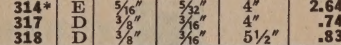
Tip extends only ½″ from handle.

363	C	⅜″	3/16″	4″	$0.59
364	C	⅜″	3/16″	5½″	.67

PHONO NEEDLE TYPE

313*	E	5/16″	5/32″	6″	$2.82
314*	E	5/16″	5/32″	4″	2.64
317	D	⅜″	3/16″	4″	.74
318	D	⅜″	3/16″	5½″	.83

*Handle XXXP phenolic laquered per MIL-P-79, Form TR. Solderless.



MINIATURE TYPE

Handle fibre per MIL-F-1148A, Grade CH; threaded tip.

244	C	3/16″	⅛″	1″	$0.43
322	B	¼″	.175″	4″	.83
666	C	3/16″	⅛″	4″	.62

MINIATURE PHONE TIP TYPE

Handle molded nylon per MIL-P-20693A. Tip silver-plated brass. Solderless. Fits standard .080″ tip jacks.

176	F	5/16″	.221″	1″	$0.88
177	F	5/16″	.221″	1″	.88
178	F	5/16″	.221″	4″	1.06
179	F	5/16″	.221″	4″	1.06
348	F	5/16″	.221″	1″	.88
349	F	5/16″	.221″	4″	1.06

HIGH VOLTAGE TYPE

Handle fibre per MIL-F-1148A, Grade CH. 15 KV rating.

630	G	½″	⅜″	5 3/16″	$9.68

*Net Each.

H. H. Smith Standard Dual Test Adapters

CABLE MOUNT DUAL BANANA PLUGS

1675 1676 1787

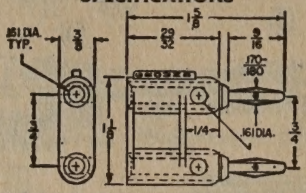
H. H. Smith No. 1675 Set-Screw Plug—Rear has 7/32" dia. cable guide, dual banana jacks on ¾" centers. Front has dual banana plugs on ¾" centers. Set-screws secure leads to conductors. Specify red or black. Net Each.....**$1.90**

H. H. Smith No. 1676 Turret-Terminal Plug—Same as above, but with turret terminals for permanent solder connection. Red or black. Net Each.....**$1.90**

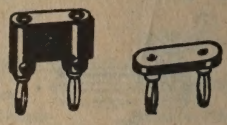
H. H. Smith No. 1787 Shielded Plug—Rear has mounting screw and locating boss, inline cable entry with flush cable guide. Front has dual banana plugs on ¾" centers. Turret terminals for permanent solder connection. Aluminum shield electrically connected to ground conductor; fully enclosed plug and mating binding posts to reduce noise pickup. Net..**$4.90**

SHORTING TYPE PLUGS

SPECIFICATIONS



Materials: Body is molded butyrate per Fed. Spec. L-P349A, Type 3, Class MS; black color unless otherwise specified. Brass conductor per QQ-B-626 Comp. 22, ½ hard. Four-leaved beryllium copper spring, heat treated. Molded nylon head per MIL-P-20693A. Drawn aluminum shield. Cadmium-plated steel screws. **Finishes:** Conductor and spring, nickel-plate per QQ-N-290, Class I, Type VII. Gold-washed terminal. Non-tarnish connector. Black anodized shield. **Ratings:** 15 amps AC for 10° C temp. rise, continuous duty; 5000 VAC, 60 Hz continuous working voltage; except where limited by coaxial connectors. Capacity, 1.0 pF nominal between ¾" spaced connectors. Resistance, 1 milliohm or less per conductor.



1516 1683

H. H. Smith No. 1516 Dual Banana Plug—Rear has dual banana jacks on ¾" centers for stacking. Front has dual banana plugs on ¾" centers; banana jack holes for side stacking. Busbar shorted across line. Specify red or black. Net Each...**$1.90**

H. H. Smith No. 1683 Metal Shorting Bar Plug—Rear has 3/32" thick brass busbar; 15 amps continuous duty. Front has dual banana plugs on ¾" centers. Unit sits flush to panel. Net Each.....**$1.76**

COMPONENT MOUNT DUAL PLUGS

1677 1696

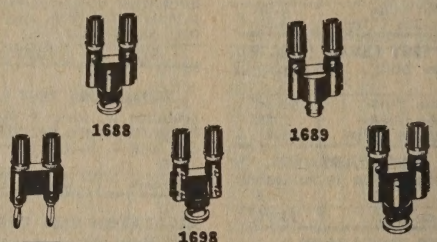
1770

H. H. Smith No. 1677 Set-Screw Plug—Rear has dual banana jacks on ¾" centers for stacking. Front has dual banana jacks on ¾" centers. Set-screws secure component leads to conductors. Specify red or black. Net Each.....**$1.90**

H. H. Smith No. 1696 Four-Terminal Isolation Type Plug—Rear has dual banana jacks on ¾" centers for stacking. Center has turret-terminal connections to isolated front and rear conductors in both Ground and Hot circuits for insertion of matching pad or other 4-terminal networks in input circuits of instruments. Front has dual banana plugs on ¾" centers. Specify red or black. Net Each.....**$4.90**

H. H. Smith No. 1770 Three-Terminal Isolation Plug—Rear has dual banana jacks on ¾" centers for stacking. Center has turret-terminal connections to isolated front and rear conductors in Hot circuit, straight-thru connection of Ground circuit, with terminal, for insertion of "T" and "P" networks in input-output circuits in instruments. Front has dual banana plugs on ¾" centers. Specify red or black. Net Each.....**$5.23**

DUAL BINDING POST ADAPTERS



1688 1689 1682 1698 1756

Rear of each adapter has insulated, dual 5-way binding posts, with red and black heads on ¾" centers. Banana jack holes for side stacking (except No. 1698). Front has plug or jack as indicated.

H. H. Smith No. 1682 Binding Posts to Dual Banana Plugs—Front has dual banana plugs on ¾" centers. Net..**$4.90**

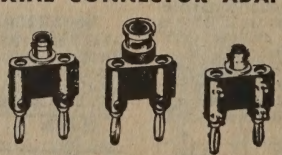
H. H. Smith No. 1688 Binding Posts to BNC Male—Front has BNC series coaxial plug. Net Each.....**$7.02**

H. H. Smith No. 1698 Binding Posts to Isolated BNC Male—Front has BNC coaxial plug. Center has turret-terminal connections to isolated front and rear conductors in both Ground and Hot circuits for insertion of matching pad or other 4-term. networks in input. Net..**$15.44**

H. H. Smith No. 1689 Binding Posts to BNC Female—Front has BNC series female coaxial jack. Net Each.....**$6.87**

H. H. Smith No. 1756 Binding Posts to BNC Male—Front has BNC series male coaxial plug. Conductors connected thru. binding posts on ½" centers. Net Each.....**$7.37**

COAXIAL CONNECTOR ADAPTERS



1686 1687 1697

Front of each adapter has dual banana plugs on ¾" centers. Banana jack holes for side stacking (except No. 1697). Rear has coaxial connector as indicated.

H. H. Smith No. 1686 BNC Female to Banana Plugs—Rear has BNC series coaxial jack. Net Each.....**$5.25**

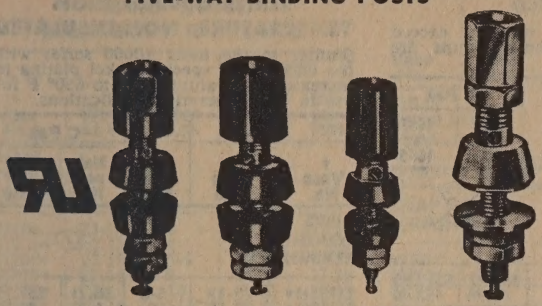
H. H. Smith No. 1687 BNC Male to Banana Plugs—Rear has BNC series coaxial plug. Net Each.....**$7.02**

H. H. Smith No. 1697 BNC Female to Isolated Dual Banana Plugs—Rear has BNC series coaxial jack. Center has turret-terminal connections to isolated front and rear conductors in both Ground and Hot circuits for insertion of matching pad or other 4-terminal networks in input circuits. Net Each.....**$13.33**

SOLD IN STANDARD PACKAGES ONLY

Superior Electric Connectors

FIVE-WAY BINDING POSTS



BP30 BP31 BP21 BP30GP

Design permits connection by (1) standard banana plug; (2) clip-lead to shaft; (3) wire looped around the shaft and clamped; (4) wire permanently clamped through center hole; (5) clamped spade lug connection. Binding posts can be mounted and securely locked in any panel from ⅛" to ¼" thick. Adapter spacers are available for mounting in thinner panels. Current carrying parts of hex nut, fluted nut, miniature and fused types are of gold plated brass. All metal grounding type binding post is made of finely-machined brass nickel-plated and polished. When ordering hex nut, fluted nut or miniature types, specify color by suffix: •**B**—black; **Y**—yellow; •**R**—red; **BL**—blue; **GN**—green; or •**WT**—white.

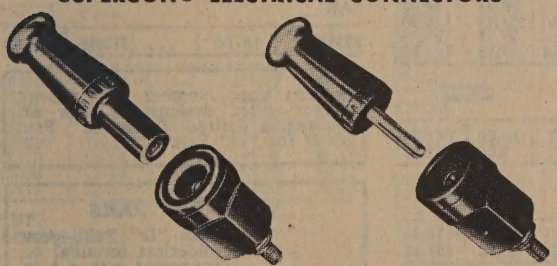
Superior Type BP30 Hex Nut—Rated 30 amps, 1000 V working. Durable, nylon plastic insulating parts meet MIL-M-20693A, Type IV. Net Each.....**$1.06**

Superior Type BP31 Fluted Nut—Insulating parts of Lexan polycarbonate resin have low loss and power factor; high voltage insulation and impact strength. Rated 30 amps, 1000 V working. Net Each.....**$1.06**

Superior Type BP21 Miniature—Smaller in size. Ideal for use on electrical and electronic apparatus where space is limited. Plastic parts meet MIL-M-20693A, Type IV. Rated 15 amps, 1000 V working. Available in fluted nut design only. Net Each.....**$1.06**

Superior Type BP30GP Grounding—Designed for making rapid connections to ground. Functional design complements other hex nut Superior 5-Way® Binding Posts. Complete with washer and twin 10-32 hex nut. All metal construction. Net Each.....**$1.06**

SUPERCON® ELECTRICAL CONNECTORS



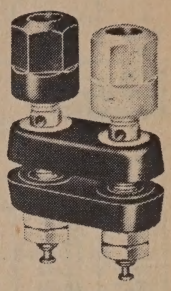
These socket and pin types of plugs and receptacles incorporate many new features. Wiring connections can be soldered or solderless. Two cable fastening screws permit accommodation of a wide range of cable sizes for many needs. Current carrying parts are of gold plated brass for stable electrical contact and resistance to corrosion. Molded plastic parts offer high dielectric strength, durability, color stability, self-locking action, resistance to heat and corrosion. Plug grips of two-piece threaded construction for quick assembly. Receptacles have color-matching caps and bodies for circuit identification in front and back of panel. Plug and receptacles available in red, white, blue, yellow, black or green (see footnote below). Available in 25, 50, 100 and 250 amp ratings.

SOCKET RECEPTACLES			SOCKET PLUGS		
Superior Type*	Rated Amps	Net Each	Superior Type*	Rated Amps	Net Each
RS25G	25	$ 6.85	PS25G	25	$ 6.85
RS50G	50	8.70	PS50G	50	8.70
RS100G	100	11.45	PS100G	100	11.45
RS250G	250	18.75	PS250G	250	18.75
PIN RECEPTACLES			**PIN PLUGS**		
Superior Type*	Rated Amps	Net Each	Superior Type*	Rated Amps	Net Each
RP25G	25	$ 6.85	PP25G	25	$ 6.85
RP50G	50	8.70	PP50G	50	8.70
RP100G	100	11.45	PP100G	100	11.45
RP250G	250	18.75	PP250G	250	18.75

*Add suffix to indicate color: •**B**, black; **Y**, yellow; •**R**, red; **BL**, blue; **GN**, green; **WT**, white (RS25G**B**, black; RP25G**GN**, green).

DOUBLE ASSEMBLY FIVE-WAY® BINDING POSTS

For use on instrument and equipment panels requiring binding posts that mount on ¾" centers. Rugged, self-contained assemblies; more accurate, faster and simpler usage than two individual binding posts. Fixed-panel-insulator of low-loss Lexan* plastic molded over brass cores frozen to shafts. Shoulders are raised for firm seating in mounting holes. Sliding panel mounting insulator of Lexan* plastic molded over brass cores; seats securely in mounting holes. All brass parts are gold plated. Rated for current carrying capacity of 30 amps, 1000 V working. Mount in any panel ⅛"–¼" thk. High impact strength from −100° F to +275° F; ductility rather than brittleness under impact. Available in color code combination of black and red.



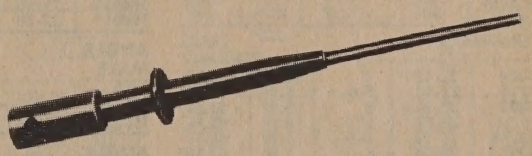
BP30-2BR

Superior Type BP30-2BR—Net Each.....**$3.15**

Superior Type BP-21-2BR (Miniature Fluted Nut)—Net Each.....**$3.00**

*Registered GE trademark.

5-WAY™ TEST PROBE



For test connections to printed circuit boards and other electronic components. Makes connections by plugging into matching terminal No. 207146-001-JB, by hooking onto component leads or IC package pins or by locking tip in extended position for touch contact. Also plugs into any terminal with 0.08" (2.03mm) dia. receptacle. Conductor tip is beryllium copper. Insulating parts are durable nylon plastic. When ordering, specify color by suffix: **B**-black; **R**-red; **W**-white; **BL**-blue; **GN**-green; or **Y**-yellow.

Superior Type P5 Test Probe—Net Each.....**$2.45**

Superior Type 207146-001-JB Receptacle—Net Each....**$0.12**

WE GUARANTEE FAST SERVICE FROM OUR COMPLETE AND UP-TO-DATE STOCKS. ASK ABOUT ANY NEW OR UNLISTED ITEMS ALSO AVAILABLE FOR IMMEDIATE DELIVERY.

●**AVAILABLE OFF-THE-SHELF FROM STOCK**

VACO® Solderless Connectors

10000 SERIES, SINGLE-GRIP, NON-INSULATED

The basic single-grip terminal is the most popular and economical connector. Tensile strength and vibration and corrosion resistance tests meet or exceed all standard requirements. Seams are butted.

* Vaco No.	Wire Size	Stud Size	C Pak Net per 100	C Pak Net per 1000
RING TONGUE TERMINALS				
11204	22-18	4	$5.99	$43.11
11205*	22-18	5-6	5.99	43.11
11206*	22-18	5-6	5.99	43.11
11208	22-18	8	5.99	43.11
11210	22-18	10	5.99	43.11
11214	22-18	1/4"	7.84	56.43
11238	22-18	3/8"	7.47	53.75
11304	16-14	4	5.99	43.11
11305*	16-14	5-6	5.99	43.11
11306*	16-14	5-6	5.99	43.11
11308	16-14	8	5.99	43.11
11310	16-14	10	5.99	43.11
11314	16-14	1/4"	7.47	53.75
11338	16-14	3/8"	7.84	56.43
11406	12-10	5-6	7.47	53.75
11408	12-10	8	7.47	53.75
11410*	12-10	10	7.47	53.75
11414*	12-10	1/4"	9.95	71.66
11438	12-10	3/8"	9.95	71.66
SPADE TONGUE TERMINALS				
13204	22-18	4	$5.99	$43.11
13206	22-18	5-6	5.99	43.11
13208	22-18	8	5.99	43.11
13210	22-18	10	5.99	43.11
13306*	16-14	4-6	5.99	43.11
13308	16-14	8	5.99	43.11
13310*	16-14	10	5.99	43.11
13406	12-10	4-6	7.47	53.75
13408	12-10	8	7.47	53.75
13410	12-10	10	7.47	53.75
SPADE TONGUE WITH FLANGE				
14206	22-18	4-6	$5.99	$43.11
HOOK TONGUE TERMINALS				
15408	12-10	8	$8.59	$61.81
15410	12-10	10	8.59	61.81
15206	22-18	4-6	6.89	49.58
15208*	22-18	8	6.89	49.58
15210	22-18	10	6.89	49.58
15306	16-14	4-6	6.89	49.58
15308	16-14	8	6.89	49.58
15310	16-14	10	6.89	49.58
FLAG TONGUE TERMINALS				
16210	22-18	8-10	$6.89	$49.58
16310	16-14	8-10	6.89	49.58
16410	12-10	8-10	8.59	61.81
BUTT CONNECTORS				
17202	22-18	....	$5.99	$43.11
17302	16-14	....	5.99	43.11
17402	12-10	....	8.49	61.14
PARALLEL CONNECTORS				
17203	22-14	....	$5.99	$43.11
17405	18-10	....	$8.59	$61.81
THREE-WAY CONNECTORS				
17303	16-14	....	$41.79	$300.90
17403	12-10	....	54.71	393.93
FOUR-WAY CONNECTORS				
17304	16-14	....	$54.71	$393.93
17404	12-10	....	62.98	453.48
MALE TAB				
18201	22-18	3/16	$5.99	$43.11
18202	22-18	3/16	6.29	45.27
18301*	18-14	1/4	6.29	45.27
18401	12-10	5/16	6.59	47.43
FEMALE TAB				
18203*	22-18	9/32	$6.29	$45.27
18204*	22-18	3/16	6.29	45.27
18302*	18-14	1/4	6.29	45.27
18403*	12-10	9/32	6.59	47.43
18206*	22-20	1/8	12.60	90.73
ANGLE MALE TAB				
18303*	18-14	1/4	$6.28	$45.27
ANGLE FEMALE TAB				
18304*	18-14	1/4	$6.28	$45.27
18305	16-14	7/16	13.20	95.05
18308*	18-16	3/8	34.65	249.49
18310*	14-12	5/16	22.98	165.47
18312*	16-14	5/16	10.81	77.80
18402*	12-10	1/4	10.81	77.80
18314*	18-16	5/16	17.12	123.30
18315*	12-10	5/16	27.19	195.73
18316*	18-16	29.64	27.19	195.73
SNAP TERMINALS				
19301*	16-14	5/32	$5.80	$41.74
19303*	16-14	3/16	5.80	41.74
SNAP CONNECTORS				
19302*	....	3/16	$18.00	$129.64
19304*	....	7/32	20.98	151.08

CONNECTOR ADAPTERS

* Vaco No.	Description	C Pak Net per 100	C Pak Net per 1000
18001	Snap to male tab	$10.45	$75.25
18002	Snap to female tab	10.45	75.25
18006‡	Screw term. to male tab	6.59	47.43
18010†	Screw term. to male tab	6.59	47.43
18007	Snap to female tab	10.80	77.80

‡Screw size, 4-6. †Screw size, 8-10.

SERIES 20000H HIGH TEMPERATURE, NON-INSULATED

Similar to the basic 10000 series with the addition of special nickel plating to increase temperature range to 650° F for use in heat-generating applications.

* Vaco No.	Wire Size	Stud Size	C Pak Net per 100	C Pak Net per 1000
RING TONGUE TERMINALS				
21205H*	22-18	5-6	$8.21	$59.13
21210H*	22-18	10	8.21	59.13
21305H*	16-14	5-6	8.21	59.13
21310H*	16-14	10	8.21	59.13
21410H*	12-10	10	10.95	78.83
SPADE TONGUE TERMINALS				
23210H*	22-18	10	$8.21	$59.13
23310H*	16-14	10	8.21	59.13
23410H*	12-10	10	10.95	78.83
BUTT CONNECTORS				
27202H*	22-18	...	$8.21	$59.13
27302H*	16-14	...	8.21	59.13
27402H*	12-10	...	14.30	102.97
QUICK CONNECTS MALE TAB				
28201H*	22-18	...	$8.21	$59.13
28301H*	18-14	...	8.21	59.13
FEMALE TAB				
28204H*	22-18	...	$8.21	$59.13
28302H*	18-14	...	8.21	59.13
ANGLE FEMALE TAB				
28304H*	18-14	...	$10.95	$78.83

*Prefix Vaco Number with appropriate letter designating type of packaging desired: **C** for "C" Pak or **D** for "D" Pak.

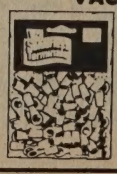
VACO "D" PAKS

Vaco "D" Paks—Any solderless terminal or connector with a * in this column is available in "D" Paks. Quantity in each Pak depends on the type and size selected. Each Pak is reusable, self-hanging plastic box with identification label. Use prefix **D** when ordering.
Net Each Pak . . $1.28

Vaco D2209 Assortment "D" Pak—Assortment of 26 non-insulated, single-grip terminals.
Net Each Pak . . $1.28

Vaco D2210 Assortment "D" Pak—Assortment of 13 insulated, single-grip terminals.
Net Each Pak . . $1.28

VACO "C" PAKS



The Vaco "C" Pak features 100 terminals in individual see-thru plastic bags. Use prefix **C** when ordering.

SOLD IN STANDARD PACKAGES ONLY

VACO® Solderless Connectors

SERIES 60000 BELLMOUTH INSULATED

* Vaco No.	Wire Size	Stud Size	C Pak Net per 100	C Pak Net per 1000
RING TONGUE TERMINALS				
61204	22-18	4	$10.73	$77.26
61205*	22-18	4	10.73	77.26
61206*	22-18	5-6	10.73	77.26
61208*	22-18	8	10.73	77.26
61210*	22-18	10	10.73	77.26
61214*	22-18	1/4"	13.23	95.23
61238*	22-18	3/8"	13.23	95.23
61304	16-14	4	10.73	77.26
61305	16-14	5-6	10.73	77.26
61306*	16-14	5-6	10.73	77.26
61308*	16-14	8	10.73	77.26
61310*	16-14	10	10.73	77.26
61314*	16-14	1/4"	13.23	95.23
61338*	16-14	3/8"	13.23	95.23
61406	12-10	4-6	13.23	95.23
61408*	12-10	8	13.23	95.23
61410*	12-10	10	13.23	95.23
61414*	12-10	1/4"	14.89	107.22
61438*	12-10	3/8"	14.89	107.22
SPADE TONGUE TERMINALS				
63204	22-18	4	$10.73	$77.26
63206*	22-18	5-6	10.73	77.26
63208*	22-18	8	10.73	77.26
63210*	22-18	10	10.73	77.26
63306*	16-14	4-6	10.73	77.26
63308*	16-14	8	10.73	77.26
63310*	16-14	10	10.73	77.26
63406	12-10	4-6	13.23	95.23
63408*	12-10	8	13.23	95.23
63410*	12-10	10	13.23	95.23
SPADE TONGUE WITH FLANGE				
64206*	22-18	4-6	$10.73	$77.26
HOOK TONGUE TERMINALS				
65206	22-18	4-6	$11.27	$81.13
65208*	22-18	8	11.27	81.13
65210	22-18	10	11.27	81.13
65306	16-14	4-6	11.27	81.13
65308*	16-14	8	11.27	81.13
65310	16-14	10	11.27	81.13
65408	12-10	8	13.23	95.23
65410	12-10	10	13.23	95.23
BUTT CONNECTORS				
67202*	22-18	...	$11.80	$84.99
67302*	16-14	...	11.80	84.99
67402*	12-10	...	14.30	102.97
PIGTAIL CONNECTOR				
67203*	22-14	...	$12.60	$90.70
67405*	18-10	...	20.61	148.42
QUICK CONNECTS MALE TAB				
68202*	22-18	...	$11.42	$82.21
68301*	18-14	...	11.42	82.21
68401*	12-10	...	12.56	90.43
FEMALE TAB				
68203*	22-18	...	$11.42	$82.21
68302*	18-14	...	11.42	82.21
68403*	12-10	...	12.56	90.43
FULLY INSULATED MALE TAB				
68303*	22-18	...	$20.98	$151.08
FULLY INSULATED FEMALE TAB				
68304*	18-14	...	$20.98	$151.08
SNAP TERMINALS				
69301*	16-14	...	$21.98	$158.27
69303*	16-14	...	21.98	158.27

SERIES 90000 DOUBLE GRIP TERMINALS

Deluxe double grip terminals allow a positive, firm grip on both the wire and the insulation. Recommended for applications where vibration resistance is critical. Color coded for wire size: red for 22-18, blue for 16-14, and yellow for 12-10.

* Vaco No.	Wire Size	Stud Size	C Pak Net per 100	C Pak Net per 1000
RING TONGUE TERMINALS				
91204	22-18	4	$21.98	$158.27
91205	22-18	5-6	21.98	158.27
91206	22-18	5-6	21.98	158.27
91208	22-18	8	21.98	158.27
91210	22-18	10	21.98	158.27
91214	22-18	1/4"	26.00	187.22
91238	22-18	3/8"	26.00	187.22
91304	16-14	4	21.98	158.27
91305	16-14	5-6	21.98	158.27
91306	16-14	5-6	21.98	158.27
91308	16-14	8	21.98	158.27
91310	16-14	10	21.98	158.27
91314	16-14	1/4"	26.00	187.22
91338	16-14	3/8"	26.00	187.22
91406	12-10	4-6	26.00	187.22
91408	12-10	8	26.00	187.22
91410	12-10	10	26.00	187.22
91414	12-10	1/4"	26.00	187.22
91438	12-10	3/8"	26.00	187.22
SPADE TONGUE TERMINALS				
93204	22-18	4	$21.98	$158.27
93206	22-18	5-6	21.98	158.27
93208	22-18	8	21.98	158.27
93210	22-18	10	21.98	158.27
93306	16-14	4-6	21.98	158.27
93308	16-14	8	21.98	158.27
93310	16-14	10	21.98	158.27
93406	12-10	4-6	26.00	187.22
93408	12-10	8	26.00	187.22
93410	12-10	10	26.00	187.22
94206†	22-18	4-6	21.98	158.27

†With flange.

* Vaco No.	Wire Size	Width Ins.	C Pak Net per 100	C Pak Net per 1000
HOOK TONGUE TERMINALS				
95210	22-18	10	$21.98	$158.27
95310	16-14	10	21.98	158.27
QUICK CONNECTS MALE TAB				
98301	18-14	...	$21.98	$158.27
FEMALE TAB				
98302	18-14	...	$21.98	$158.27
THREE-WAY CONNECTORS				
57303	16-14	...	$62.98	$453.48
57403	12-10	...	89.83	646.75

* Vaco No.	Wire Size	Stud Size	C Pak Net per 100	C Pak Net per 1000
FOUR-WAY CONNECTORS				
57304	16-14	...	$82.70	$595.45
57404	12-10	...	89.82	646.75
PARALLEL CONNECTOR				
57203*	22-14	...	$11.80	$ 84.99
IGNITION TERMINALS				
10102	Straight		$ 8.21	$ 59.13
10103	Right angle		13.20	95.05

SERIES 30000 BRAZED BARREL, NON-INSULATED

* Vaco No.	Wire Size	Stud Size	Net per 100	Net per 1000
RING TONGUE TERMINALS				
31510	8	10	$35.01	$252.09
31514	8	1/4"	36.68	264.10
31538	8	3/8"	36.68	264.10
31556	8	5/16"	36.68	264.10
31610	6	10	44.35	319.33
31614	6	1/4"	44.35	319.33
31638	6	3/8"	44.35	319.33
31656	6	5/16"	44.35	319.33

*Prefix Vaco Number with appropriate letter designating type of packaging desired: **C** for "C" Pak or **D** for "D" Pak.

VACO "D" PAKS

Vaco "D" Paks—Any solderless terminal or connector with a * in this column is available in "D" Paks. Quantity in each Pak depends on the type and size selected. Each Pak is a reusable, self-hanging plastic box with identification label. Use prefix **D** when ordering.
Net Each Pak . . $1.28

Vaco D2209 Assortment "D" Pak—Assortment of 26 non-insulated, single-grip terminals.
Net Each Pak . . $1.28

Vaco D2210 Assortment "D" Pak—Assortment of 13 insulated, single-grip terminals.
Net Each Pak . . $1.28

VACO "C" PAKS

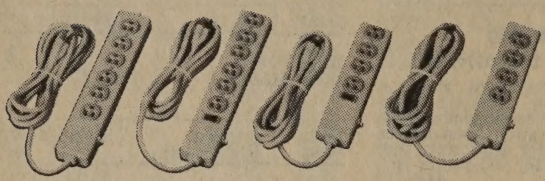
The Vaco "C" Pak features 100 terminals in individual see-thru plastic bags. Use prefix **C** when ordering.

SGL WABER®

UL Listed Multiple Outlet Strips

These multiple outlet strips have passed the rigid testing of Underwriters Laboratories and bear the UL label. Many models also have CSA certification. All models are designed to exceed NEC requirements and meet OSHA standards. All units are rated 15 amperes, 125 VAC, 60 Hz, 1875 watts, continuous duty and have "U" ground outlets, circuit breaker protection, 14/3 SJT power supply cords, and grounded steel cases. CSA certified units are indicated by an asterisk following the model number.

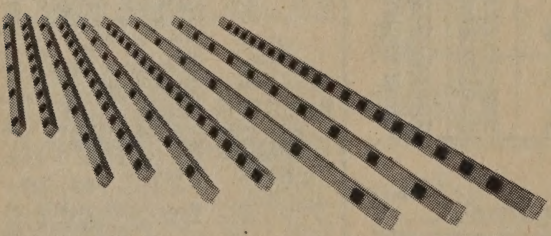
THE PREMIER GROUP



New designs feature a slim, contoured shape and color-coordinated case and components. Model ULA4E has 4 outlets; Model ULA4TME has 4 outlets and illuminated master switch; Model ULA6E has 6 outlets; Model ULA6TME has 6 outlets and illuminated master switch. All have circuit breaker protection. **Case Color:** Beige. Model ULA4 Series—**Overall Size:** 9 1/4" lg. × 2 3/8" w. × 1" h. **Mounting:** Type III on 8 1/4" centers. Model ULA6 Series—**Overall Size:** 12" lg. × 2 3/8" w. × 1" h. **Mounting:** Type III on 10 15/16" centers.

SGL Waber Model	No. of Outlets	Cord Length, Feet	Shpg. Wt., Lbs.	Net Each 1-9
ULA4E-6	4	6	2	$18.60
ULA4E-15	4	15	2 1/2	21.80
ULA4TME-6	4	6	2	21.90
ULA4TME-15	4	15	2 1/2	25.15
ULA6E-6	6	6	2 1/2	23.25
ULA6E-15	6	15	3	26.50
ULA6TME-6	6	6	2 1/2	26.55
ULA6TME-15	6	15	3	29.80

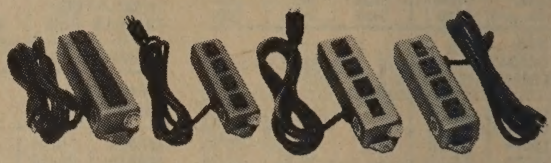
THE PERMANENT-INSTALLATION GROUP



Designed to be wired into a fixed installation by means of the furnished wire nuts. They do not have a power supply cord nor a circuit breaker. The base is screwed down in the desired location, and the cover is fastened to the base with self-tapping screws. Knockouts for 1/2" fittings are provided on both ends of cover. **Overall Size:** 1 1/2" w. × 1 3/8" h. × length as in table below. **Case Color:** Blue.

SGL Waber Model	Outlet Centers, Inches	No. of Outlets	Length, Feet	Shpg. Wt., Lbs.	Net Each 1-9
4305	7	5	3	3	$22.90
4309	3 1/2	9	3	3	25.40
4407	7	7	4	4	26.55
4413	3 1/2	13	4	4	34.15
4508	7	8	5	5	28.55
4515	3 1/2	15	5	5	39.00
4607	10 1/2	7	6	6	27.65
4610	7	10	6	6	32.05
4619	3 1/2	19	6	6	46.00

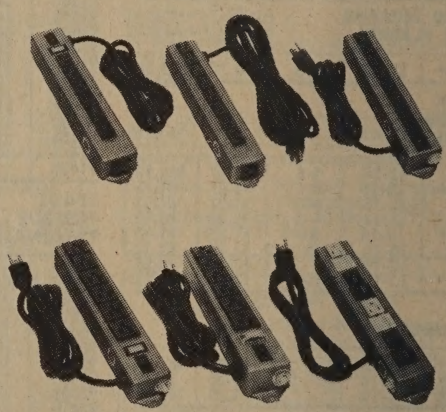
THE COMPACT GROUP



Model UL602CB has 5 outlets; Model UL603CB has 4 outlets; Model UL605CB has 3 outlets, on-off switch, and pilot light; Model UL608CB has 4 outlets (3 top outlets and 1 end outlet), a switch, and pilot light. All have circuit breaker protection. **Overall Size:** 8 5/8" lg. × 2 3/8" w. × 1 1/2" h. **Case Color:** Blue. **Mounting:** Type II on 5 13/16" centers.

SGL Waber Model	No. of Outlets	Cord Length, Feet	Shpg. Wt., Lbs.	Net Each 1-9
UL602CB-6*	5	6	2	$19.50
UL602CB-15*	5	15	2 1/2	22.75
UL603CB-6*	4	6	2	17.90
UL603CB-15*	4	15	2 1/2	21.15
UL605CB-6*	3	6	2	20.40
UL605CB-15*	3	15	2 1/2	23.65
UL608CB-6*	4	6	2	21.40
UL608CB-15*	4	15	2 1/2	24.65

THE MID-LENGTH GROUP



Models UL15CB and UL17CB are designed for "series stringing" with a convenient outlet on one end. Model UL15CB is the control unit with on-off switch, pilot light, and 7 outlets; Model UL17CB is the slave unit with 9 outlets. Model UL18CB has 9 outlets on one plane; Model UL24CB has 6 outlets, on-off switch, and pilot light. Model UL24MCB has the same features as Model UL24CB, except that it has a 0-150 VAC voltmeter instead of a pilot light. Model UL32PCB has 4 color coded, individually switched outlet sets with built-in pilot lights. All units have circuit breaker protection. **Overall Size:** 13 1/8" lg. × 2 3/8" w. × 1 1/2" h. **Case Color:** Blue. **Mounting:** Type II on 10 3/8" centers.

SGL Waber Model	No. of Outlets	Cord Length, Feet	Shpg. Wt., Lbs.	Net Each 1-9
UL15CB-6*	7	6	2 1/2	$27.00
UL15CB-15*	7	15	3	30.25
UL17CB-6	9	6	2 1/2	25.40
UL17CB-15	9	15	3	28.65
UL18CB-6	9	6	2 1/2	26.55
UL18CB-15	9	15	3	29.80
UL24CB-6*	6	6	2 1/2	26.55
UL24CB-15*	6	15	3	29.80
UL24MCB-6*	6	6	2 1/2	35.80
UL24MCB-15*	6	15	3	39.05
UL32PCB-6*	4	6	2 1/2	34.90
UL32PCB-15*	4	15	3	38.15

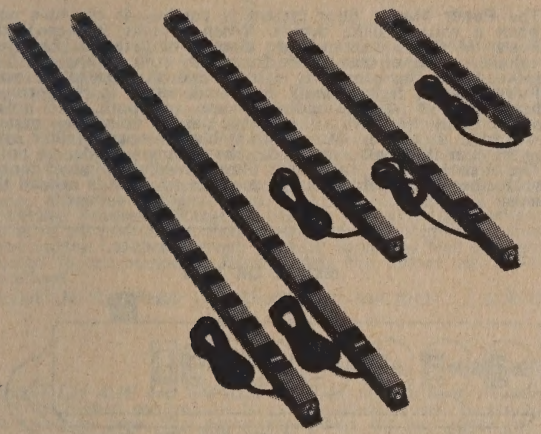
PRICES LISTED ARE FOR GUIDANCE ONLY

SGL WABER®

UL Listed Multiple Outlet Strips

These multiple outlet strips have passed the rigid testing of Underwriters Laboratories and bear the UL label. Many models also have CSA certification. All models are designed to exceed NEC requirements and meet OSHA standards. All units are rated 15 amperes, 125 VAC, 60 Hz, 1875 watts, continuous duty and have "U" ground outlets, circuit breaker protection, 14/3 SJT power supply cords, and grounded steel cases.

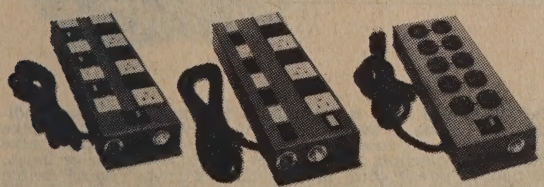
THE TRIM-LINE GROUP



All units are equipped with a master switch, pilot light, and circuit breaker. **Case Color:** Blue. Model UL7208 has 8 outlets and measures 25 1/16" lg. × 2" w. × 1" h. Mounting is Type III on 22 15/16" centers. Model UL7408 has 8 outlets and measures 49 1/16" lg. × 1 1/2" w. × 1 3/8" h. Mounting is Type III on 46 15/16" centers. Model UL7415 has 15 outlets and measures 49 1/16" lg. × 1 1/2" w. × 1 3/8" h. Mounting is Type III on 46 15/16" centers. Model UL7610 has 10 outlets and measures 73 1/16" lg. × 1 1/2" w. × 1 3/8" h. Mounting is Type III on 70 15/16" centers. Model 7619 has 19 outlets and measures 73 1/16" lg. × 1 1/2" w. × 1 3/8" h. Mounting is Type III on 70 15/16" centers.

SGL Waber Model	Length, Feet	No. of Outlets	Cord Length, Feet	Shpg. Wt., Lbs.	Net Each 1-9
UL7208-6	2	8	6	3 1/2	$36.05
UL7208-15	2	8	15	4 1/4	39.30
UL7408-6*	4	8	6	4 1/2	41.50
UL7408-15*	4	8	15	5 1/4	44.75
UL7415-6	4	15	6	4 3/4	47.80
UL7415-15	4	15	15	5 1/2	51.05
UL7610-6	6	10	6	6 3/4	48.75
UL7610-15	6	10	15	7 1/2	52.00
UL7619-6	6	19	6	7	56.80
UL7619-15	6	19	15	7 3/4	60.05

THE DELUXE GROUP

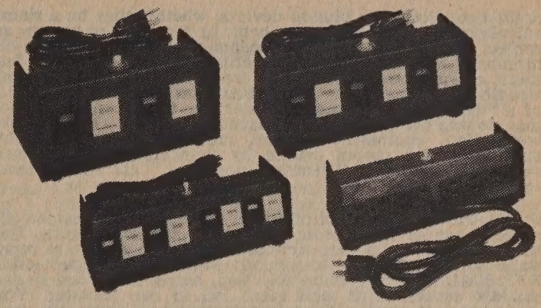


Model UL25CB has 7 alternating black and white, individually switched outlet sets, a master pilot light, and on-off switch. Model UL25PCB has 7 alternating black and white, individually switched and illuminated outlet sets with a master switch and pilot light. Model UL800CB has 10 outlets and master on-off switch with built-in pilot light. All units have circuit breaker protection. **Overall Size:** 13 7/16" lg. × 4 1/4" w. × 1 1/2" h. **Mounting:** Type II on 10 11/16" × 2 3/4" centers. **Case Color:** Blue.

SGL Waber Model	No. of Outlets	Cord Length, Feet	Shpg. Wt., Lbs.	Net Each 1-9
UL25CB-6*	7	6	3	$48.40
UL25CB-15*	7	15	4	51.65
UL25PCB-6*	7	6	3	57.00
UL25PCB-15*	7	15	4	60.25
UL800CB-6	10	6	3	36.05
UL800CB-15	10	15	4	39.30

*Units have CSA certification.

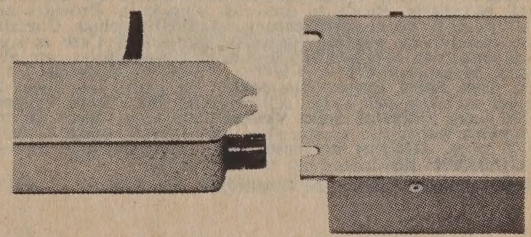
THE CONSOLE GROUP



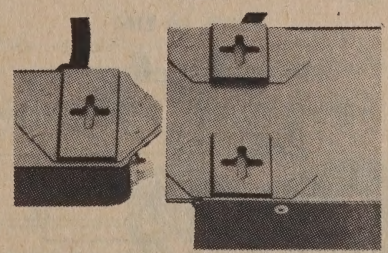
Outlets are located in the back of these desk or bench consoles. Units have wood grain vinyl adhered to steel cases. Base color is black. Switches are located on the front panel and are illuminated. All units have circuit breaker protection. **Mounting:** Four rubber feet. Model UL95CB has 4 outlets and measures 7 1/2" lg. × 2 3/4" w. × 2 3/4" h. Model UL96CB has 6 outlets and measures 9 1/4" lg. × 2 3/4" w. × 2 3/4" h. Model UL97CB has 8 outlets and measures 11" lg. × 2 3/4" w. × 2 3/4" h.

SGL Waber Model	No. of Outlets	Cord Length, Feet	Shpg. Wt., Lbs.	Net Each 1-9
UL95CB-6	4	6	4	$35.90
UL95CB-15	4	15	5	39.15
UL96CB-6	6	6	4	45.65
UL96CB-15	6	15	5	48.90
UL97CB-6	8	6	4	55.00
UL97CB-15	8	15	5	58.25

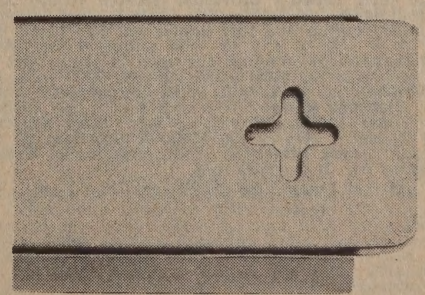
MOUNTING STYLES



Type I



Type II



Type III

U.S. Patent Nos. 4,072,401 and 4,113,334

SGL WABER® Power Line Conditioners

POWER MASTER™ LINE MONITOR POWER CONDITIONERS

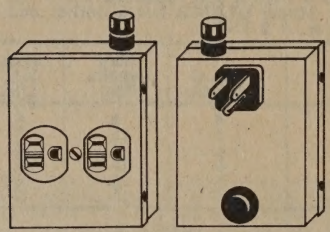
Solid-state electronic plug-in devices, whether they be a simple calculator, an expensive instrument, or a computer system, are subject to very hostile environments caused by electrical disturbances coming through the utility power lines that feed them, or generated by electrical equipment within a building. Usually, the solution to this problem has been the installation of a "dedicated" or separate power line to the wall receptacle that powers the sensitive equipment. Even with this expensive installation, equipment damage, memory failure, erroneous data input and output caused by thunderstorms, equipment switching, and other "electrical pollution," are still common occurrences.

Power Master Line Monitor Power Conditioners eliminate the requirement of a separate, dedicated, branch circuit. They have the latest solid-state technology. Most models have multi-stage filter networks, continuous voltage spike protection, RFI, EMI, and EMP noise rejection, anti-ground loop design, shielded power cords, and more, all in one package. Your equipment can work without interruption even when the power conditioner is dissipating a high voltage spike. Also, all models have an easily replaceable 15 amp fuse in the rare case of a voltage spike that exceeds the design limits of the power conditioner.

Power Master Line Monitor Power Conditioners protect against spike damage by filtering both the hot line and the neutral line. In addition, the filter is bidirectional—it dissipates both incoming spikes and outgoing spikes created by your equipment.

The **Power Master** filter system is passive—it operates only when a voltage spike occurs. When a spike is sensed, the **Power Master** instantaneously clamps or reduces the over-voltage to a level that is safe for use by your equipment. The spike, depending upon its voltage and the design of your **Power Master**, is harmlessly dissipated, either in the form of heat, through the grounding system, or both. All noise-protected models have a three-stage passive noise filter system —a high frequency filter and a low frequency filter that operate in the transverse mode, the common mode, or both. The high and low frequency filters overlap to give double protection in the mid-range frequencies where it is needed the most.

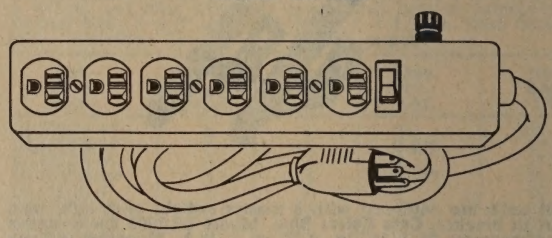
MODEL LM 1100



Model LM 1100 is a wall plug-in unit designed for use at the wall receptacle. Ready to use—just plug it in. Provides one "U" ground duplex outlet accommodating two plugs. Contains one metal-oxide varistor for spike protection. Case is steel with baked-on black finish; fuse holder and outlets, are also black. Measures 4 1/8" × 3 1/4" × 1 5/16". Weighs just 1 1/2 lbs. **Max. Spike Energy Dissipation:** 50 joules one time, 25 joules with repeated usage, self-restoring. **Max. Spike Voltage:** 6000 volts. **Clamping Spike Voltage:** 325 volts. **Surge Current Clamping Ratio:** No greater than 2.03:1. **Max. Spike Current:** 2000 amps. **Clamping Response Time:** 10 nanoseconds or less. **Environment:** For indoor use in dry location.

Model LM 1100 Power Line Conditioner—Net Each **$43.55**

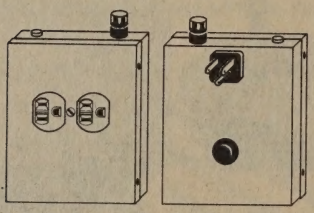
MODEL LM 1200



The Model LM 1200 is a strip type power line conditioner with 3 "U" ground duplex outlets accomodating 6 plugs. Contains 3 metal-oxide varistors for isolated spike protection. Case is steel with baked-on beige finish; outlets, power cord, and illuminated master switch are also beige, while fuse holder is black. Measures 11 15/16" × 2 5/16" × 1" and weighs just 2 lbs. Mounts by means of keyhole slots on 10 15/16" centers. Power cord is 14/3 SJT 9 feet long. **Max. Spike Energy Dissipation:** 50 joules one time, 25 joules with repeated usage, self-restoring. **Max. Spike Voltage:** 6000 volts. **Clamping Spike Voltage:** 325 volts. **Surge Current Clamping Ratio:** No greater than 2.03:1. **Max. Spike Current:** 2000 amps. **Clamping Response Time:** 10 nanoseconds or less. **Environment:** For indoor use in dry locations.

Model LM 1200 Power Line Conditioner—Net Each **$65.35**

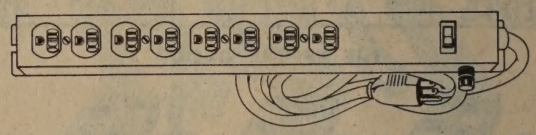
MODEL LM 2100



The Model LM 2100 is a wall plug-in unit designed for use at the wall receptacle. Ready to use—just plug it in. Provides one "U" ground duplex outlet for two plugs. Unit contains six-stage filter network providing isolated voltage spike and noise protection for each outlet. Case is steel with baked-on black finish; outlets and fuse holder are also black. Measures 5 1/2" × 4 1/2" × 1 5/16" and weighs 4 lbs. **Max. Spike Energy Dissipation:** 50 joules one time. 25 joules with repeated usage, self-restoring. **Max. Spike Voltage:** 7000 volts. **Clamping Spike Voltage:** 225 volts. **Max. Spike Current:** 2000 amps. **Surge Current Clamping Ratio:** No greater than 1.5:1. **Clamping Response Time:** 10 nanoseconds or less. **Noise Rejection Frequency Range:** 1 kHz to 100 MHz. **Attenuation:** 20 to 40 dB (volt ratio). **Noise Protection:** Transverse mode. **Environment:** For indoor use in dry locations.

Model LM 2100 Power Line Conditioner—Net Each.....**$90.80**

MODEL LM 2200



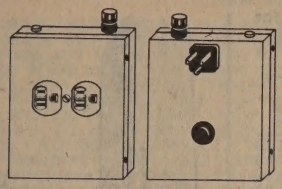
The Model LM 2200 is an outlet strip type power line conditioner providing 8 outlets, each of which has isolated spike protection. A six-stage filter network provides voltage spike and noise protection. Case is steel with baked-on beige finish; the outlets, power cord, and illuminated master on-off switch are also beige and the fuse holder is black. Unit measures 20" × 2" × 1" and weighs 6 lbs. Power cord is 14/3 SJT 9 feet long. Mounts by means of end slots on 19 3/4" centers. **Max. Spike Energy Dissipation:** 50 joules one time, 25 joules with repeated usage, self-restoring. **Max. Spike Voltage:** 7000 volts. **Clamping Spike Voltage:** 225 volts. **Max. Spike Current:** 2000 amps. **Surge Current Clamping Ratio:** No greater than 1.5:1. **Clamping Response Time:** 10 nanoseconds or less. **Noise Rejection Frequency Range:** 1 kHz to 100 MHz. **Attenuation:** 20 to 40 dB (volt ratio). **Noise Protection:** Transverse mode. **Environment:** For indoor use in dry locations.

Model LM 2200 Power Line Conditioner—Net Each **$136.25**

PRICES LISTED ARE FOR GUIDANCE ONLY

SGL WABER® Power Line Conditioners

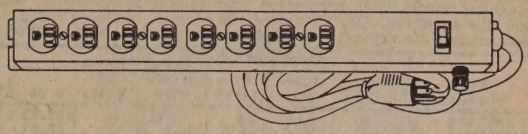
MODEL LM 3100



The Model LM 3100 is a wall plug-in unit designed for use at wall receptacle. Provides two hospital-grade outlets with isolated spike protection. A six-stage filter network provides voltage spike and noise protection. Case is steel with baked-on beige finish; outlts are also beige—fuse holder is black. Unit measures 5 1/2" × 4 1/2" × 1 5/16" and weighs 5 lbs. **Max. Spike Energy Dissipation:** 50 joules one time, 25 joules with repeated usage, self-restoring. **Max. Spike Voltage:** 7000 volts. **Clamping Spike Voltage:** 225 volts. **Surge Current Clamping Ratio:** No greater than 1.5:1. **Max. Spike Current:** 2000 amps. **Clamping Response Time:** 10 nanoseconds or less. **Noise Rejection Frequency Range:** 1 kHz to 100 MHz. **Attenuation:** 20 to 40 dB (volt ratio). **Noise Protection:** Transverse and common modes. **Leakage Current:** Leakage to ground lead does not exceed 10 microamperes. **Environment:** For indoor use in dry locations.

Model LM 3100 Power Line Conditioner—Net Each **$136.25**

MODEL LM 3200



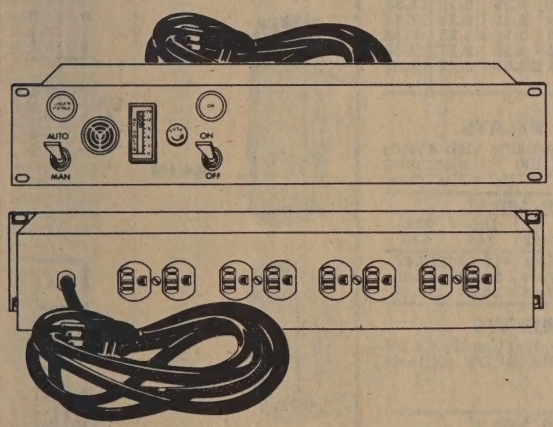
Model LM 3200 is a strip type power line conditioner providing 8 outlets. A six-stage filter network provides voltage spike and noise protection. Each outlet has isolated grounding and isolated spike protection. Case is steel with baked-on beige finish; the hospital-grade outlets are ivory, shielded power cord is black, master on-off switch has black housing and amber illumination, fuse holder is black. Unit measures 20" × 2" × 1" and weighs 7 lbs. **Max. Spike Energy Dissipation:** 50 joules one time, 25 joules with repeated usage, self-restoring. **Max. Spike Voltage:** 7000 volts. **Clamping Spike Voltage:** 225 volts. **Max. Spike Current:** 2000 amps. **Surge Current Clamping Ratio:** No greater than 1.5:1. **Clamping Response Time:** 10 nanoseconds or less. **Noise Rejection Frequency Range:** 1 kHz to 100 MHz. **Attenuation:** 20 to 40 dB (volt ratio). **Shielded Power Cord Attenuation:** Up to 60 dB. **Noise Protection:** Transverse and common modes. **Leakage Current:** Leakage to ground lead does not exceed 10 microamperes. **Environment:** For indoor use in dry locations.

Model LM 3200 Power Line Conditioner—Net Each **$227.20**

LM 4000 SERIES

Models LM 4100 and LM 4200 offer the best spike protection with the highest overvoltage handling capability and the quickest response time. The series also offers the best noise suppression in both the common and transverse modes. Both models have RFI-shielded power cords and isolated, hospital-grade, double-wipe, grounding outlets for additional protection against noise. Included in both models is an AC voltmeter with color-coded scale to visually indicate that an undervoltage condition exists. An undervoltage sensing and warning system is also included. When the incoming line voltage drops to 105 volts or less, the warning system, consisting of a red light and a buzzer, will activate. If the low voltage is still within the operating range of the equipment, the operator can then choose to shut off the buzzer by means of a cutoff switch. The red pilot light, however, remains on, acting as a constant reminder until the line undervoltage is corrected.

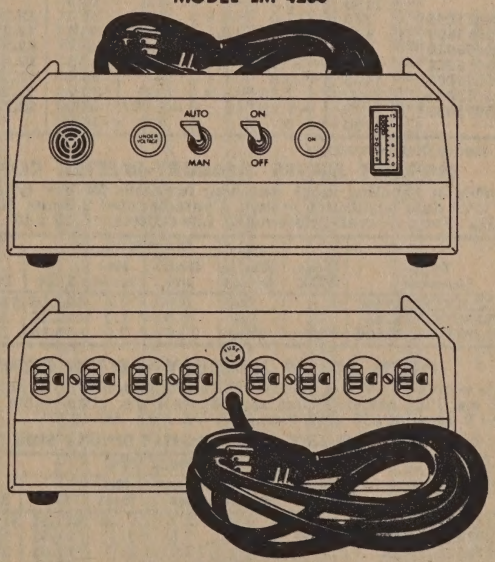
MODEL LM 4100



The Model LM 4100 is designed for rack or panel mounting with end slots on 18 1/4" × 3" centers. Eight hospital-grade, "U" ground outlets are provided on the back of the unit. The front of the unit contains the master on-off switch, voltmeter, auto-manual switch, warning buzzer, and warning light. Case is steel with baked-on black enamel finish; front cover is spun aluminum, outlets are ivory, power cord is black, switches are black, on indicator light is green, and undervoltage indicator light is red. A seven-stage filter network provides voltage spike and noise protection with each outlet having isolated spike protection. Front plate measures 19" long × 3 15/32" wide; the back cover measures 17" long × 3 11/32" wide × 2 3/8" deep. Unit weighs 15 lbs. **Max. Spike Energy Dissipation:** 300 joules one time, 150 joules with repeated usage, self-restoring. **Max. Spike Voltage:** 10,000 volts. **Clamping Spike Voltage:** ±20 volts as it appears on the sine wave; 190 volts, max. **Max. Spike Current:** 6000 amps. **Surge Current Clamping Ratio:** No greater than 1.63:1. **Clamping Response Time:** 5 nanoseconds or less. **Noise Rejection Frequency Range:** 1 kHz to 100 MHz. **Attenuation:** 40 to 60 dB (volt ratio). **Shielded Power Cord Attenuation:** Up to 60 dB. **Noise Protection:** Transverse and common modes. **Leakage Current:** Leakage to ground lead does not exceed 10 microamperes. **Environment:** For indoor use in dry locations.

Model LM 4100 Power Line Conditioner—Net Each **$654.45**

MODEL LM 4200



The Model 4200 is a console type unit with sloping front and back panels; the front panel contains on-off switch, auto-manual switch, voltmeter, "on" indicator light, undervoltage indicator light, and warning buzzer. The back panel contains 8 outlets and a fuse holder. The eight outlets are hospital-grade, "U" ground type. Each has isolated spike protection. Case is steel with woodgrain vinyl finish; outlets are ivory, power cord is black, switches are black, "on" indicator light is green, warning indicator light is red. A seven-stage filter network provides voltage spike and noise protection. Unit measures 13 1/2" long × 4 1/8" wide × 4 7/8" high and weighs 15 lbs. **Max. Spike Energy Dissipation:** 300 joules one time, 150 joules with repeated usage, self-restoring. **Max. Spike Voltage:** 10,000 volts. **Clamping Spike Voltage:** ±20 volts as it appears on the sine wave; 190 volts, max. **Max. Spike Current:** 10,000 amps. **Surge Current Clamping Ratio:** No greater than 1.63:1. **Clamping Response Time:** 5 nanoseconds or less. **Noise Rejection Frequency Range:** 1 kHz to 100 MHz. **Attenuation:** 40 to 60 dB (volt ratio). **Shielded Power Cord Attenuation:** Up to 60 dB. **Mode Noise Protection:** Transverse and common. **Leakage Current:** Leakage to ground lead does not exceed 10 microamperes. **Environment:** For indoor use in dry locations.

Model LM 4200 Power Line Conditioner—Net Each **$681.75**

CLARE MODULAR MERCURY-WETTED CONTACT RELAYS

HGM SERIES MODULAR MERCURY-WETTED RELAYS

Consist of standard HG switch capsules in module form, with plated steel covers for excellent mechanical protection and magnetic shielding. Standard HG switch is not polarity sensitive. SPDT make-before-break contacts rated 5 amps, 500 volts, 250 VA maximum. Life expectancy, 22 x 10^9 at specified ratings. Size, ¾" x ¾" x 3 13/64".

Type Number	Coil Resis., Ohms	Must mADC Operate	Must mADC Release	Must Oper. VDC	Max. DC Volts	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
HGM1008	150	53	23	8.75	24	$39.93	$35.57	$30.49	$26.86	$23.96
HGM1002	450	32.9	14.5	16.3	42	39.93	35.57	30.49	26.86	23.96
HGM1001	750	18.6	8.2	21.0	55	39.93	35.57	30.49	26.86	23.96
HGM1012	1100	21.6	9.5	27.1	66	39.93	35.57	30.49	26.86	23.96

HG2M SERIES DPDT MODULAR RELAYS

Same characteristics as HGM series, but contains two capsules for DPDT make-before-break configuration. Contacts rated 5 amps, 500 volts, 250 VA maximum with life expectancy of 22 x 10^9. Size, ¾" x 1 3/32" x 3 13/64" max.

HG2M1007	90	82.2	28.6	8.2	19	$66.33	$59.09	$50.65	$44.62	$39.80
HG2M1008	350	42.0	14.6	16.2	37	66.33	59.09	50.65	44.62	39.80

HGSM SERIES PRINTED CIRCUIT MODULE RELAYS

Mercury-wetted relays for printed circuit board mounting. **HGSM-1000** series have SPDT make-before-break contacts; **HGSM-5000**, break-before-make. Contacts rated 2 amps, 500 volts, 100 VA max. at rated load. Max. dissipation, 2 watts continuous at 25° C. Temperature rise, 30° C per watt at 25° C ambient. Life expectancy, 22 x 10^9. Single side stable, except as indicated. Size, 5/8" x 5/8" x 2 1/16" max.

Type Number	Coil Resis., Ohms	Must mADC Operate	Must mADC Release	Must Oper. VDC	Max. VDC	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
HGSM1008	115	30.0	5.0	3.8	15.1	$12.24	$10.90	$9.35	$8.23	$7.34
HGSM1009	275	17.0	2.8	5.2	23.4	12.24	10.90	9.35	8.23	7.34
HGSM1010	450	12.9	2.1	6.4	30.0	12.24	10.90	9.35	8.23	7.34
HGSM1011	675	11.6	1.9	8.6	36.7	12.24	10.90	9.35	8.23	7.34
HGSM1002	940	10.1	1.7	10.5	43.3	12.24	10.90	9.35	8.23	7.34
HGSM1001	1425	8.3	1.4	13	53.4	12.24	10.90	9.35	8.23	7.34
HGSM1003	2400	7.35	1.2	20.6	69.2	12.24	10.90	9.35	8.23	7.34
HGSM1005	65	.....	.....	2.7	11.4	12.24	10.90	9.35	8.23	7.34
HGSM1007	90	.....	.....	3.8	13.4	12.24	10.90	9.35	8.23	7.34
HGSM1063	460/ 460	....	....	±3.9/ ±3.9	30.3	13.75	12.25	10.50	9.25	8.25
HGSM1016*	1100/ 1100	±7.25/ 5.7	.....	±8.77/ 6.9	46.9/ 46.9	13.75	12.25	10.50	9.25	8.25
HGSM5035	275	17.0	2.8	5.2	23.4	12.24	10.90	9.35	8.23	7.34
HGSM5009	450	12.9	2.1	6.4	30.0	12.24	10.90	9.35	8.23	7.34
HGSM5010	675	11.6	1.9	8.6	36.7	12.24	10.90	9.35	8.23	7.34
HGSM5011	940	10.1	1.7	10.5	43.3	12.24	10.90	9.35	8.23	7.34
HGSM5001	1425	8.3	1.4	13	53.4	12.24	10.90	9.35	8.23	7.34
HGSM5064	2400	7.35	1.2	20.6	69.2	12.24	10.90	9.35	8.23	7.34
HGSM5003*	1100/ 1100	±7.25/ 5.7	.....	±8.77/ 6.9	46.9/ 46.9	13.74	12.25	10.50	9.25	8.25

*Bi-stable double wound.

HGS2MT SERIES MERCURY-WETTED CONTACT RELAYS

Capable of handling input switching functions for any type of reasonable high speed, low level data acquisition system. Contacts rated 2 amps, 500 volts, 100 VA maximum DPDT, Form C break-before-make. Life expectancy, 22 x 10^9. Size, ¾" x 1 3/32" x 2 1/16" max.

Type Number	Nom. VDC	Coil Resis., Ohms	Must VDC Operate	Must VDC Release	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
HGS2MT51111F00	6	130	3.0	0.5	$23.10	$20.58	$17.64	$15.54	$13.86
HGS2MT51111J00	12	520	6.0	1.0	23.10	20.58	17.64	15.54	13.86
HGS2MT51111M00	24	2200	12.0	2.0	23.10	20.58	17.64	15.54	13.86

HGJM SERIES MERCURY-WETTED CONTACT RELAYS

Noise is only 15 μV at 4 ms after coil energization with 10 kHz bandwidth; less than 5 μV at 5 ms. Fast response time approaches 1 ms; ultra-stable to 250 Hz. SPDT contacts rated 2 amps at 500 volts max.; 100 VA max. AC or DC.

0.350" LOW PROFILE SINGLE SIDE STABLE

Type Number	Nom. VDC	Coil Resis. Ohms	Must VDC Operate	Must VDC Release	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
HGJM51131J00	5.0	68	2.7	.58	$13.61	$12.31	$10.40	$9.16	$8.17
HGJM51131N00	12.0	375	6.5	1.4	13.61	12.31	10.40	9.16	8.17
HGJM51131R00	24.0	1425	13.0	2.7	13.61	12.31	10.40	9.16	8.17
HGJM51131V00	48.0	6100	25.0	5.4	13.61	12.31	10.40	9.16	8.17

0.400" HIGH SENSITIVITY SINGLE SIDE STABLE

HGJM51111K00	5.0	125	2.9	.61	$12.24	$10.90	$9.35	$8.23	$7.34
HGJM51111P00	12.0	685	7.1	1.5	12.24	10.90	9.35	8.23	7.34
HGJM51111T00	24.0	2650	14.0	3.0	12.24	10.90	9.35	8.23	7.34
HGJM51111W00	48.0	9850	29.0	6.0	12.24	10.90	9.35	8.23	7.34

HGJ2MT SERIES MERCURY-WETTED CONTACT RELAYS

Same as HGJM Series except two capsules for DPDT configurations.

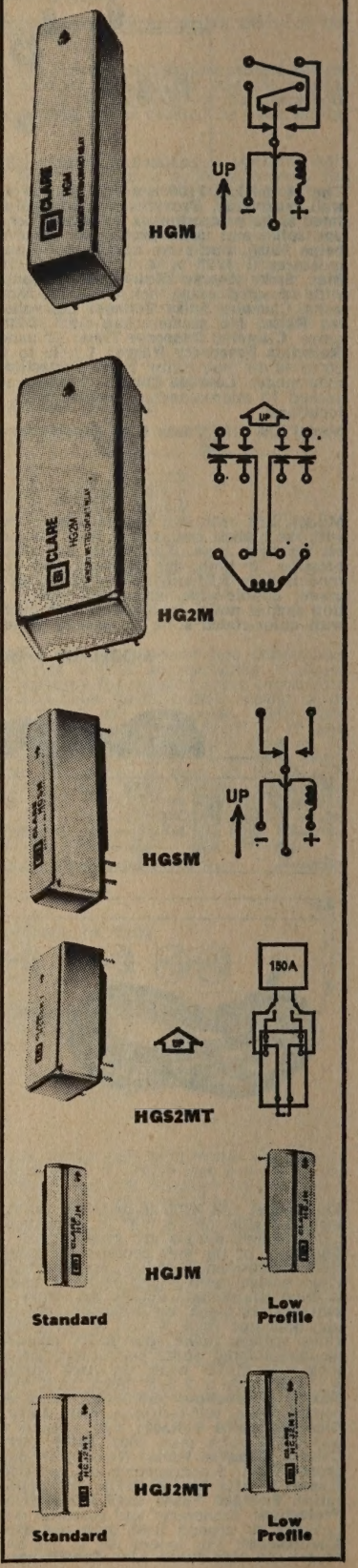
0.350" LOW PROFILE SINGLE SIDE STABLE

HGJ2MT51231E00	5.0	27	2.6	.54	$24.75	$22.05	$18.90	$16.65	$14.85
HGJ2MT51231K00	12.0	230	6.7	1.4	24.75	22.05	18.90	16.65	14.85
HGJ2MT51231N00	24.0	750	12.0	2.4	24.75	22.05	18.90	16.65	14.85
HGJ2MT51231R00	48.0	2850	23.0	4.8	27.80	24.77	21.24	18.71	16.68

0.400" HIGH SENSITIVITY SINGLE SIDE STABLE*

HGJ2MT54211G00	5.0	55	2.6	.55	$27.80	$24.77	$21.24	$18.71	$16.68
HGJ2MT54211L00	12.0	370	6.7	1.4	27.80	24.77	21.24	18.71	16.68
HGJ2MT54211P00	24.0	1370	13.0	2.7	27.80	24.77	21.24	18.71	16.68

*With common open time.



PRICES LISTED ARE FOR GUIDANCE ONLY

MRB SERIES METAL-COVERED REED RELAYS

The MRB/922 series relays offer versatile signal level to 10 VA switching capabilities, total input/output isolation, 800 μsec or less switching speeds and UL recognition in the miniature sized relay family. The MRB relays have yellow card recognition to UL bulletins 114 (Office Appliance and Business Equipment) and 478 (Electronic Data Processing Units and Systems) and are listed under File E43775. The UL listed relays are available in all but Form C versions. UL models are rated for 0.75 ampere loads at 24 VDC or 115 VAC (6000 operations). The MRB relays with coil power requirements as low as 10 milliwatts, thus making them excel in many applications. The ultra-reliable operation will provide 100 x 10^6 operations at signal level loads or 10 x 10^6 operations at the rated load. These relays are available in the standard 1.00″ x 0.100″ grid models and 1.00″ x 0.150″ grid models. They have molded epoxy bases with stamped metal covers. The low profile package will mount on 0.5″ PCB centers.

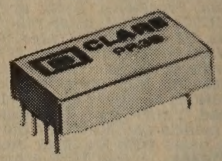
Type Number	Contact Form	Nom. VDC	Must VDC Operate	Must VDC Release	Coil Resis., Ohms	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499	500-999	1000-Up
1.000″ x 0.100″ GRID PATTERN												
MRB1A05	1A	5	225	3.75	.15	$ 3.60	$ 3.18	$ 2.73	$ 2.40	$ 2.14	$ 1.82	$ 1.62
MRB1A06	1A	6	340	4.5	.15	4.00	3.56	3.05	2.69	2.40	2.04	1.82
MRB1A12	1A	12	1400	9.0	.7	3.79	3.38	2.90	2.55	2.28	1.93	1.72
MRB1A24	1A	24	4340	18.0	1.4	4.30	3.83	3.28	2.89	2.58	2.19	1.95
MRB2A05	2A	5	105	3.75	.15	5.03	4.48	3.84	3.39	3.02	2.56	2.29
MRB2A06	2A	6	180	4.5	.15	5.33	4.75	4.07	3.58	3.20	2.71	....
MRB2A12	2A	12	730	9.0	.7	5.22	4.65	3.99	3.51	3.13	2.66	2.37
MRB2A24	2A	24	2500	18.0	1.4	5.50	4.90	4.20	3.70	3.30	2.80	2.50
MRB3A05	3A	5	82	3.75	.15	7.10	6.33	5.42	4.78	4.26	3.61	3.23
MRB3A06	3A	6	130	4.5	.15	7.10	6.33	5.42	4.78	4.26	3.61	3.23
MRB3A12	3A	12	570	9.0	.7	7.10	6.33	5.42	4.78	4.26	3.61	3.23
MRB3A24	3A	24	1540	18.0	1.4	7.35	6.55	5.61	4.95	4.41	3.74	....
MRB4A05	4A	5	60	3.75	.15	8.50	7.57	6.49	5.72	5.10	4.33	3.86
MRB4A06	4A	6	100	4.5	.15	8.50	7.57	6.49	5.72	5.10	4.33	3.86
MRB4A12	4A	12	275	9.0	.7	8.50	7.57	6.49	5.72	5.10	4.33	3.86
MRB4A24	4A	24	1090	18.0	1.4	8.50	7.57	6.49	5.72	5.10	4.33	3.86
MRB5A05	5A	5	45	3.75	.15	10.45	9.31	7.98	7.03	6.27	5.32	....
MRB5A06	5A	6	70	4.5	.15	10.45	9.31	7.98	7.03	6.27	5.32	....
MRB5A12	5A	12	320	9.0	.7	10.45	9.31	7.98	7.03	6.27	5.32	....
MRB5A24	5A	24	790	18.0	1.4	10.45	9.31	7.98	7.03	6.27	5.32	....
MRB6A05	6A	5	32	3.75	.15	11.00	9.80	8.40	7.40	6.60	5.60	5.00
MRB6A06	6A	6	50	4.5	.15	11.00	9.80	8.40	7.40	6.60	5.60	5.00
MRB6A12	6A	12	210	9.0	.7	11.00	9.80	8.40	7.40	6.60	5.60	5.00
MRB6A24	6A	24	900	18.0	1.4	11.00	9.80	8.40	7.40	6.60	5.60	5.00
MRB1B05	1B	5	300	3.75	.15	5.50	4.90	4.20	3.70	3.30	2.80	2.50
MRB1B06	1B	6	450	4.5	.15	5.99	5.34	4.58	4.03	3.60	3.05	....
MRB1B12	1B	12	1240	9.0	.7	5.70	5.08	4.35	3.84	3.42	2.90	2.59
MRB1B24	1B	24	5800	18.0	1.4	6.10	5.46	4.68	4.12	3.68	3.12	2.78
MRB2B05	2B	5	82	3.75	.15	8.00	7.13	6.11	5.38	4.80	4.07	....
MRB2B06	2B	6	132	4.5	.15	8.50	7.57	6.49	5.72	5.10	4.33	....
MRB2B12	2B	12	570	9.0	.7	8.19	7.30	6.26	5.51	4.92	4.17	....
MRB2B24	2B	24	2330	18.0	1.4	8.69	7.74	6.64	5.85	5.21	4.42	....
MRB1N05	1A1B	5	50	3.75	.15	7.48	6.66	5.71	5.03	4.49	3.81	....
MRB1N06	1A1B	6	82	4.5	.15	7.97	7.10	6.09	5.36	4.78	4.06	....
MRB1N12	1A1B	12	230	9.0	.7	7.70	6.86	5.88	5.18	4.62	3.92	3.50
MRB1N24	1A1B	24	900	18.0	1.4	8.08	7.20	6.17	5.44	4.85	4.12	3.67
MRB2N05	2A2B	5	28	3.75	.15	12.00	10.69	9.16	8.07	7.20	6.11	....
MRB2N06	2A2B	6	45	4.5	.15	12.00	10.69	9.16	8.07	7.20	6.11	....
MRB2N12	2A2B	12	185	9.0	.7	12.00	10.69	9.16	8.07	7.20	6.11	....
MRB2N24	2A2B	24	800	18.0	1.4	12.00	10.69	9.16	8.07	7.20	6.11	....
MRB1L01	1AL	5	90–90	3.75	−3.75	6.10	5.46	4.68	4.12	3.68	3.12	2.78
MRB1L01	1AL	6	90–90	4.5	−4.5	6.10	5.46	4.68	4.12	3.68	3.12	2.78
MRB1L01	1AL	12	90–90	9.0	−9.0	6.10	5.46	4.68	4.12	3.68	3.12	2.78
MRB1L01	1AL	24	90–90	−18.0	−18.0	6.10	5.46	4.68	4.12	3.68	3.12	2.78
MRB2L02	2AL	5	110–110	3.75	−3.75	8.50	7.57	6.49	5.72	5.10	4.33	....
MRB2L02	2AL	6	110–110	4.5	−4.5	8.50	7.57	6.49	5.72	5.10	4.33	....
MRB2L02	2AL	12	110–110	9.0	−9.0	8.50	7.57	6.49	5.72	5.10	4.33	....
MRB2L02	2AL	24	110–110	18.0	−18.0	8.50	7.57	6.49	5.72	5.10	4.33	....
922A05C1C	1C	5	200	3.75	.15	8.25	7.35	6.30	5.55	4.95	4.20	3.75
922A06C1C	1C	6	270	4.5	.15	8.80	7.84	6.72	5.92	5.28	4.48	4.00
922A12C1C	1C	12	1080	9.0	.7	8.25	7.35	6.30	5.55	4.95	4.20	3.75
922A24C1C	1C	24	4320	18.0	1.4	9.30	8.29	7.10	6.26	5.58	4.73	4.23
922A05C2C	2C	5	100	3.75	.15	14.50	12.92	11.07	9.75	8.70	7.38	6.59
922A06C2C	2C	6	145	4.5	.15	15.30	13.63	11.68	10.29	9.18	7.79	6.95
922A12C2C	2C	12	630	9.0	.7	14.49	12.91	11.07	9.75	8.70	7.38	6.59
922A24C2C	2C	24	2520	18.0	1.4	16.00	14.25	12.22	10.76	9.60	8.15	7.27
922A05C3C	3C	5	75	3.75	.15	22.00	19.60	16.80	14.80	13.20	11.20	10.00
922A06C3C	3C	6	90	4.5	.15	22.00	19.60	16.80	14.80	13.20	11.20	10.00
922A12C3C	3C	12	360	9.0	.7	22.00	19.60	16.80	14.80	13.20	11.20	10.00
922A24C3C	3C	24	1320	18.0	1.4	22.00	19.60	16.80	14.80	13.20	11.20	10.00
922A05C4C	4C	5	50	3.75	.15	28.40	25.30	21.69	19.10	17.04	14.46	12.91
922A06C4C	4C	6	70	4.5	.15	28.40	25.30	21.69	19.10	17.04	14.46	12.91
922A12C4C	4C	12	280	9.0	.7	28.40	25.30	21.69	19.10	17.04	14.46	12.91
922A24C4C	4C	24	1120	18.0	1.4	28.40	25.30	21.69	19.10	17.04	14.46	12.91

OUR STOCKS ARE FULLY UP TO DATE WITH ALL THE LATEST PRODUCTS.

ASK ABOUT NEW OR UNLISTED ITEMS.

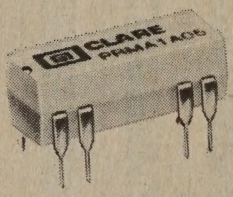
PRB SERIES METAL-COVERED REED RELAYS

The PRB and PRBH microminiature dry reed relays offer signal level to 10 VA switching characteristics, power requirements ranging from 48 to 500 milliwatts (depending on relay configuration) and operate times typically less than 500 microseconds in economical space-saving packages. The low profile PRB series permits 0.375" PC board spacing and the high sensitivity PRBH series permits 0.5" PC board spacing. The PRB and PRBH series feature the total input/output isolation common to all Clare reed relays, immunity to false operation and insensitivity to overload transients. The 5 V relays are fully compatible with the standard 5 V DTL/TTL logic families and will solve many interface application problems. All models have molded bases with stamped steel covers and mount on 0.700" x 0.100" grid patterns. The PRB low profile models are available in 1 to 6 Form A, 1B and 1A1B contact configurations. The PRBH high sensitivity models are available in 1 to 5 Form A versions.



Type Number	Contact Form	Nom. VDC	Must VDC Operate	Must VDC Release	Coil Resis., Ohms	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499	500-999	1000-Up
LOW PROFILE VERSIONS												
PRB3510	1A	5	3.75	.15	385	**$6.93**	**$6.17**	**$5.29**	**$4.66**	**$4.16**	**$3.53**	**$3.15**
PRB2510	1A	6	4.5	.15	385	**5.83**	**5.19**	**4.45**	**3.92**	**3.50**	**2.97**	....
PRB2513	1A	12	9.0	.7	1200	**6.10**	**5.44**	**4.66**	**4.11**	**3.66**	**3.11**	**2.77**
PRB2516	1A	24	18.0	1.4	5380	**6.65**	**5.93**	**5.08**	**4.48**	**3.99**	**3.39**	**3.02**
HIGH SENSITIVITY												
PRB3009H	1A	5	3.75	.15	535	**$ 6.65**	**$ 5.93**	**$ 5.08**	**$ 4.48**	**$ 3.99**	**$ 3.39**	**$ 3.02**
PRB2009H	1A	6	4.5	.15	535	**6.05**	**5.39**	**4.62**	**4.07**	**3.63**	**3.08**	**2.75**
PRB2013H	1A	12	9.0	.7	2870	**6.05**	**5.39**	**4.62**	**4.07**	**3.63**	**3.08**	**2.75**
PRB2016H	1A	24	18.0	1.4	11900	**13.31**	**11.86**	**10.16**	**8.95**	**7.99**	**6.78**	....

PRMA SERIES PICOREED® DIP RELAYS



The PRMA series Picoreed DIP relay features five different contact forms with an extra coil termination provided on pin 13. This provision gives greater versatility in printed circuit board layouts. The 5 V Form A is compatible with standard TTL logic. All contact forms of the PRMA series can be inserted into PC boards using automatic insertion equipment.

Type Number	Contact Form	Nom. VDC	Must VDC Operate	Must VDC Release	Coil Resis., Ohms	Net Each, Lots of 1-24	25-49	50-99	100-249
PRMA1A05	1A	5	3.75	.8	500	**$2.74**	**$2.36**	**$2.13**	**$1.90**
PRMA1A12	1A	12	9.0	1.0	1000	**2.74**	**2.36**	**2.13**	**1.90**
PRMA1A24	1A	24	18.0	2.0	2150	**2.99**	**2.57**	**2.32**	**2.07**
PRMA1B05	1B	5	3.75	.8	140	**5.40**	**4.65**	**4.20**	**3.75**
PRMA1B12	1B	12	9.0	1.0	500	**5.40**	**4.65**	**4.20**	**3.75**
PRMA1B24	1B	24	18.0	2.0	2150	**5.94**	**5.11**	**4.62**	**4.12**
PRMA2A05	2A	5	3.75	.8	140	**4.00**	**3.44**	**3.11**	**2.78**
PRMA2A12	2A	12	9.0	1.0	500	**4.00**	**3.44**	**3.11**	**2.78**
PRMA2A24	2A	24	18.0	2.0	2150	**4.25**	**3.66**	**3.30**	**2.95**
PRMA1C05	1C	5	3.75	.8	140	**6.24**	**5.56**	**4.77**	**4.20**
PRMA1C12	1C	12	9.0	1.0	500	**6.23**	**5.36**	**4.84**	**4.32**
PRMA1C24	1C	24	18.0	2.0	2150	**6.73**	**5.80**	**5.24**	**4.67**
PRMA1C05D	1C	5	3.75	.8	140	**6.24**	**5.56**	**4.77**	**4.20**
PRMA1C12D	1C	12	9.0	1.0	500	**8.10**	**6.98**	**6.30**	**5.63**
PRMA1C24D	1C	24	18.0	2.0	2150	**8.25**	**7.11**	**6.42**	**5.73**

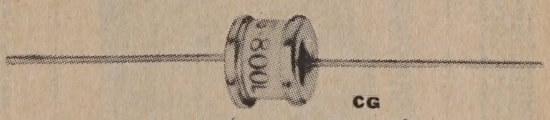
WRITE US FOR INFORMATION AND PRICING ON ALL NEW OR UNLISTED ITEMS. NO SPECIAL ORDER NUMBERS NECESSARY, JUST USE THE MANUFACTURER'S MODEL NUMBERS.

SURGE ARRESTOR SELECTION GUIDE

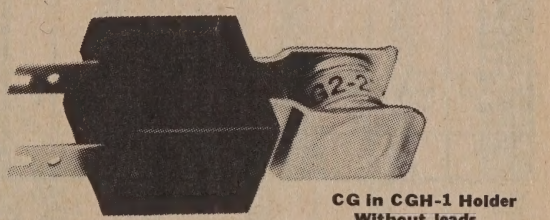
Product	Voltage Range	Approximate Size & Mounting Method	Physical Construction	Special Features
Comgap (CG)	75–1000 VDC	.265″ lg x .380″ dia. Solder leads .892″ lg. PC mtg. Mounting clip for units without leads	Ceramic/metal	Small size Rugged ceramic construction Low capacitance under 1.5 pF High peak current capability over 10 KA
Uni-Imp® (UBD, UGT, UBT)	550–20K VDC	2.20″ lg x .560″ dia. Solder lugs	Glass/metal	Ultra-fast protection No overshoot (DC to 200 KV/μsec) Life in thousands of operations
Spark gaps	400–40K VDC	3.562″ lg x 1.202″ dia. Solder lugs Ferruled ends for clip mounting	Glass/metal	Sub-microsecond response time Electrical energy transfer DC overvoltage protection
Triggered spark gaps (TA, TB)	1K–25K VDC	¾″ lg x 2 1/32″ dia.	Ceramic/metal	Command energy switching DC overvoltage protection Rugged construction

CG/CG2 SERIES COMGAP SURGE ARRESTORS

The CG/CG2 series of Comgaps are miniature voltage surge arrestors designed to protect sensitive electronic equipment and personnel from damage and injury due to excessive voltages or currents. They consist of two electrodes hermetically sealed in a gas-filled, rugged, metal-ceramic cylinder. In operation, the Comgap is a voltage dependent switch which, at its breakdown voltage, changes its impedance from a near infinite resistance to a virtual short circuit. These devices are capable of fast operation and can handle extremely high levels of current for short durations. Comgaps can be used in either of two operating modes: 1, Passiv Mode (as transient protectors); 2, Active Mode (as energy transfer switches used in trigger circuits and relaxation oscillators). A companion holder, the CGH-1, permits mounting of unleaded devices to printed circuit boards where snap-in replacement of the surge arrestor is desired.



CG
With leads



CG in CGH-1 Holder
Without leads

ENVIRONMENTAL RATINGS

- Operating and Storage Temperature: −55° C to +125° C
- Temperature Cycling (MIL-STD-202, Method 102A, Cond. C): −65° C to +125° C
- Humidity (MIL-STD-202, Method 103B, Cond. B): 95% rel. humidity
- Vibration (MIL-STD-202, Method 240B, Cond. C): 10-55 Hz, .06 DA
- Thermal Shock (MIL-STD-202, Method 107, Cond. B): −65° C to +125° C
- Shock (MIL-STD-202, Method 213A, Cond. C): 100 g
- Barometric Pressure (MIL-STD-202, Method 105C, Cond. B): 50,000 ft.
- Solderability: MIL-STD-202, Method 208, Cond. B.

Series	Dimensions A	Dimensions B
CG75 thru CG470 CG2-145 thru	.265″	2.05″
CG800 thru CG1000 CG2-800 thru CG2-1000	.289″	2.08″

Type Number	Breakdown Voltage DC Volts	Breakdown Voltage Pulse Volts	Max. Holdover VDC	Max. Follow-on Current Peak A#	Typ. Arc Volts†	Max. Cap., pF‡	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499	500-999	1000 Up
CG75	75	1000	55	...	10	1.5	$2.40	$2.16	$1.81	$1.57	$1.33	$1.20	$1.09
CG75L	75	1000	55	...	10	1.5	2.55	2.30	1.92	1.66	1.41	1.28	1.15
CG90	90	1000	60	...	10	1.4	2.40	2.16	1.81	1.57	1.33	1.20	1.09
CG90L	90	1000	60	...	10	1.4	2.55	2.30	1.92	1.66	1.41	1.28	1.15
CG110L	110	1000	60	...	10	1.4	2.55	2.30	1.92	1.66	1.41	1.28	1.15
CG145	145	1000	60	...	10	1.4	2.40	2.16	1.81	1.57	1.33	1.20	1.09
CG145L	145	1000	60	...	10	1.4	2.55	2.30	1.92	1.66	1.41	1.28	1.15
CG230	230	1500	70	...	10	1.4	2.15	1.93	1.61	1.40	1.18	1.07	.97
CG230L	230	1500	70	...	10	1.4	2.29	2.06	1.72	1.49	1.26	1.04	.92
CG350L	350	2000	70	10	10	1.0	2.29	2.06	1.72	1.49	1.26	1.04	.92
CG470L	470	2500	75	12	10	1.0	2.29	2.06	1.72	1.49	1.26	1.04	.92
CG800L	800	4000	75	14	10	1.0	2.66	2.40	2.00	1.74	1.47	1.33	1.20
CG1000L	1000	4000	75	15	10	1.0	2.66	2.40	2.00	1.74	1.47	1.33	1.20
CG2-145	145	900	70	60	16	2.5	2.40	2.16	1.81	1.57	1.33	1.20	1.09
CG2-145L	145	900	70	60	16	2.5	2.55	2.30	1.92	1.66	1.41	1.28	1.15
CG2-230	230	750	150	300	16	2.0	2.40	2.16	1.81	1.57	1.33	1.20	1.09
CG2-230L	230	750	150	300	16	2.0	2.55	2.30	1.92	1.66	1.41	1.28	1.15
CG2-250L	250	750	150	300	16	2.0	2.55	2.30	1.92	1.66	1.41	1.28	1.15
CG2-300L	300	750	150	300	16	2.0	2.55	2.30	1.92	1.66	1.41	1.28	1.15
CG2-350	350	800	155	300	16	2.0	2.33	2.10	1.75	1.52	1.29	1.17	....
CG2-350L	350	800	155	300	16	2.0	2.55	2.30	1.92	1.66	1.41	1.28	1.15
CG2-470L	470	850	175	100	16	2.0	2.55	2.30	1.92	1.66	1.41	1.28	1.15
CG2-800L	800	1600	200	100	16	2.0	2.89	2.60	2.17	1.88	1.59	1.44	1.30
CGH-1	Surge arester holder						.70	.63	.53	.46	.39	.35	.32

#½ cycle at 60 Hz. †I = 5 amperes minimum. ‡Between electrodes without leads.

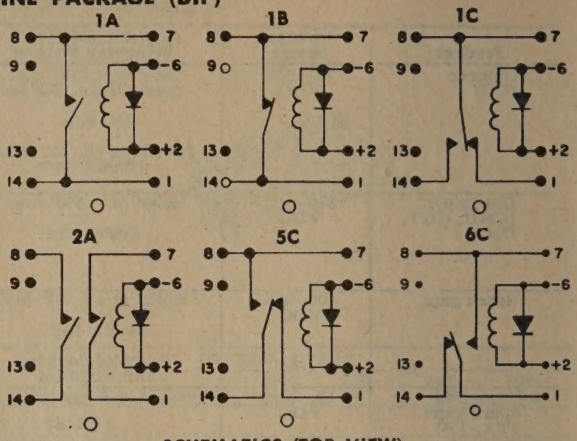
Dry Reed Relays

83 SERIES DUAL IN-LINE PACKAGE (DIP)

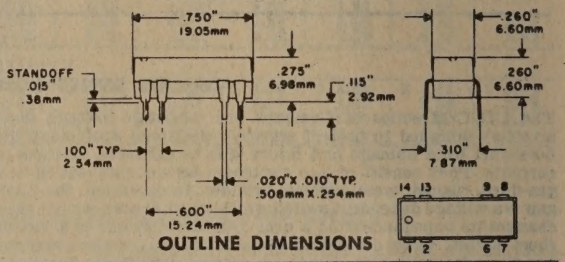
Molded glass-filled, non-burning epoxy housing assures environmental immunity. Logic compatible. Can interface with microprocessor. Will fit standard DIP socket. Three contact forms available. Values listed are typical at 25° C.

RELAY CHARACTERISTICS AND PRICING

Gordos Model No.	Form	Coil Resistance, Ohms ±10% @ 25° C	Nominal VDC	Clamp Diode	Net Each, 1-24
831A-1	1A	380	5	No	$2.83
831A-2	1A	380	5	Yes	3.20
831A-3	1A	500	5	No	2.93
831A-4	1A	500	5	Yes	3.30
831A-5	1A	500	12	No	2.93
831A-6	1A	500	12	Yes	3.30
831A-7	1A	1,750	24	No	3.40
831A-8	1A	1,750	24	Yes	3.73
831B-1	1B	150	5	No	4.37
831B-2	1B	150	5	Yes	4.73
831B-3	1B	450	5	No	4.43
831B-4	1B	450	5	Yes	4.80
831B-5	1B	450	12	No	4.43
831B-6	1B	450	12	Yes	4.80
831B-7	1B	1,750	24	No	4.43
831B-8	1B	1,750	24	Yes	4.80
831C-1	1C	150	5	No	4.40
831C-2	1C	150	5	Yes	4.73
831C-3	1C	450	12	No	4.40
831C-4	1C	450	12	Yes	4.73
831C-5	1C	1,750	24	No	4.87
831C-6	1C	1,750	24	Yes	5.20
835C-1	5C	150	5	No	4.40
835C-2	5C	150	5	Yes	4.73
835C-3	5C	450	12	No	4.40
835C-4	5C	450	12	Yes	4.73
835C-5	5C	1,750	24	No	4.87
835C-6	5C	1,750	24	Yes	5.20
832A-1	2A	150	5	No	4.80
832A-2	2A	150	5	Yes	5.17
832A-3	2A	450	12	No	4.80
832A-4	2A	450	12	Yes	5.17
832A-5	2A	1,750	24	No	5.53
832A-6	2A	1,750	24	Yes	5.93
836C-1	6C	200	5	No	4.40
836C-2	6C	200	5	Yes	4.73
836C-3	6C	500	12	No	4.40
836C-4	6C	500	12	Yes	4.73
836C-5	6C	2,200	24	No	4.87
836C-6	6C	2,200	24	Yes	5.20



SCHEMATICS (TOP VIEW)



OUTLINE DIMENSIONS

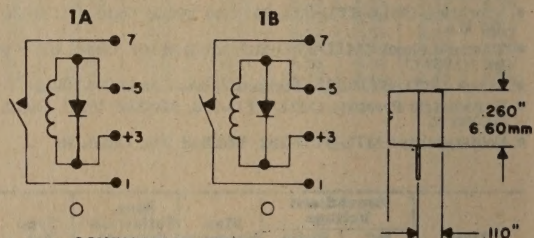
Gordos Model No.	Maximum Switching (DC) Watts	Maximum Switching (DC) Volts	Maximum Current (Amps) Switch	Maximum Current (Amps) Carry	Typical Initial Contact Resistance (Ohms)
831A	10	100	.25	1.5	.2
831B	10	100	.25	1.5	.2
832A	3	28	.25	1.0	.2
831C	3	28	.25	1.0	.2
835C	4	100	.11	1.0	.250
836C	4	100	.11	1.0	.250

741 SERIES SINGLE IN-LINE PACKAGE (SIP)

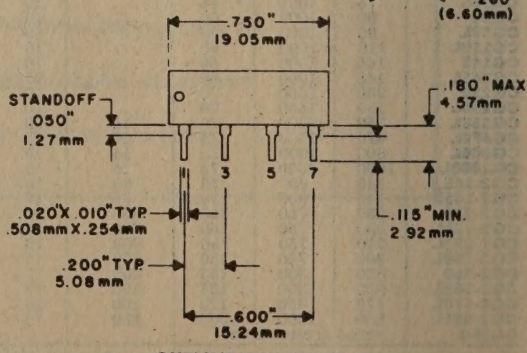
Molded glass-filled, non-burning epoxy housing assures environmental immunity. Logic compatible. Can interface with microprocessor. Two relays can be mounted in a single DIP socket. Two contact forms available. Values listed are typical at 25° C.

RELAY CHARACTERISTICS AND PRICING

Gordos Model No.	Form	Coil Resistance, Ohms ±10% @ 25° C	Nominal VDC	Clamp Diode	Net Each, 1-24
741A-1	1A	380	5	No	$2.83
741A-2	1A	380	5	Yes	3.20
741A-9	1A	500	5	No	3.40
741A-10	1A	500	5	Yes	3.73
741A-3	1A	500	12	No	2.93
741A-4	1A	500	12	Yes	3.30
741A-7	1A	1,750	24	No	2.93
741A-8	1A	1,750	24	Yes	3.30
741B-3	1B	150	5	No	4.37
741B-4	1B	150	5	Yes	4.73
741B-5	1B	450	12	No	4.43
741B-6	1B	450	12	Yes	4.80
741B-7	1B	1,750	24	No	4.43
741B-8	1B	1,750	24	Yes	4.80



SCHEMATICS (TOP VIEW)

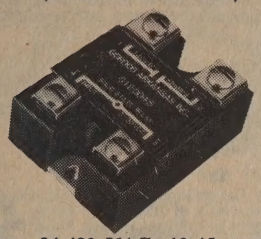


OUTLINE DIMENSIONS

Gordos Model No.	Maximum Switching (DC) Watts	Maximum Switching (DC) Volts	Maximum Current (Amps) Switch	Maximum Current (Amps) Carry	Typical Initial Contact Resistance (Ohms)
741A	10	100	.25	1.5	.2
741B	10	100	.25	1.5	.2

PRICES LISTED ARE FOR GUIDANCE ONLY

G SERIES SOLID STATE RELAYS
(BACK-TO-BACK SCR)



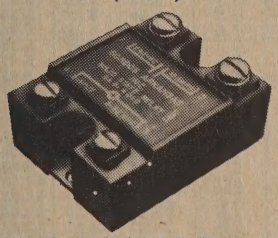
- **Output Ratings:** 24-480 VAC; 10-45 amps rms.
- Back-to-back (dual) SCR output for switching highly inductive AC loads.
- Superior turn-on immunity and positive turn-off ability at high dv/dt
- Optical coupling.
- Zero voltage turn-on.
- Output RC network.
- UL recognized.
- CSA certified.

RATINGS AND PRICING

Gordos Part No.	Control Voltage Input	Max. Line Voltage (VAC)	Max. Output Load Current (Arms)	Net Each, Lots of 1-9
AC CONTROL				
G120A45*	90-280 VAC	120	45	$35.88
G240A45*	90-280 VAC	240	45	38.88
G280A45*	90-280 VAC	280	45	36.32
G480A10	90-280 VAC	480	10	33.00
DC CONTROL				
G120D45*	3-32 VDC	120	45	$34.40
G240D45*	3-32 VDC	240	45	34.64
G280D45*	3-32 VDC	280	45	36.00
G480D10	3-32 VDC	480	10	32.64
DC CONTROL REGULATED				
G120R45*	3-32 VDC	120	45	$34.64
G240R45*	3-32 VDC	240	45	36.40
G280R45*	3-32 VDC	280	45	39.20
G480R10	3-32 VDC	480	10	35.92

*10 and 25 amp models also available.

GA5 SERIES ALL SOLID STATE RELAYS
(TRIAC)



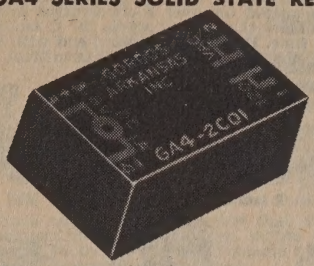
- **Output Ratings:** Up to 280 VAC; Up to 40 amps rms.
- Glass passivated triacs for long-life component integrity.
- Output snubber networks.
- Zero voltage turn-on.
- 2500 VAC optical isolation.
- Inductive load switching up to 0.4 power factor.
- Logic compatible inputs.
- UL recognized.
- CSA certified.

RATINGS AND PRICING

Gordos Part No.	Control Voltage Input	Max. Line Voltage (VAC)	Max. Output Load Current (Arms)	Net Each, Lots of 1-9
AC CONTROL				
GA5-2A10	90-250 VAC	140	10	$24.64
GA5-2A40	90-250 VAC	140	40	33.16
GA5-4A10	90-250 VAC	250	10	26.48
GA5-4A40	90-250 VAC	250	40	34.00
GA5-6A10	90-250 VAC	280	10	28.76
GA5-6A40	90-250 VAC	280	40	35.68
DC CONTROL				
GA5-2D10	3-30 VDC	140	10	$20.20
GA5-2D40	3-30 VDC	140	40	26.92
GA5-4D10	3-30 VDC	250	10	21.20
GA5-4D40	3-30 VDC	250	40	27.76
GA5-6D10	3-30 VDC	280	10	22.52
GA5-6D40	3-30 VDC	280	40	29.44

Note: 5 amp and 25 amp models also available.

GA4 SERIES SOLID STATE RELAYS

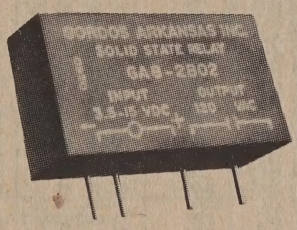


Size: 1.13" lg. × 0.68" w. × 0.48" h.

RATINGS AND PRICES

Gordos Part No.	Control Voltage Input (VDC)	Max. Line Voltage (VAC)	Max. Output Load Current (Arms)	Net Each, Lots of 1-9
GA4-2C01	3.8-8	140	1.5	$12.16
GA4-2C02	3.8-8	140	2.5	12.32
GA4-4C01	3.8-8	250	1.5	14.40
GA4-4C02	3.8-8	250	2.5	14.56

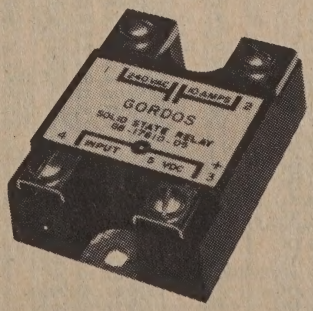
GA8 SERIES SOLID STATE RELAYS



RATINGS AND PRICES

Gordos Part No.	Control Voltage Input (VDC)	Max. Line Voltage (VAC)	Max. Output Load Current (Arms)	Net Each, Lots of 1-9
GA8-2B01	3.5-15	140	1.5	$12.24
GA8-2B02	3.5-15	140	2.5	12.24
GA8-4B01	3.5-15	250	1.5	13.08
GA8-4B02	3.5-15	250	2.5	13.08
GA8-6B01	3.5-15	280	1.5	14.40
GA8-6B02	3.5-15	280	2.5	14.40

GB17 SERIES SOLID STATE RELAYS
REED COUPLED INPUT/TRIAC OUTPUT



RATINGS AND PRICES

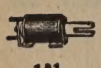
Gordos Part No.	Control Voltage Input (VDC)	Max. Line Voltage (VAC)	Max. Output Load Current (Arms)	Net Each, Lots of 1-9
DC CONTROL				
GB17205-05	5	140	5	$16.60
GB17210-05	5	140	10	16.80
GB17225-05	5	140	25	19.96
GB17240-05	5	140	40	23.80

The GB17 Series is also available for a maximum line voltage of 250 VAC (GB174--05) and 280 VAC (GB176--05).

GUARDIAN® *ELECTRIC* Solenoids

Solenoids for intermittent or continuous duty. Intermittent types should not be energized for over 5 consecutive minutes, or be permitted to rise more than 85° C above 24° C ambient without sufficient cooling time. Plunger has slotted end with ⅛" dia. hole for coupling. In charts, (I) indicates intermittent duty type, (C) indicates continuous duty. **To Order, Specify:** Solenoid number; voltage and AC or DC; continuous or intermittent (for intermittent give cycle of operation, length of time current will pass through coil, etc.); max. stroke and pull required.

PULL TYPE AC AND DC SOLENOIDS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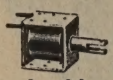
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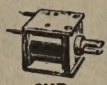
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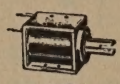
3HD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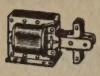
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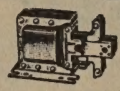
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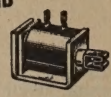
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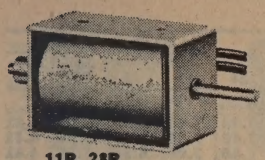
28

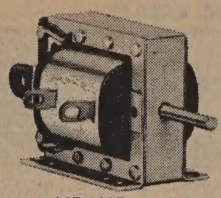
Guardian No.	Duty	Coil Voltage	Ohms	Lifts and Strokes Minimum	Lifts and Strokes Maximum	Body Size, Inches L. x W. x H.	Shpg. Wt., Oz.	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
1A1	I	120 AC	300	8 oz. at ⅛"	2 oz. at ½"	1 5/32 x 1 5/16 x 1 1/16	4.5	$10.53	$10.00	$9.48	$7.89	$6.84
1A1	C	120 AC	675	3 oz. at ⅛"	0.5 oz. at ⅜"	1 5/32 x 1 5/16 x 1 1/16	4.5	10.53	10.00	9.48	7.89	6.84
2†	I	120 AC	60	45 oz. at ⅛"	11 oz. at ⅞"	1 5/8 x 1 7/16 x 1 5/8	10	8.80	8.36	7.92	6.60	5.72
2†	C	120 AC	166	14 oz. at ⅛"	3 oz. at ⅞"	1 5/8 x 1 7/16 x 1 5/8	10	8.80	8.36	7.92	6.60	5.72
2	I	24 DC	20	85 oz. at ¾"	100 oz. at ⅛"	1 5/8 x 1 7/16 x 1 5/8	10	9.20	8.74	8.28	6.90	5.98
2	C	24 DC	58	3 oz. at ¾"	40 oz. at ⅛"	1 5/8 x 1 7/16 x 1 5/8	10	9.20	8.74	8.28	6.90	5.98
2HD†	I	120 AC	36	70 oz. at ⅛"	16 oz. at ¾"	1 13/16 x 1 7/16 x 1 11/16	13	11.04	10.49	9.94	8.28	7.18
2HD†	C	120 AC	113	25 oz. at ⅛"	6 oz. at ¾"	1 13/16 x 1 7/16 x 1 11/16	13	11.04	10.49	9.94	8.28	7.18
2HD†	I	24 DC	20	96 oz. at ⅛"	10 oz. at ¾"	1 13/16 x 1 7/16 x 1 11/16	13	11.40	10.83	10.26	8.55	7.41
2HD†	C	24 DC	64	48 oz. at ⅛"	6 oz. at ⅝"	1 13/16 x 1 7/16 x 1 11/16	13	11.40	10.83	10.26	8.55	7.41
3HD†	I	24 DC	21	160 oz. at 1/16"	8 oz. at ¾"	1 25/32 x 1 7/16 x 1 5/8	14	8.37	7.95	7.53	6.28	5.44
3HD†	C	24 DC	52	100 oz. at 1/16"	3 oz. at ¾"	1 25/32 x 1 7/16 x 1 5/8	14	8.37	7.95	7.53	6.28	5.44
4†	I	120 AC	37	24 oz. at ⅛"	22 oz. at 1"	2 1/16 x 1 7/16 x 1 5/8	14.5	9.29	8.83	8.36	6.97	6.04
4†	C	120 AC	133	8 oz. at ⅛"	6 oz. at 1"	2 1/16 x 1 7/16 x 1 5/8	14.5	9.29	8.83	8.36	6.97	6.04
4†	I	24 DC	15	110 oz. at ⅛"	4 oz. at 1"	2 1/16 x 1 7/16 x 1 5/8	14.5	9.17	8.71	8.25	6.88	5.96
4†	C	24 DC	54	55 oz. at ⅛"	2.5 oz. at ⅞"	2 1/16 x 1 7/16 x 1 5/8	14.5	9.17	8.71	8.25	6.88	5.96
4†	I	110 DC	346	90 oz. at ⅛"	4 oz. at 1"	2 1/16 x 1 7/16 x 1 5/8	14.5	9.35	8.88	8.42	7.01	6.08
4†	C	110 DC	1300	55 oz. at ⅛"	2.5 oz. at ⅞"	2 1/16 x 1 7/16 x 1 5/8	14.5	9.35	8.88	8.42	7.01	6.08
4HD†	I	120 AC	15	100 oz. at 1/16"	32 oz. at 1¼"	2 3/16 x 1 7/16 x 1 5/8	15	12.84	12.20	11.56	9.63	8.35
4HD†	C	120 AC	53	23 oz. at ⅛"	11 oz. at 1¼"	2 3/16 x 1 7/16 x 1 5/8	15	12.84	12.20	11.56	9.63	8.35
4HD†	I	24 DC	15	145 oz. at ⅛"	23 oz. at ¾"	2 3/16 x 1 7/16 x 1 5/8	15	12.05	11.45	10.85	9.04	7.83
4HD†	C	24 DC	50	75 oz. at ⅛"	8 oz. at ¾"	2 3/16 x 1 7/16 x 1 5/8	15	12.05	11.45	10.85	9.04	7.83
4HD†	I	110 DC	350	145 oz. at ⅛"	23 oz. at ¾"	2 3/16 x 1 7/16 x 1 5/8	15	12.30	11.69	11.07	9.23	8.00
4HD†	C	110 DC	1200	75 oz. at ⅛"	8 oz. at ¾"	2 3/16 x 1 7/16 x 1 5/8	15	12.30	11.69	11.07	9.23	8.00
9	I	120 AC	220	18 oz. at ⅛"	7 oz. at ½"	1 5/32 x 1 1/16 x 1	4	7.47	7.10	6.72	5.60	4.86
9	C	120 AC	350	11 oz. at ⅛"	2 oz. at ½"	1 5/32 x 1 1/16 x 1	4	7.47	7.10	6.72	5.60	4.86
9	I	24 DC	52	14 oz. at ⅛"	2 oz. at ½"	1 5/32 x 1 1/16 x 1	4	7.33	6.96	6.60	5.50	4.76
9	C	24 DC	90	9 oz. at ⅛"	1.5 oz. at 1/16"	1 5/32 x 1 1/16 x 1	4	7.33	6.96	6.60	5.50	4.76
10	I	120 AC	74	42 oz. at ⅛"	25 oz. at ½"	1 1/16 x 1 3/8 x 1 13/32	6.5	8.02	7.62	7.22	6.02	5.21
10	C	120 AC	172	15 oz. at ⅛"	7 oz. at ½"	1 1/16 x 1 3/8 x 1 13/32	6.5	8.02	7.62	7.22	6.02	5.21
10	I	24 DC	37	24 oz. at ⅛"	5 oz. at ½"	1 1/16 x 1 3/8 x 1 13/32	6.5	7.82	7.43	7.04	5.87	5.08
10	C	24 DC	69	15 oz. at ⅛"	3.5 oz. at ½"	1 1/16 x 1 3/8 x 1 13/32	6.5	7.82	7.43	7.04	5.87	5.08
11†	I	24 AC	3.5	21 oz. at ⅛"	11 oz. at 1"	1 7/8 x 1 5/16 x 1 3/16	7.5	6.03	5.73	5.43	4.52	3.92
11†	C	24 AC	8	12 oz. at ⅛"	6 oz. at 1"	1 7/8 x 1 5/16 x 1 3/16	7.5	6.03	5.73	5.43	4.52	3.92
11†	I	120 AC	85	21 oz. at ⅛"	11 oz. at 1"	1 7/8 x 1 5/16 x 1 3/16	7.5	6.14	5.83	5.53	4.61	3.99
11†	C	120 AC	200	12 oz. at ⅛"	6 oz. at 1"	1 7/8 x 1 5/16 x 1 3/16	7.5	6.14	5.83	5.53	4.61	3.99
11†	I	6 DC	2	40 oz. at ⅛"	6 oz. at ¾"	1 7/8 x 1 5/16 x 1 3/16	7.5	5.96	5.66	5.36	4.47	3.87
11†	C	6 DC	4.5	24 oz. at ⅛"	3 oz. at ¾"	1 7/8 x 1 5/16 x 1 3/16	7.5	5.96	5.66	5.36	4.47	3.87
11†	I	24 DC	31	40 oz. at ⅛"	6 oz. at ¾"	1 7/8 x 1 5/16 x 1 3/16	7.5	6.08	5.78	5.47	4.56	3.95
11†	C	24 DC	72	24 oz. at ⅛"	3 oz. at ¾"	1 7/8 x 1 5/16 x 1 3/16	7.5	6.08	5.78	5.47	4.56	3.95
11HD	I	120 AC	75	7.5 oz. at 1"	25 oz. at ⅛"	2 1/8 x 1 5/16 x 1 1/4	8	7.85	7.46	7.07	5.89	5.10
11HD	C	120 AC	165	3.5 oz. at 1"	12 oz. at ⅛"	2 1/8 x 1 5/16 x 1 1/4	8	7.85	7.46	7.07	5.89	5.10
11HD	I	24 DC	29	5 oz. at 7/16"	60 oz. at ⅛"	2 1/8 x 1 5/16 x 1 1/4	8	7.72	7.33	6.95	5.79	5.02
11HD	C	24 DC	68	2.5 oz. at 5/16"	30 oz. at ⅛"	2 1/8 x 1 5/16 x 1 1/4	8	7.72	7.33	6.95	5.79	5.02
12†	I	120 AC	100	48 oz. at ⅛"	9 oz. at 1"	1 5/8 x 1 1/4 x 1 7/16	6	10.98	10.43	9.88	8.24	7.14
12†	C	120 AC	150	28 oz. at ⅛"	6 oz. at ⅞"	1 5/8 x 1 1/4 x 1 7/16	6	10.98	10.43	9.88	8.24	7.14
14†	I	120 AC	11	108 oz. at ⅛"	56 oz. at 1½"	2 7/16 x 1 15/16 x 2 1/16	9	16.59	15.76	14.93	12.44	10.78
14†	C	120 AC	18	75 oz. at ⅛"	40 oz. at 1½"	2 7/16 x 1 15/16 x 2 1/16	9	16.59	15.76	14.93	12.44	10.78
16†	I	120 AC	41	110 oz. at ⅛"	28 oz. at ¾"	1 5/8 x 1 1/4 x 1 1/2	7.5	13.82	13.13	12.44	10.37	8.98
16†	C	120 AC	85	63 oz. at ⅛"	15 oz. at ¾"	1 5/8 x 1 1/4 x 1 1/2	7.5	13.82	13.13	12.44	10.37	8.98
16†	I	240 AC	200	110 oz. at ⅛"	28 oz. at ¾"	1 5/8 x 1 1/4 x 1 1/2	7.5	14.10	13.40	12.69	10.58	9.17
16†	C	240 AC	350	63 oz. at ⅛"	15 oz. at ¾"	1 5/8 x 1 1/4 x 1 1/2	7.5	14.10	13.40	12.69	10.58	9.17
18†	I	120 AC	8.8	350 oz. at ⅛"	208 oz. at 1"	2 1/2 x 1 13/16 x 2 23/32	16.5	17.00	16.15	15.30	12.75	11.05
18†	C	120 AC	19.7	152 oz. at ⅛"	100 oz. at 1"	2 1/2 x 1 13/16 x 2 23/32	16.5	17.00	16.15	15.30	12.75	11.05
18†	I	240 AC	45	350 oz. at ⅛"	208 oz. at 1"	2 1/2 x 1 13/16 x 2 23/32	16.5	17.34	16.47	15.61	13.00	11.27
18†	C	240 AC	78	152 oz. at ⅛"	100 oz. at 1"	2 1/2 x 1 13/16 x 2 23/32	16.5	17.34	16.47	15.61	13.00	11.27
22†	I	6 DC	4	20 oz. at 1/16"	2 oz. at 3/8"	1 5/32 x ¾ x ¾	2.5	4.59	4.36	4.13	3.44	2.98
22†	C	6 DC	9	12 oz. at 1/16"	1.7 oz. at ¼"	1 5/32 x ¾ x ¾	2.5	4.59	4.36	4.13	3.44	2.98
22†	I	24 DC	60	20 oz. at 1/16"	2 oz. at 7/16"	1 5/32 x ¾ x ¾	2.5	4.65	4.42	4.19	3.49	3.02
22†	C	24 DC	144	12 oz. at 1/16"	1.7 oz. at 3/8"	1 5/32 x ¾ x ¾	2.5	4.65	4.42	4.19	3.49	3.02
24†	I	120 AC	310	17 oz. at 1/16"	4 oz. at 5/8"	1¼ x 2 7/32 x 1	3	4.95	4.70	4.46	3.71	3.22
24†	C	120 AC	500	10 oz. at 1/16"	2 oz. at 5/8"	1¼ x 2 7/32 x 1	3	4.95	4.70	4.46	3.71	3.22
24†	I	24 DC	52	27 oz. at 1/16"	4 oz. at ½"	1¼ x 2 7/32 x 1	3	4.64	4.41	4.18	3.48	3.02
24†	C	24 DC	114	13 oz. at 1/16"	1.5 oz. at ½"	1¼ x 2 7/32 x 1	3	4.64	4.41	4.18	3.48	3.02
26†	I	120 AC	140	32 oz. at 1/16"	4 oz. at ⅞"	1¾ x 2 7/32 x 1 3/16	4	5.83	5.54	5.25	4.37	3.79
26†	C	120 AC	250	17 oz. at 1/16"	6 oz. at ⅝"	1¾ x 2 7/32 x 1 3/16	4	5.83	5.54	5.25	4.37	3.79
26†	I	24 DC	33	46 oz. at 1/16"	4 oz. at ¾"	1¾ x 2 7/32 x 1 3/16	4	5.58	5.30	5.02	4.19	3.63
26†	C	24 DC	85	26 oz. at 1/16"	1 oz. at ½"	1¾ x 2 7/32 x 1 3/16	4	5.58	5.30	5.02	4.19	3.63
28†	I	24 AC	7.5	40 oz. at 1/16"	7 oz. at ½"	1⅛ x 1 7/32 x 1 3/16	3.5	5.37	5.10	4.83	4.03	3.50
28†	C	24 AC	17.4	24 oz. at 1/16"	5 oz. at ½"	1⅛ x 1 7/32 x 1 3/16	3.5	5.37	5.10	4.83	4.03	3.50
28†	I	120 AC	220	40 oz. at 1/16"	7 oz. at ½"	1⅛ x 1 7/32 x 1 3/16	3.5	5.47	5.20	4.92	4.10	3.56
28†	C	120 AC	400	24 oz. at 1/16"	5 oz. at ½"	1⅛ x 1 7/32 x 1 3/16	3.5	5.47	5.20	4.92	4.10	3.56
28†	I	6 DC	3.3	40 oz. at 1/16"	3 oz. at ½"	1⅛ x 1 7/32 x 1 3/16	3.5	5.23	4.97	4.71	3.93	3.40
28†	C	6 DC	7.7	25 oz. at 1/16"	2 oz. at ⅜"	1⅛ x 1 7/32 x 1 3/16	3.5	5.23	4.97	4.71	3.93	3.40
28†	I	12 DC	13	40 oz. at 1/16"	3 oz. at ½"	1⅛ x 1 7/32 x 1 3/16	3.5	5.29	5.03	4.76	3.97	3.44
28†	C	12 DC	27	25 oz. at 1/16"	2 oz. at ⅜"	1⅛ x 1 7/32 x 1 3/16	3.5	5.29	5.03	4.76	3.97	3.44
28†	I	24 DC	50	40 oz. at 1/16"	3 oz. at ½"	1⅛ x 1 7/32 x 1 3/16	3.5	5.34	5.07	4.81	4.00	3.47
28†	C	24 DC	104	25 oz. at 1/16"	2 oz. at ⅜"	1⅛ x 1 7/32 x 1 3/16	3.5	5.34	5.07	4.81	4.00	3.47
34†	I	120 AC	400	18 oz. at 1/16"	4.5 oz. at ½"	1⅛ x ¾ x 1 5/64	3	4.87	4.63	4.38	3.65	3.17
34†	C	120 AC	865	9 oz. at 1/16"	1.5 oz. at ½"	1⅛ x ¾ x 1 5/64	3	4.87	4.63	4.38	3.65	3.17
34†	I	24 DC	66	14 oz. at 1/16"	2.5 oz. at 7/16"	1⅛ x ¾ x 1 5/64	3	4.62	4.39	4.16	3.47	3.00
34†	C	24 DC	145	6.5 oz. at 1/16"	1.8 oz. at ¼"	1⅛ x ¾ x 1 5/64	3	4.62	4.39	4.16	3.47	3.00

†RECOGNIZED UNDER THE COMPONENT PROGRAM OF UNDERWRITERS LABORATORIES INC.

PRICES LISTED ARE FOR GUIDANCE ONLY

GUARDIAN® ELECTRIC Solenoids


11P, 28P

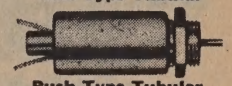

16P, 18P

11S

24S

28S

Pull Type Tubular


Push Type Tubular

Intermittent types should not be energized for more than 5 consecutive minutes, or be permitted to rise more than 85° C above 24° C ambient without sufficient cooling time between operation cycles or periods of energization. Continuous type have high coil resistance and will not rise more than 85° C above 24° C ambient temperature when operated within maximum lift and stroke ratings. **To Order, Specify:** Solenoid number; voltage and AC or DC; continuous or intermittent.

PUSH TYPE AC AND DC SOLENOIDS

Push versions of popular solenoids. Types 11P and 28P are box frame design. 16P and 18P are laminated AC types. Push rods are equal to maximum stroke length. (I) indicates intermittent duty type, (C) indicates continuous duty.

Guardian No.†	Duty	Coil Voltage	Ohms	Lifts and Strokes Minimum	Lifts and Strokes Maximum	Body Size, Inches L. x W. x H.	Shpg. Wt., Oz.	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
11P	I	24 AC	3.5	16.8 oz. at 1/8"	8.8 oz. at 1"	1 7/8 x 1 5/16 x 1 3/16	7.5	$ 7.08	$ 6.73	$ 6.37	$ 5.31	$ 4.60
11P	C	24 AC	8	9.6 oz. at 1/8"	4.8 oz. at 1"	1 7/8 x 1 5/16 x 1 3/16	7.5	7.08	6.73	6.37	5.31	4.60
11P	I	120 AC	85	16.8 oz. at 1/8"	8.8 oz. at 1"	1 7/8 x 1 5/16 x 1 3/16	7.5	7.42	7.05	6.68	5.57	4.82
11P	C	120 AC	200	9.6 oz. at 1/8"	4.8 oz. at 1"	1 7/8 x 1 5/16 x 1 3/16	7.5	7.42	7.05	6.68	5.57	4.82
11P	I	6 DC	2	32 oz. at 1/8"	4.8 oz. at 3/4"	1 7/8 x 1 5/16 x 1 3/16	7.5	6.95	6.60	6.26	5.21	4.51
11P	C	6 DC	4.5	19.2 oz. at 1/8"	2.4 oz. at 3/4"	1 7/8 x 1 5/16 x 1 3/16	7.5	6.95	6.60	6.26	5.21	4.51
11P	I	24 DC	31	32 oz. at 1/8"	4.8 oz. at 3/4"	1 7/8 x 1 5/16 x 1 3/16	7.5	7.07	6.72	6.36	5.30	4.60
11P	C	24 DC	72	19.2 oz. at 1/8"	2.4 oz. at 3/4"	1 7/8 x 1 5/16 x 1 3/16	7.5	7.07	6.72	6.36	5.30	4.60
16P	I	120 AC	41	88 oz. at 1/8"	22.5 oz. at 3/4"	1 5/8 x 1 1/4 x 1 1/2	7.5	15.47	14.70	13.92	11.60	10.06
16P	C	120 AC	85	50.5 oz. at 1/8"	12 oz. at 3/4"	1 5/8 x 1 1/4 x 1 1/2	7.5	15.47	14.70	13.92	11.60	10.06
18P	I	120 AC	8.8	280 oz. at 1/8"	80 oz. at 1"	2 1/2 x 1 13/16 x 2 3/16	16.5	18.65	17.72	16.79	13.99	12.12
18P	C	120 AC	19.7	145 oz. at 1/8"	40 oz. at 1"	2 1/2 x 1 13/16 x 2 3/16	16.5	18.65	17.72	16.79	13.99	12.12
28P	I	24 AC	7.5	32 oz. at 1/16"	5.6 oz. at 1/2"	1 1/8 x 1 5/16 x 1 3/16	3.5	6.94	6.59	6.25	5.21	4.51
28P	C	24 AC	17.4	19.2 oz. at 1/16"	4 oz. at 1/2"	1 1/8 x 1 5/16 x 1 3/16	3.5	6.94	6.59	6.25	5.21	4.51
28P	I	120 AC	220	32 oz. at 1/16"	5.6 oz. at 1/2"	1 1/8 x 1 5/16 x 1 3/16	3.5	7.07	6.72	6.36	5.30	4.60
28P	C	120 AC	400	19.2 oz. at 1/16"	4 oz. at 1/2"	1 1/8 x 1 5/16 x 1 3/16	3.5	7.07	6.72	6.36	5.30	4.60
28P	I	6 DC	3.3	32 oz. at 1/16"	2.4 oz. at 1/2"	1 1/8 x 1 5/16 x 1 3/16	3.5	6.24	5.93	5.62	4.68	4.06
28P	C	6 DC	7.7	20 oz. at 1/16"	1.6 oz. at 3/8"	1 1/8 x 1 5/16 x 1 3/16	3.5	6.24	5.93	5.62	4.68	4.06
28P	I	12 DC	13	32 oz. at 1/16"	2.4 oz. at 1/2"	1 1/8 x 1 5/16 x 1 3/16	3.5	6.30	5.99	5.67	4.72	4.10
28P	C	12 DC	27	20 oz. at 1/16"	1.6 oz. at 3/8"	1 1/8 x 1 5/16 x 1 3/16	3.5	6.30	5.99	5.67	4.72	4.10
28P	I	24 DC	50	32 oz. at 1/16"	2.4 oz. at 1/2"	1 1/8 x 1 5/16 x 1 3/16	3.5	6.35	6.03	5.72	4.76	4.13
28P	C	24 DC	104	20 oz. at 1/16"	1.6 oz. at 3/8"	1 1/8 x 1 5/16 x 1 3/16	3.5	6.35	6.03	5.72	4.76	4.13

AC AND DC SOLENOID SWITCHES

Guardian Box-Frame solenoids 11 and 28 as well as U-Frame 24 have been functionally enhanced by the addition of a SPDT switch actuated by a push rod affixed to the plunger. Respective solenoid switches are 11S, 28S and 24S. All switches are rated 10 amps at 120 VAC. **To Order, Specify:** Solenoid switch number; voltage and AC or DC; continuous or intermittent.

11S	I	120 AC	85	21 oz. at 1/8"	11 oz. at 1"	1 7/8 x 1 5/16 x 2	7.5	$10.23	$ 9.72	$ 9.21	$ 7.67	$ 6.65
11S	C	120 AC	200	12 oz. at 1/8"	6 oz. at 1"	1 7/8 x 1 5/16 x 2	7.5	10.23	9.72	9.21	7.67	6.65
11S	I	24 DC	31	40 oz. at 1/8"	6 oz. at 3/4"	1 7/8 x 1 5/16 x 2	7.5	10.21	9.70	9.19	7.66	6.64
11S	C	24 DC	72	24 oz. at 1/8"	3 oz. at 3/4"	1 7/8 x 1 5/16 x 2	7.5	10.21	9.70	9.19	7.66	6.64
24S	I	24 DC	52	27 oz. at 1/16"	4 oz. at 5/8"	1 1/4 x 2 7/32 x 1 29/32	3	8.42	8.00	7.58	6.32	5.47
24S	C	24 DC	114	13 oz. at 1/16"	1.5 oz. at 5/8"	1 1/4 x 2 7/32 x 1 29/32	3	8.42	8.00	7.58	6.32	5.47
28S	I	24 DC	50	40 oz. at 1/16"	3 oz. at 1/2"	1 1/8 x 1 3/16 x 2	3.5	9.62	9.14	8.66	7.22	6.25
28S	C	24 DC	104	25 oz. at 1/16"	2 oz. at 3/8"	1 1/8 x 1 3/16 x 2	3.5	9.62	9.14	8.66	7.22	6.25

TUBULAR SOLENOIDS

Choice of either pull or push types with Class "A" (105° C) insulation material and 6" leads. Mounting bracket supplied.

24 VDC PULL TYPE

Life, 10 million operations min. at rated load.

Guardian Number†	Ohms	W	Lift, Oz.§	Net Ea. 1-24*
T3.5X9*	57	10	8.5	$ 8.44
T3.5X9	260	2	5.5	8.44
T4X7*	80	7	12	8.63
T4X7	240	2.4	6	8.63
T4X12*	38	15	14	7.35
T4X12	160	3.5	7	7.35
T4X16*	24	20	7	7.95
T4X16	145	4	6.5	7.95
T6X12*	25	22	30	7.69
T6X12	165	3.5	12	7.69
T8X9*	30	19	52	11.26
T8X9	145	4	23	11.26
T8X16*	15	38	80	12.57
T8X16	105	5.5	35	12.57
T12X13*	14	40	150	14.72
T12X13	85	7	50	14.72
T12X19*	9.5	60	150	19.07
T12X19	59	10	80	19.07

24 VDC PUSH TYPE

Non-magnetic metal push rod length equals max. stroke length.

Guardian Number†	Ohms	W	Lift, Oz.‡	Net Ea. 1-24*
TP3.5X9*	57	10	6.8	$10.04
TP3.5X9	260	2	4.4	10.04
TP4X7*	80	7	9.6	10.23
TP4X7	240	2.4	4.8	10.23
TP4X12*	38	15	11.2	8.78
TP4X12	160	3.5	5.6	8.78
TP4X16*	24	20	5.6	9.60
TP4X16	145	4	5.2	9.60
TP6X12*	25	22	24	9.35
TP6X12	165	3.5	9.6	9.35
TP8X9*	30	19	41.6	12.84
TP8X9	145	4	18.4	12.84
TP8X16*	15	38	64	15.73
TP8X16	105	5.5	28	15.73
TP12X13*	14	40	120	16.31
TP12X13	85	7	40	16.31
TP12X19*	9.5	60	120	20.66
TP12X19	59	10	64	20.66

12 VDC PULL TYPE

Guardian Number†	Ohms	W	Lift, Oz.§	Net Ea. 1-24*
T3.5X9*	14	10	8.5	$ 8.36
T3.5X9	80	2	5.5	8.36
T4X7*	20	7	12	8.55
T4X7	60	2.4	6	8.55
T4X12*	10	15	14	7.28
T4X12	41	3.5	7	7.28
T4X16*	6	20	7	7.88
T4X16	36	4	6.5	7.88
T6X12*	6.5	22	30	7.61
T6X12	41	3.5	12	7.61
T8X9*	7.5	19	52	11.14
T8X9	36	4	23	11.14
T8X16*	2.7	38	80	12.44
T8X16	26	5.5	35	12.44
T12X13*	3.6	40	150	14.57
T12X13	20	7	50	14.57
T12X19*	2.4	60	150	18.88
T12X19	14	10	80	18.88

12 VDC PUSH TYPE

Guardian Number†	Ohms	W	Lift, Oz.‡	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
TP3.5X9*	14	10	6.8	$9.93	$9.43	$8.94	$7.45	$6.45
TP3.5X9	80	2	4.4	9.93	9.43	8.94	7.45	6.45
TP4X16*	6	20	5.6	9.50	9.03	8.55	7.13	6.18
TP4X16	36	4	5.2	9.50	9.03	8.55	7.13	6.18
TP6X12*	6.5	22	24	9.25	8.79	8.33	6.94	6.01
TP6X12	41	3.5	9.6	9.25	8.79	8.33	6.94	6.01
TP8X16*	2.7	38	64	14.02	13.32	12.62	10.52	9.11
TP8X16	26	5.5	28	14.02	13.32	12.62	10.52	9.11

*Intermittent duty; all others continuous duty type. §At min. stroke; 1/32", T3 and T4; 1/16", T6 and T8; 1/8", T12 types. Maximum life and stroke ratings on request.

‡STROKE LENGTH

Lift given is for min. stroke; lift for max. stroke on request.

Type TP-	Min.	Max.	Type TP-	Min.	Max.	Type TP-	Min.	Max.
3.5X9*	1/32"	1/2"	4X16*	1/16"	1"	8X16*	1/16"	7/8"
3.5X9	1/32"	5/16"	4X16	1/16"	7/8"	8X16	1/16"	7/8"
4X7*	1/32"	7/8"	6X12*	1/16"	3/4"	12X13*	1/8"	3/4"
4X7	1/32"	3/16"	6X12	1/16"	3/4"	12X13	1/8"	3/4"
4X12*	1/32"	7/8"	8X9*	1/16"	7/16"	12X19*	1/8"	1 1/2"
4X12	1/32"	1/4"	8X9	1/16"	7/16"	12X19	1/8"	1 1/2"

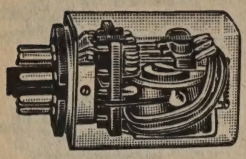
★QUANTITY DISCOUNTS

1-24, Net; 25-49, −5%; 50-99, −10%; 100-249, −30%; 250 Up, −40%.

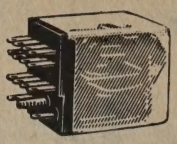
†SOLENOIDS SHOWN ON THIS PAGE ARE RECOGNIZED UNDER THE COMPONENT PROGRAM OF UNDERWRITERS LABORATORIES INC.

GUARDIAN® ELECTRIC Relays

ENCLOSED PLUG-IN AC-DC RELAYS



Type 1210 and 1215



Type 1310, 1315

In high-impact, transparent Lexan case for light weight and resistance to weather and temperatures up to 200° F. **Types 1210, -N, 1215**—With 8-pin octal plug for DPDT and 11-pin for 3PDT. Contacts rated 10 amps at 120 VAC, 60 Hz, non-inductive. Type 1210-N has miniature neon lamp connected across terminals. Lamp lights when coil is energized, goes out in case of circuit fault. Ideal substitute for circuit tester in relay banks, mass relay arrangements, or where relays are visibly located at intermediate switching points of the circuitry. Size, 2 3/16" x 1 3/8" x 1 3/8". Shipping Weight, 3.5 oz. UL and CSA Recognized (5 amp only). **Types 1310 and 1315**—Miniature plug-in relays with solder terminals (no suffix); PC terminals (suffix P); with miniature neon lamp connected across coil terminals to glow on coil energization or show circuit fault on failure to glow (suffix N); with insulated button for push-to-test without applying voltage to coil (suffix B) and, with epoxy resin sealing and dry inert gas filling (suffix S). Long life (100 million operations) 4PDT contacts rated 5 amps, 30 VDC or 120 VAC. Size, 1 11/32" x 55/64" x 1 7/64". Shpg. Wt., 1 1/8 oz.

Guardian Number	Coil Voltage	Cont. Comb.	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
SOLDER TERMINAL TYPE							
1310-4C-6A	6 AC	4PDT	$7.40	$7.03	$6.66	$5.55	$4.81
1310-4C-12A	12 AC	4PDT	7.40	7.03	6.66	5.55	4.81
1310-4C-24A	24 AC	4PDT	7.40	7.03	6.66	5.55	4.81
1310-4C-120A	120 AC	4PDT	7.74	7.35	6.97	5.81	5.03
1315-4C-6D	6 DC	4PDT	7.48	7.11	6.73	5.61	4.86
1315-4C-12D	12 DC	4PDT	7.48	7.11	6.73	5.61	4.86
1315-4C-24D	24 DC	4PDT	7.48	7.11	6.73	5.61	4.86
1315-4C-48D	48 DC	4PDT	8.16	7.75	7.34	6.12	5.30
1315-4C-90D	90 DC	4PDT	8.16	7.75	7.34	6.12	5.30
1315-4C-110D	110 DC	4PDT	8.16	7.75	7.34	6.12	5.30
PRINTED CIRCUIT TYPE							
1310P-4C-6A	6 AC	4PDT	$7.54	$7.16	$6.79	$5.66	$3.19
1310P-4C-12A	12 AC	4PDT	7.54	7.16	6.79	5.66	3.19
1310P-4C-24A	24 AC	4PDT	7.54	7.16	6.79	5.66	3.19
1310P-4C-120A	120 AC	4PDT	7.88	7.49	7.09	5.91	3.33
1315P-4C-6D	6 DC	4PDT	7.61	7.23	6.85	5.71	3.22
1315P-4C-12D	12 DC	4PDT	7.61	7.23	6.85	5.71	3.22
1315P-4C-24D	24 DC	4PDT	7.61	7.23	6.85	5.71	3.22
1315P-4C-48D	48 DC	4PDT	8.29	7.88	7.46	6.22	3.50
1315P-4C-90D	90 DC	4PDT	8.29	7.88	7.46	6.22	3.50
1315P-4C-110D	110 DC	4PDT	8.29	7.88	7.46	6.22	3.50
WITH NEON LAMP							
1310N-4C-120A	120 AC	4PDT	$9.77	$9.28	$8.79	$7.32	$6.35
1315N-4C-24D	24 DC	4PDT	10.10	9.60	9.09	7.58	6.57
1315N-4C-110D	110 DC	4PDT	12.08	11.48	10.87	9.06	7.85
WITH PUSH-TO-TEST BUTTON							
1315B-4C-120A	120 AC	4PDT	$9.06	$8.60	$8.15	$6.80	$5.89
1315B-4C-24D	24 DC	4PDT	8.79	8.35	7.91	6.59	5.71
1315B-4C-110D	110 DC	4PDT	9.46	8.99	8.51	7.10	6.15
SEALED, DRY-GAS FILLED							
1310S-4C-6A	6 AC	4PDT	11.80	11.21	10.62	$8.85	$7.67
1310S-4C-12A	12 AC	4PDT	11.80	11.21	10.62	8.85	7.67
1310S-4C-24A	24 AC	4PDT	11.80	11.21	10.62	8.85	7.67
1310S-4C-48A	48 AC	4PDT	12.14	11.53	10.93	9.11	7.89
1310S-4C-120A	120 AC	4PDT	12.14	11.53	10.93	9.11	7.89
1315S-4C-6D	6 DC	4PDT	11.88	11.29	10.69	8.91	7.72
1315S-4C-12D	12 DC	4PDT	11.88	11.29	10.69	8.91	7.72
1315S-4C-24D	24 DC	4PDT	11.88	11.29	10.69	8.91	7.72
1315S-4C-48D	48 DC	4PDT	12.56	11.93	11.30	9.42	8.16
1315S-4C-110D	110 DC	4PDT	12.56	11.93	11.30	9.42	8.16
SEALED, DRY-GAS FILLED, PRINTED CIRCUIT							
1310PS-4C-6A	6 AC	4PDT	11.94	11.34	10.75	$8.96	$7.76
1310PS-4C-12A	12 AC	4PDT	11.94	11.34	10.75	8.96	7.76
1310PS-4C-24A	24 AC	4PDT	11.94	11.34	10.75	8.96	7.76
1310PS-4C-48A	48 AC	4PDT	12.28	11.67	11.05	9.21	7.98
1310PS-4C-120A	120 AC	4PDT	12.28	11.67	11.05	9.21	7.98
1315PS-4C-6D	6 DC	4PDT	12.01	11.41	10.81	9.01	7.81
1315PS-4C-12D	12 DC	4PDT	12.01	11.41	10.81	9.01	7.81
1315PS-4C-24D	24 DC	4PDT	12.01	11.41	10.81	9.01	7.81
1315PS-4C-48D	48 DC	4PDT	12.69	12.06	11.42	9.52	8.25
1315PS-4C-110D	110 DC	4PDT	12.69	12.06	11.42	9.52	8.25

ENCLOSED PLUG-IN RELAYS—AC-DC

Guardian Number*	Coil Res.	Cont. Comb.	Net Each, Lots of 1-24	25-49	50-99	100-249
1210N-2C-120A	1100	DPDT	$19.45	$18.48	$17.51	$14.59
1210N-3C-120A	1100	3PDT	23.07	21.92	20.76	17.30
1210-2C-6A	33	DPDT	16.09	15.28	14.48	12.07
1210-3C-6A	33	3PDT	19.87	18.87	17.88	14.90
1210-2C-24A	54	DPDT	16.09	15.28	14.48	12.07
1210-3C-24A	54	3PDT	19.87	18.87	17.88	14.90
1210-2C-120A	1100	DPDT	16.09	15.28	14.48	12.07
1210-3C-120A	1100	3PDT	19.87	18.87	17.88	14.90
1210-2C-240A	5000	DPDT	17.34	16.47	15.61	13.00
1210-3C-240A	5000	3PDT	20.54	19.51	18.49	15.41
1215-2C-6D	18	DPDT	16.09	15.28	14.48	12.07
1215-3C-6D	18	3PDT	19.87	18.87	17.88	14.90
1215-2C-12D	75	DPDT	16.09	15.28	14.48	12.07
1215-3C-12D	75	3PDT	19.87	18.87	17.88	14.90
1215-2C-24D	300	DPDT	16.09	15.28	14.48	12.07
1215-3C-24D	300	3PDT	19.87	18.87	17.88	14.90
1215-2C-110D	6500	DPDT	17.82	16.93	16.04	13.37
1215-3C-110D	6500	3PDT	21.16	20.10	19.04	15.87

*Suffix indicates volts (i.e., **-120A** for 120 VAC; **-6D**, 6 VDC, etc.).

ENCLOSED PLATE CIRCUIT PLUG-IN RELAYS—DC

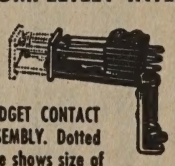
Guardian Number*	Oper. mA	Cont. Comb.	Net Each, Lots of 1-24	25-49	50-99	100-249
1215-2C-2.5	10	DPDT	$17.98	$17.08	$16.18	$13.49
1215-3C-2.5	12	3PDT	21.05	20.00	18.95	15.79
1215-2C-5	7.2	DPDT	18.29	17.38	16.46	13.72
1215-3C-5	8.5	3PDT	21.75	20.66	19.58	16.31
1215-2C-10	5	DPDT	18.83	17.89	16.95	14.12
1215-3C-10	6	3PDT	22.48	21.36	20.23	16.86

*Suffix indicates coil resistance in kilohms (e.g., **-2.5** for 2500 ohms, **-10** for 10,000 ohms, etc.): Not UL Recognized.

SOCKETS

Guardian Number	Description	Net Each, Lots of 1-24	25-49	50-99	100-249	250 Up
1310-1ST	Solder terminals	$1.02	$0.96	$0.91	$0.77	$0.66
1310-2PC	Printed circuit	1.02	.96	.91	.77	.66
1310-3SN	Wire wrap	1.02	.96	.91	.77	.66

SERIES 200 RELAY WITH COMPLETELY INTERCHANGEABLE COIL AND CONTACT ASSEMBLIES



MIDGET CONTACT ASSEMBLY. Dotted line shows size of standard unit.

Two basic parts—a coil assembly and a contact switch assembly—comprise this simple, yet versatile Guardian relay. The coil assembly consists of the coil and field piece; the contact assembly consists of switch blades, armature, return spring and mounting bracket. The Guardian Midget Contact Assembly is **interchangeable** with the standard Series 200 contact assembly. Available with SPDT, DPDT or 4PDT contact switch assemblies, each **interchangeable** with all AC or DC coils.

Guardian Number	Net Each, Lots of 1-24	25-49	50-99	100-249
200-3	$4.84	$4.60	$4.36	$3.63
200-M3	4.84	4.60	4.36	3.63

SERIES 200 RELAY

Guardian Number	Volts	Coil	Net Each, Lots of 1-24	25-49	50-99	100-249
200-6A	6	AC	$5.28	$5.02	$4.75	$3.96
200-12A	12	AC	5.28	5.02	4.75	3.96
200-24A	24	AC	5.28	5.02	4.75	3.96
200-120A	120	AC	6.18	5.87	5.56	4.64
200-240A	240	AC	8.16	7.75	7.34	6.12
200-6D	6	DC	5.72	5.43	5.15	4.29
200-12D	12	DC	5.72	5.43	5.15	4.29
200-24D	24	DC	5.72	5.43	5.15	4.29
200-32D	32	DC	5.72	5.43	5.15	4.29
200-110D	110	DC	7.57	7.19	6.81	5.68
200-5,000D	Plate	DC	6.54	6.21	5.89	4.91
200-10,000D	Plate	DC	7.57	7.19	6.81	5.68

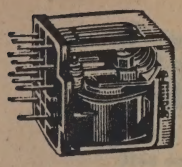
CONTACT SWITCH ASSEMBLIES

Guardian Number	Type	*	Cont. Comb.	Net Each, Lots of 1-24	25-49	50-99	100-249
200-1	Standard	8	SPDT	$4.85	$4.61	$4.37	$3.64
200-2	Standard	8	DPDT	6.35	6.03	5.72	4.76
200-4	Standard	12.5	DPDT	7.14	6.78	6.43	5.36
200-5	Standard	8	4PDT	11.18	10.62	10.06	8.39
200-M1	Midget	10	SPDT	4.57	4.34	4.11	3.43
200-M2	Midget	10	DPDT	5.58	5.30	5.02	4.19
200-M5	Midget	8	4PDT	9.05	8.60	8.15	6.79

*Contact Amps

PRICES LISTED ARE FOR GUIDANCE ONLY

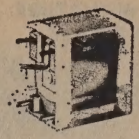
GUARDIAN® *ELECTRIC* Relays and Switches



1220, 1225

SOC-1

640, 645



1345

1475

SERIES 1220 AC AND 1225 DC RELAYS

Versatile enclosed relay for plug-in or solder connection or use with quick-connect terminals. Reduced height and cost by elimination of radio type plug, extra wiring and sub-assembly between relay and plug. Features "Uni-Guard" continuous loop moving blades; snap-lock cover; and multipurpose terminals usable as solder lug, .110″ quick-connect, or socket plug-in use. With mounting bracket. Size, 1 37/64″ x 1 45/64″ x 1¾″. UL Recognized. **Type 1220M and 1225M:** Manual reset version.

Guardian Number†	Coil Res.	Net Each, Lots of 1-24	25-49	50-99	100-249
1220-2C-24A	54	$11.99	$11.39	$10.79	$ 8.99
1220-2C-120A	1110	12.66	12.03	11.39	9.50
1220-2C-240A	5000	13.42	12.75	12.08	10.07
1220-3C-24A	54	13.81	13.12	12.43	10.36
1220-3C-120A	1110	14.47	13.75	13.03	10.85
1220-3C-240A	5000	15.24	14.48	13.72	11.43
1225-2C-6D	18	11.55	10.97	10.40	8.66
1225-2C-12D	75	11.63	11.05	10.47	8.72
1225-2C-24D	300	11.82	11.23	10.64	8.86
1225-2C-110D	6500	13.05	12.40	11.75	9.78
1225-3C-6D	18	13.26	12.60	11.93	9.95
1225-3C-12D	75	13.34	12.67	12.00	10.00
1225-3C-24D	300	13.62	12.94	12.26	10.22
1225-3C-110D	6500	14.85	14.11	13.37	11.14
1220M-2C-24A	54	18.95	18.00	17.06	14.22
1220M-2C-120A	1110	19.08	18.13	17.17	14.31
1225M-2C-24D	300	18.68	17.75	16.81	14.01

†Suffix indicates coil voltage (i.e., **-24A** for 24 VAC, etc.).

Guardian No. 1220-SOC1 or 1220-SOC2 Socket—Socket for 1220 and 1225 relays. Net Ea., Lots of 1-24 . . **$1.40**; 25 Up . . **$1.18**

ALL-PURPOSE ECONOMY AC-DC RELAYS

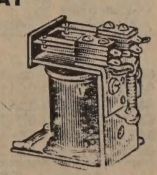
Compact, lightweight relay capable of unusually heavy power control for its size. Variety of AC-DC voltages and contact combinations. Contacts rated 10 amps at 60 Hz, 120-volt noninductive load. Center mounting with single hole. Size, 1 9/32″ x 1⅞″ x 2 5/32″. Shipping Weight, 3.5 oz. UL Recognized.

Guardian Number†	Coil Res.	Cont. Comb.	Net Each, Lots of 1-24	25-49	50-99	100-249
640U-A-24A	24	SPST*	$ 5.93	$ 5.63	$ 5.34	$ 4.45
640U-C-24A	24	SPDT	7.37	7.00	6.63	5.53
640U-2C-24A	24	DPDT	9.84	9.35	8.86	7.38
640U-4C-24A	24	4PDT	13.93	13.23	12.54	10.45
640U-A-120A	550	SPST*	6.09	5.79	5.48	4.57
640U-C-120A	550	SPDT	7.51	7.14	6.76	5.63
640U-2C-120A	550	DPDT	10.07	9.57	9.06	7.55
640U-4C-120A	550	4PDT	14.08	13.38	12.67	10.56
640U-2C-240A	2950	DPDT	10.15	9.64	9.14	7.61
645U-A-12D	50	SPST*	6.23	5.92	5.61	4.67
645U-C-12D	50	SPDT	7.37	7.00	6.63	5.53
645U-2C-12D	50	DPDT	10.41	9.89	9.37	7.81
645U-4C-12D	50	4PDT	14.42	13.70	12.98	10.82
645U-A-24D	200	SPST*	6.34	6.02	5.71	4.76
645U-C-24D	200	SPDT	7.51	7.14	6.76	5.63
645U-2C-24D	200	DPDT	10.41	9.89	9.37	7.81
645U-4C-24D	200	4PDT	14.42	13.70	12.98	8.11
645U-A-110D	4000	SPST*	7.36	6.99	6.62	4.14
645U-C-110D	4000	SPDT	7.73	7.34	6.96	4.35
645U-2C-110D	4000	DPDT	11.45	10.89	10.31	6.44
645U-4C-110D	4000	4PDT	15.54	14.76	13.99	8.74

*Normally open. †Suffix indicates coil voltage (i.e., **-6D** for 6 VDC, etc.).

DC PLATE CIRCUIT RELAY

DPDT; constructed with extra long coil for greater sensitivity. Adaptable to voltage operation as well as sensitive plate circuit control installations. Coil impregnated for reliability and longer life. Average power requirement, 0.2 watt. Contacts, fine silver, rated 10 amps. Single 8-32 center mtg. hole. Size, 2⅛″ x 2″ x 1⅛″. Shipping Weight, 5.5 oz.



Guardian Number	Oper. mA	Coil Res.	Net Each, Lots of 1-24	25-49	50-99	100-249
625-2.5	9	2500	$17.10	$16.25	$15.39	$12.83
625-5	6.3	5000	18.12	17.21	16.31	13.59
625-10	4.5	10.000	19.15	18.19	17.24	14.36

SERIES 1345 10-AMP RELAYS

Choice of SPST-NO, SPST-NC or SPDT. Compact, rugged, built to take hard knocks. Measures just over 1 cu. in., yet specifically designed for up to 50,000 miles of maintenance-free operations in automotive controls; also ideal for any application where you need small size and long life, at a low price. **Contact Ratings:** 10 amps resistive at 12 VDC; 7 amps resistive at 30 VDC; 6 amps inductive at 30 VDC; 3.5 amps resistive at 120 VAC; 2.5 amps inductive at 120 VAC. Heat resistant nylon cover. **Weight:** 1 oz. **Recognized under Component Program of UL.**

Guardian Number	Contact Config.	Coil Volts V	Coil Res. Ohms	Net Each, Lots of 1-24	25-49	50-99
1345-1A-6D	SPST-NO	6 DC	350	$3.16	$3.00	$2.84
1345-1A-12D	SPST-NO	12 DC	1400	3.16	3.00	2.84
1345-1A-24D	SPST-NO	24 DC	5600	3.42	3.25	3.08
1345-1B-6D	SPST-NC	6 DC	350	3.16	3.00	2.84
1345-1B-12D	SPST-NC	12 DC	1400	3.16	3.00	2.84
1345-1B-24D	SPST-NC	24 DC	5600	3.42	3.25	3.08
1345-1C-6D	SPDT	6 DC	350	3.56	3.38	3.20
1345-1C-12D	SPDT	12 DC	1400	3.56	3.38	3.20
1345-1C-24D	SPDT	24 DC	5600	3.88	3.69	3.49

SERIES 1475 LOW PROFILE RELAYS

Electromechanical relay with choice of SPDT or DPDT contacts. Specially designed for high density packaging and demanding operating requirements. "Flat Pack" design features unique multiple convoluted contacting surfaces, rated up to 3 amps resistive. Outperforms similar relays under heavier load conditions. PC terminals on .1″ grid spacing. Sealed thermoset housing and cover. **Contact Ratings:** 5 amps at 6 and 12 VDC; 3 amps at 24 and 28 VDC; 5 amps at 6, 12 and 24 VAC, resistive; 1.5 amps at 120 VAC, inductive. Mechanical life in excess of 100 million operations. **Weight:** SPDT, 10 grams; DPDT, 14 grams.

Guardian Number	Contact Config.	Coil Volts V	Coil Res. Ohms	Net Each, Lots of 1-24	25-49	50-99
1475-1C-5D	SPDT	5 DC	44	$4.20	$3.99	$3.78
1475-1C-6D	SPDT	6 DC	70	4.20	3.99	3.78
1475-1C-12D	SPDT	12 DC	288	4.20	3.99	3.78
1475-1C-24D	SPDT	24 DC	1152	4.38	4.16	3.94
1475-2C-5D	DPDT	5 DC	41.6	5.90	5.61	5.31
1475-2C-6D	DPDT	6 DC	60	5.90	5.61	5.31
1475-2C-12D	DPDT	12 DC	240	5.90	5.61	5.31
1475-2C-24D	DPDT	24 DC	960	6.08	5.78	5.47

SERIES TMP AND TMT TIME DELAY MODULES

Solid state time delay modules available in "on operate" and "on release" configurations. Externally adjustable within two ranges from ½ to 100 seconds and 100 to 300 seconds. TMP module terminates in an octal plug for quick mounting and remote control of relay and other switching devices. TMT module is designed to accept relays mounted to it, or to allow stacking, or installation into a PC board. **Repeatability:** ±1%. **Life:** One million cycles. **Size:** TMP, 1″ h. x 1½″ square; TMT, .63″ h. x 2″ square. UL Recognized.

Guardian Number*	Net 1-9*	Guardian Number*	Net 1-9*	Volts
TMT-O-100-24D†	$16.26	TMP-O-100-24D†	$18.47	24 VDC
TMT-O-300-24D	20.71	TMP-O-300-24D	21.80	24 VDC
TMT-O-100-24A†	17.36	TMP-O-100-24A†	19.18	24 VAC
TMT-O-300-24A	21.89	TMP-O-300-24A	22.54	24 VAC
TMT-O-100-120A†	16.26	TMP-O-100-120A†	18.47	120 VAC
TMT-O-300-120A	20.71	TMP-O-300-120A	21.80	120 VAC
TMT-R-100-24D†	21.89	TMP-R-100-24D†	25.00	24 VDC
TMT-R-300-24D	26.27	TMP-R-300-24D	25.07	24 VDC
TMT-R-100-24A†	22.54	TMP-R-100-24A†	25.67	24 VAC
TMT-R-300-24A	26.27	TMP-R-300-24A	28.84	24 VAC
TMT-R-100-120A†	21.89	TMP-R-100-120A†	25.00	120 VAC
TMT-R-300-120A	26.27	TMP-R-300-120A	25.07	120 VAC

***O** in Guardian Number indicates delay on operate; **R**, delay on release. †Time Range: .5–100 secs; all others, 100–300 secs.

***Larger Quantity Prices Available on Request.**

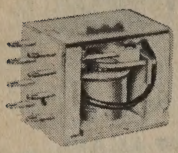
SERIES 1495 SUBMINIATURE RELAYS

DIP socket mount or wave solder directly to PC board. **Contact Ratings:** 1 amp at 30 V AC/DC; 0.5 amp at 120 VAC, resistive. **Mechanical Life:** 10,000,000 operations. **Electrical Life:** 200,000 operations. **Weight:** 5 grams. **Size:** 0.449″ h. x 0.386″ w. x 0.795″ lg.

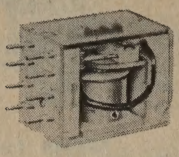
Guardian Number	Contact Config.	Volts, V	Res., Ohms	Net Each, Lots of 1-24	25-49	50-99
1495-2C-3D	DPDT	3 DC	17	$4.66	$4.43	$4.20
1495-2C-5D	DPDT	5 DC	45	4.66	4.43	4.20
1495-2C-6D	DPDT	6 DC	66	4.66	4.43	4.20
1495-2C-12D	DPDT	12 DC	280	4.66	4.43	4.20
1495-2C-24D	DPDT	24 DC	1070	4.95	4.70	4.46

GUARDIAN® ELECTRIC Relays

LOW-COST AC-DC MINIATURE ENCLOSED DPDT RELAYS



Type 1330, 1335



Type 1330P, 1335P

Compact DPDT relays ideal for circuitry in business machines, photocopiers, computers, etc. Save space and cost. Plug-in convenience. Lexan* cover; plug-in convenience with optional socket. Choice of solder (no suffix) or PC (suffix P) termination. Contacts rated 5 amps, 30 VDC or 120 VAC resistive. Socket fits panels .031″–.062″ thick with cutout .759″ x .830″ with .025″ radii at all four corners. Relay Wt., ¾ oz. *Reg. GE TM.

Guardian Number	Coil Voltage	Coil Res.	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
SOLDER TERMINAL TYPE							
1330-2C-6A	6 AC	15	$5.67	$5.38	$5.10	$4.25	$3.69
1330-2C-12A	12 AC	50	5.67	5.38	5.10	4.25	3.69
1330-2C-24A	24 AC	245	5.67	5.38	5.10	4.25	3.69
1330-2C-48A	48 AC	1050	5.79	5.50	5.21	4.34	3.76
1330-2C-120A	120 AC	5400	5.79	5.50	5.21	4.34	3.76
1335-2C-6D	6 DC	30	5.52	5.24	4.97	4.14	3.59
1335-2C-12D	12 DC	125	5.52	5.24	4.97	4.14	3.59
1335-2C-24D	24 DC	500	5.52	5.24	4.97	4.14	3.59
1335-2C-48D	48 DC	2000	5.64	5.36	5.08	4.23	3.67
PRINTED CIRCUIT TYPE							
1330P-2C-6A	6 AC	15	$5.72	$5.43	$5.15	$4.29	$3.72
1330P-2C-12A	12 AC	50	5.72	5.43	5.15	4.29	3.72
1330P-2C-24A	24 AC	245	5.72	5.43	5.15	4.29	3.72
1330P-2C-48A	48 AC	1050	5.84	5.55	5.27	4.38	3.80
1330P-2C-120A	120 AC	5400	5.84	5.55	5.27	4.38	3.80
1335P-2C-6D	6 DC	30	5.58	5.30	5.02	4.19	3.63
1335P-2C-12D	12 DC	125	5.58	5.30	5.02	4.19	3.63
1335P-2C-24D	24 DC	500	5.58	5.30	5.02	4.19	3.63
1335P-2C-48D	48 DC	2000	5.70	5.41	5.13	4.28	3.71

SOCKETS

Guardian Number	Description	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
1330-1ST	Solder terminals	$0.86	$0.81	$0.77	$0.65	$0.56
1330-2PC	Printed circuit	.86	.81	.77	.65	.56

SERIES 1390/1395—DPDT, 13 AMP RELAYS

Compact, space saving relays. Large control capacity in a small low-cost package. Rugged mechanical construction; mechanical life of up to 100 million operations (100,000 min.) at rated loads. Available with plug-in socket. **Contact Ratings:** 13 amps resistive at 28 VDC or 130 VAC; 7.5 amps inductive at 120 VAC; ⅓ hp at 120 VAC. Heat resistant Lexan cover. **Weight:** 1.25 oz. Designed to meet UL requirements.

Guardian Number	Coil Voltage	Coil Res.	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
SOLDER TERMINAL TYPE							
1390-2C-6A	6 AC	10	$7.46	$7.09	$6.71	$5.60	$4.84
1390-2C-12A	12 AC	45	7.46	7.09	6.71	5.60	4.84
1390-2C-24A	24 AC	160	7.46	7.09	6.71	5.60	4.84
1390-2C-48A	48 AC	670	7.88	7.47	7.09	5.91	5.12
1390-2C-120A	120 AC	3900	7.88	7.47	7.09	5.91	5.12
1395-2C-6D	6 DC	40	7.21	6.85	6.49	5.41	4.67
1395-2C-12D	12 DC	160	7.21	6.85	6.49	5.41	4.67
1395-2C-24D	24 DC	650	7.21	6.85	6.49	5.41	4.67
1395-2C-48D	48 DC	2600	8.24	7.83	7.42	6.18	5.36
1395-2C-90D	90 DC	9000	8.24	7.83	7.42	6.18	5.36
1395-2C-110D	110 DC	11000	8.24	7.83	7.42	6.18	5.36
PRINTED CIRCUIT TYPE							
1390P-2C-6A	6 AC	10	$7.59	$7.21	$6.83	$5.70	$4.94
1390P-2C-12A	12 AC	45	7.59	7.21	6.83	5.70	4.94
1390P-2C-24A	24 AC	160	7.59	7.21	6.83	5.70	4.94
1390P-2C-48A	48 AC	670	8.00	7.60	7.20	6.00	5.20
1390P-2C-120A	120 AC	3900	8.00	7.60	7.20	6.00	5.20
1395P-2C-6D	6 DC	40	7.33	6.96	6.60	5.50	4.76
1395P-2C-12D	12 DC	160	7.33	6.96	6.60	5.50	4.76
1395P-2C-24D	24 DC	650	7.33	6.96	6.60	5.50	4.76
1395P-2C-48D	48 DC	2600	8.37	7.95	7.53	6.28	5.44
1395P-2C-90D	90 DC	9000	8.37	7.95	7.53	6.28	5.44
1395P-2C-110D	110 DC	11000	8.37	7.95	7.53	6.28	5.44

Type 1380

Type 6435

SOCKETS

Guardian Number	Description	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
1390-1ST	Solder terminals	$1.02	$0.97	$0.92	$0.77	$0.66
1390-2PC	Printed circuit	1.02	.97	.92	.77	.66
1390-5SM	Screw mount	4.18	3.97	3.76	3.14	2.72

AC-DC MINIATURE ENCLOSED RELAYS

Choice of solder terminals or PC terminals. Contacts are 4PDT, rated 13 amps resistive at 30 VDC or 120 VAC, 60 Hz; ⅓ H.P. at 120 VAC, 60 Hz. Rated for 100,000 operations minimum at 120 VAC. Sockets fit panel cutout of 1.625″ x 1.000″.

Guardian Number	Coil Voltage	Coil Res.	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
SOLDER TERMINAL TYPE							
1380-4C-6A	6 AC	5.5	12.75	12.11	11.48	$9.56	$8.28
1380-4C-12A	12 AC	20	12.75	12.11	11.48	9.56	8.28
1380-4C-24A	24 AC	80	12.75	12.11	11.48	9.56	8.28
1380-4C-48A	48 AC	350	13.33	12.66	12.00	10.00	8.67
1380-4C-120A	120 AC	2500	13.33	12.66	12.00	10.00	8.67
1385-4C-6D	6 DC	25	11.76	11.17	10.58	8.82	7.64
1385-4C-12D	12 DC	100	11.76	11.17	10.58	8.82	7.64
1385-4C-24D	24 DC	350	11.76	11.17	10.58	8.82	7.64
1385-4C-48D	48 DC	1600	12.62	11.99	11.36	9.47	8.20
1385-4C-90D	90 DC	5000	12.62	11.99	11.36	9.47	8.20
1385-4C-110D	110 DC	7000	12.62	11.99	11.36	9.47	8.20
PRINTED CIRCUIT TYPE							
1380P-4C-6A	6 AC	5.5	12.88	12.24	11.60	$9.66	$8.37
1380P-4C-12A	12 AC	20	12.88	12.24	11.60	9.66	8.37
1380P-4C-24A	24 AC	80	12.88	12.24	11.60	9.66	8.37
1380P-4C-48A	48 AC	350	13.45	12.78	12.10	10.09	8.74
1380P-4C-120A	120 AC	2500	13.45	12.78	12.10	10.09	8.74
1385P-4C-6D	6 DC	25	11.89	11.30	10.70	8.92	7.73
1385P-4C-12D	12 DC	100	11.89	11.30	10.70	8.92	7.73
1385P-4C-24D	24 DC	350	11.89	11.30	10.70	8.92	7.73
1385P-4C-48D	48 DC	1600	12.80	12.16	11.52	9.60	8.32
1385P-4C-90D	90 DC	5000	12.80	12.16	11.52	9.60	8.32
1385P-4C-110D	110 DC	7000	12.80	12.16	11.52	9.60	8.32

SOCKETS

Guardian Number	Description	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
1380-1ST	Solder terminals	$2.18	$2.07	$1.96	$1.64	$1.42
1380-2PC	Printed circuit	2.24	2.13	2.02	1.68	1.46
1380-5SM	Screw mount	6.24	5.93	5.62	4.68	4.06

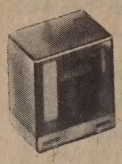
IN-LINE TIME DELAY RELAYS

Unique semi-cylindrical configuration combines the low cost of tubular construction with a flattened bottom for quick and easy PC board installation. Available with solid wire leads or 3/16″ Q.C. terminals. Accuracy after first cycle, ±10% of setting for combined variations of ambient temperature and input voltage. Repeatability after first cycle, ±2% for fixed line input. Operating temperature range, −20° C to +55° C. Action is delay on operate. Adjustable by means of external resistance. Housing is 1.00″ diam. x 2.125″ long.

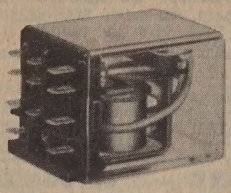
Guardian Number	Input	Time Range Seconds	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249
SOLID WIRE LEADS							
6425-2L-10	12–48	.1–10	$13.36	$12.69	$12.02	$11.36	$10.02
6425-2H-10	90–130	.1–10	13.36	12.69	12.02	11.36	10.02
6425-2L-120	12–48	5–120	13.47	12.80	12.12	11.45	10.10
6425-2H-120	90–130	5–120	13.47	12.80	12.12	11.45	10.10
6425-2L-300	12–48	10–300	15.82	15.03	14.24	13.45	11.87
6425-2H-300	90–130	10–300	15.82	15.03	14.24	13.45	11.87
QUICK-CONNECT TERMINALS							
6435-2L-10	12–48	.1–10	$13.47	$12.80	$12.12	$11.45	$10.10
6435-2H-10	90–130	.1–10	13.47	12.80	12.12	11.45	10.10
6435-2L-120	12–48	5–120	13.60	12.92	12.24	11.56	10.20
6435-2H-120	90–130	5–120	13.60	12.92	12.24	11.56	10.20
6435-2L-300	12–48	10–300	16.72	15.88	15.05	14.21	12.54
6435-2H-300	90–130	10–300	16.72	15.88	15.05	14.21	12.54

PRICES LISTED ARE FOR GUIDANCE ONLY

1505



1575



1510, 1515

GENERAL PURPOSE ENCLOSED RELAYS

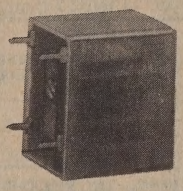
Low cost, general purpose relays with .187″ QC/solder or PC terminals. Silver-cadmium-oxide contacts are rated 12 amps at 30 VDC or 240 VAC, resistive. Polycarbonate dust cover. Approx. weight, 3 ozs.

Guardian Number*	Cont. Comb.	Coil Res.	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
SOLDER TERMINAL TYPE							
1510-1C-6A	SPDT	6	$6.42	$6.10	$5.78	$4.82	$4.17
1510-1C-12A	SPDT	21	6.42	6.10	5.78	4.82	4.17
1510-1C-24A	SPDT	85	6.42	6.10	5.78	4.82	4.17
1510-1C-48A	SPDT	340	6.77	6.43	6.09	5.08	4.40
1510-1C-120A	SPDT	2250	6.77	6.43	6.09	5.08	4.40
1515-1C-6D	SPDT	32	6.28	5.97	5.65	4.71	4.08
1515-1C-12D	SPDT	120	6.28	5.97	5.65	4.71	4.08
1515-1C-24D	SPDT	472	6.28	5.97	5.65	4.71	4.08
1515-1C-48D	SPDT	1800	6.95	6.60	6.26	5.21	4.52
1515-1C-90D	SPDT	6800	6.95	6.60	6.26	5.21	4.52
1515-1C-110D	SPDT	10000	6.95	6.60	6.26	5.21	4.52
1510-2C-6A	DPDT	6	7.23	6.87	6.51	5.42	4.70
1510-2C-12A	DPDT	21	7.23	6.87	6.51	5.42	4.70
1510-2C-24A	DPDT	85	7.23	6.87	6.51	5.42	4.70
1510-2C-48A	DPDT	340	7.62	7.24	6.86	5.72	4.95
1510-2C-120A	DPDT	2250	7.62	7.24	6.86	5.72	4.95
1515-2C-6D	DPDT	32	7.28	6.92	6.55	5.46	4.73
1515-2C-12D	DPDT	120	7.28	6.92	6.55	5.46	4.73
1515-2C-24D	DPDT	472	7.28	6.92	6.55	5.46	4.73
1515-2C-48D	DPDT	1800	7.90	7.51	7.11	5.93	5.14
1515-2C-90D	DPDT	6800	7.90	7.51	7.11	5.93	5.14
1515-2C-110D	DPDT	10000	7.90	7.51	7.11	5.93	5.14
1510-3C-6A	3PDT	4.2	8.21	7.80	7.39	6.16	5.34
1510-3C-12A	3PDT	18	8.21	7.80	7.39	6.16	5.34
1510-3C-24A	3PDT	72	8.21	7.80	7.39	6.16	5.34
1510-3C-48A	3PDT	288	8.36	7.94	7.52	6.27	5.43
1510-3C-120A	3PDT	1700	8.36	7.94	7.52	6.27	5.43
1515-3C-6D	3PDT	32	8.02	7.62	7.22	6.02	5.21
1515-3C-12D	3PDT	120	8.02	7.62	7.22	6.02	5.21
1515-3C-24D	3PDT	472	8.02	7.62	7.22	6.02	5.21
1515-3C-48D	3PDT	1800	8.73	8.29	7.86	6.55	5.67
1515-3C-90D	3PDT	6800	8.73	8.30	7.86	6.55	5.67
1515-3C-110D	3PDT	10000	8.73	8.29	7.86	6.55	5.67
PRINTED CIRCUIT TYPE							
1510P-1C-6A	SPDT	6	$6.51	$6.19	$5.86	$4.88	$4.23
1510P-1C-12A	SPDT	21	6.51	6.19	5.86	4.88	4.23
1510P-1C-24A	SPDT	85	6.51	6.19	5.86	4.88	4.23
1510P-1C-48A	SPDT	340	6.86	6.52	6.17	5.15	4.46
1510P-1C-120A	SPDT	2250	6.86	6.52	6.17	5.15	4.46
1515P-1C-6D	SPDT	32	6.38	6.06	5.74	4.78	4.15
1515P-1C-12D	SPDT	120	6.38	6.06	5.74	4.78	4.15
1515P-1C-24D	SPDT	472	6.38	6.06	5.74	4.78	4.15
1515P-1C-48D	SPDT	1800	7.05	6.70	6.35	5.29	4.58
1515P-1C-90D	SPDT	6800	7.05	6.70	6.35	5.29	4.58
1515P-1C-110D	SPDT	10000	7.05	6.70	6.35	5.29	4.58
1510P-2C-6A	DPDT	6	7.33	6.96	6.60	5.50	4.76
1510P-2C-12A	DPDT	21	7.33	6.96	6.60	5.50	4.76
1510P-2C-24A	DPDT	85	7.33	6.96	6.60	5.50	4.76
1510P-2C-48A	DPDT	340	7.71	7.33	6.94	5.78	5.01
1510P-2C-120A	DPDT	2250	7.71	7.33	6.94	5.78	5.01
1515P-2C-6D	DPDT	32	7.37	7.00	6.63	5.53	4.79
1515P-2C-12D	DPDT	120	7.37	7.00	6.63	5.53	4.79
1515P-2C-24D	DPDT	472	7.37	7.00	6.63	5.53	4.79
1515P-2C-48D	DPDT	1800	8.00	7.60	7.20	6.00	5.20
1515P-2C-90D	DPDT	6800	8.00	7.60	7.20	6.00	5.20
1515P-2C-110D	DPDT	10000	8.00	7.60	7.20	6.00	5.20
1510P-3C-6A	3PDT	4.2	8.29	7.88	7.46	6.22	5.39
1510P-3C-12A	3PDT	18	8.29	7.88	7.46	6.22	5.39
1510P-3C-24A	3PDT	72	8.29	7.88	7.46	6.22	5.39
1510P-3C-48A	3PDT	288	8.42	8.00	7.58	6.32	5.47
1510P-3C-120A	3PDT	1700	8.42	8.00	7.58	6.32	5.47
1515P-3C-6D	3PDT	32	8.11	7.70	7.30	6.08	5.27
1515P-3C-12D	3PDT	120	8.11	7.70	7.30	6.08	5.27
1515P-3C-24D	3PDT	472	8.11	7.70	7.30	6.08	5.27
1515P-3C-48D	3PDT	1800	8.82	8.38	7.94	6.62	5.73
1515P-3C-90D	3PDT	6800	8.82	8.38	7.94	6.62	5.73
1515P-3C-110D	3PDT	10000	8.82	8.38	7.94	6.62	5.73

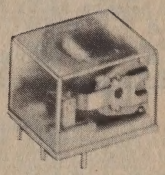
*Suffix indicates coil voltage (i.e., **-12A** for 12 VAC, etc.).

SOCKETS

Guardian Number	Description	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
1510-1ST	Solder terminals	$1.05	$1.00	$0.95	$0.79	$0.68
1510-187QC	Q.C. terminals	1.05	1.00	.95	.79	.68
1510-2PC	P.C. terminals	1.15	1.09	1.04	.86	.75
1510-5SM	Screw terminals	4.74	4.50	4.27	3.56	3.08



1565



1675

SERIES 1675 ENCLOSED RELAYS

SPDT relay in rugged polycarbonate case mounts directly on PC board. **Contact Rating:** 3 amps at 30 VDC or 120 VAC, resistive; 1/10 H.P. at 120 VAC. **Mechanical Life:** 20,000,000 operations. **Electrical Life:** 100,000 operations. **Weight:** 8 grams. **Size:** 0.831″ lg. x 0.642″ w. x 0.547″ h.

Guardian Number	Coil Volts	Coil Ohms	Net Each, Lots of 1-24	25-49	50-99
1675-1C-5D	5 DC	56	$3.08	$2.93	$2.77
1675-1C-6D	6 DC	80	3.08	2.93	2.77
1675-1C-12D	12 DC	320	3.08	2.93	2.77
1675-1C-24D	24 DC	1280	3.17	3.01	2.71

SUBMINIATURE SERIES 1505

Perfect for high density packaging. Measures only 0.394″ high x 0.433″ wide x 0.590″ deep. Weighs 3½ grams. Silver contacts are rated 1 amp resistive at 30 VDC; 0.5 amp resistive at 100 VAC. Life, 5 million operations minimum.

Guardian Number	Coil Voltage	Coil Res.	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
1505-1C-3D	3 DC	21	$2.38	$2.26	$2.14	$1.79	$1.55
1505-1C-6D	6 DC	84	2.38	2.26	2.14	1.79	1.55
1505-1C-12D	12 DC	333	2.38	2.26	2.14	1.79	1.55
1505-1C-24D	24 DC	1330	2.59	2.46	2.33	1.94	1.68

MINIATURE SERIES 1565

Low cost, miniature relays for high density packaging. PC terminals. Molded nylon dust cover. Silver-cadmium-oxide contacts rated 3 amps at 30 VDC or 250 VAC, resistive. Weight, 12 grams.

Guardian Number*	Cont. Comb.	Coil Res.	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
1565-1A-3D	SPST-NO	11	$2.64	$2.51	$2.38	$1.98	$1.72
1565-1A-6D	SPST-NO	45	2.64	2.51	2.38	1.98	1.72
1565-1A-12D	SPST-NO	180	2.64	2.51	2.38	1.98	1.72
1565-1A-24D	SPST-NO	720	2.68	2.55	2.41	2.01	1.74
1565-1C-3D	SPDT	11	2.82	2.68	2.54	2.12	1.83
1565-1C-6D	SPDT	45	2.82	2.68	2.54	2.12	1.83
1565-1C-12D	SPDT	180	2.82	2.68	2.54	2.12	1.83
1565-1C-24D	SPDT	720	2.89	2.75	2.60	2.17	1.88

*Suffix indicates coil voltage (i.e., **-12A** for 12 VAC, etc.).

MINIATURE SERIES 1575

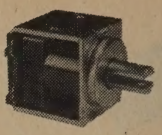
Sealed relay for PC board mounting. Silver-cadmium-oxide contacts are gold flashed and rated at 3 amps at 30 VDC or 120 VAC. Weight, 14 grams.

Guardian Number	Coil Voltage	Coil Res.	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
1575-1C-6D	6 DC	100	$2.45	$2.33	$2.21	$1.84	$1.59
1575-1C-12D	12 DC	400	2.45	2.33	2.21	1.84	1.59
1575-1C-24D	24 DC	1600	2.60	2.47	2.34	1.95	1.69
1575-1C-48D	48 DC	6400	3.08	2.93	2.77	2.31	2.00

S3H SERIES—UL RECOGNIZED

Box frame, pull-on operate solenoid. **Dielectric Strength:** 1200 VAC, rms, 60 Hz. **Coil Finish:** Molded cover. **Weight:** Unit, 11.8 ozs; plunger, 1.8 ozs. **Mounting:** Two 8-32 tapped holes on .938″ centers on each side.

P & B Number*	Input Volts	Approx. Power	Duty Cycle	Max. On-Time Mins.	Force @ Stroke Ozs. @ Ins.		Net Each
S3H-25-D	24 VDC	28 W	25%	5	128 @ .125	10 @ .750	$7.00
S3H-100-D	24 VDC	11 W	100%	Cont.	66 @ .125	3 @ .750	7.00

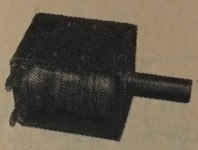


S3H Series

S4 SERIES—UL RECOGNIZED

Box frame, pull-on operate solenoid. **Dielectric Strength:** 1200 VAC, rms, 60 Hz. **Coil Finish:** Molded cover. **Weight:** Unit, 11.5 ozs; plunger, 1.8 ozs. **Mounting:** Four 8-32 tapped holes on .938″ x .500″ centers on each side.

S4-25-A	120 VAC	45 VA	25%	5	42 @ .125	16 @ 1.250	10.05
S4-100-A	120 VAC	10 VA	100%	Cont.	9 @ .125	3.5 @ 1.250	10.05
S4-25-D	24, 110 VDC	38 W	25%	5	118 @ .125	15 @ 1.000	10.05
S4-100-D	24, 100 VDC	11 W	100%	Cont.	65 @ .125	6 @ .875	10.05

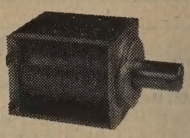


S4 Series

S4H SERIES

Box frame, pull-on operate solenoid. **Dielectric Strength:** 1200 VAC, rms, 60 Hz. **Coil Finish:** Molded cover. **Weight:** Unit, 12.5 ozs; plunger, 2 ozs. **Mounting:** Four 8-32 tapped holes on .938″ x .500″ centers on each side.

S4H-25-A	120 VAC	95 VA	25%	5	65 @ .125	41 @ 1.125	10.45
S4H-100-A	120 VAC	28 VA	100%	Cont.	25 @ .125	15 @ 1.125	10.45
S4H-25-D	24, 110 VDC	40 W	25%	5	145 @ .125	7 @ 1.125	10.45
S4H-100-D	24, 110 VDC	11.5 W	100%	Cont.	77 @ .125	7 @ .750	10.45



S4H Series

S9 SERIES—UL RECOGNIZED

C-frame, pull-on operate solenoid. **Dielectric Strength:** 900 VAC, rms, 60 Hz. **Coil Finish:** Acetate yarn. **Weight:** Unit, 2.4 ozs; plunger, 0.6 oz. **Mounting:** Two 10-32 tapped holes on .750″ centers.

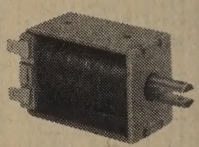
S9-25-A	120 VAC	20 VA	25%	5	32 @ .0625	6.5 @ .500	$5.20
S9-100-A	120 VAC	10 VA	100%	Cont.	20 @ .0625	3 @ .500	5.20
S9-25-D	24 VDC	10 W	25%	5	22 @ .0625	1.5 @ .500	5.20
S9-100-D	24 VDC	6 W	100%	Cont.	15 @ .0625	1 @ .500	5.20

S9 Series

S11A SERIES

Box frame, pull-on operate solenoid. **Dielectric Strength:** 900 VAC, rms, 60 Hz. **Coil Finish:** Molded cover. **Weight:** Unit, 4.7 ozs; plunger, 0.6 oz. **Mounting:** Two 6-32 tapped holes on 1.000″ centers on one side; two 6-32 tapped holes on .625″ x .812″ centers on opposite side.

S11A-20-A	24, 120 VAC	40 VA	20%	4	25 @ .125	9 @ 1.000	$5.55
S11A-100-A	24, 120 VAC	12 VA	100%	Cont.	13 @ .125	5 @ 1.000	5.55
S11A-20-D	6, 24 VDC	19 W	20%	5	40 @ .125	4 @ .750	4.95
S11A-100-D	6, 24 VDC	8 W	100%	Cont.	24 @ .125	2 @ .750	4.95

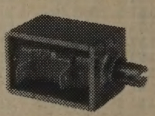


S11A Series

S22 SERIES

Box frame, pull-on operate solenoid. **Dielectric Strength:** 900 VAC, rms, 60 Hz. **Coil Finish:** Acetate yarn. **Weight:** Unit, 1.7 ozs; plunger, 0.25 oz. **Mounting:** Two 4-40 tapped holes on .468″ x .625″ centers.

S22-25-A	120 VAC	12 VA	25%	4	17 @ .0625	3.5 @ .500	$5.45
S22-100-A	120 VAC	5 VA	100%	Cont.	10 @ .0625	1.8 @ .500	5.45
S22-25-D	6, 24 VDC	9 W	25%	5	20 @ .0625	1.4 @ .4375	5.45
S22-100-D	6, 24 VDC	4 W	100%	Cont.	13 @ .0625	1.2 @ .4375	5.45

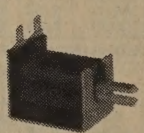


S22 Series

S24 SERIES—UL RECOGNIZED

C-frame, pull-on operate solenoid. **Dielectric Strength:** 1200 VAC, rms, 60 Hz. **Coil Finish:** Molded cover. **Weight:** Unit, 2.2 ozs; plunger, 0.4 oz. **Mounting:** Two 6-32 tapped holes on .438″ x .500″ centers.

S24-20-A	24, 120 VAC	18 VA	20%	4	14 @ .125	3 @ .625	$3.80
S24-100-A	24, 120 VAC	7 VA	100%	Cont.	9 @ .125	1.5 @ .625	3.80
S24-20-D	6, 12, 24 VDC	12 W	20%	4	27 @ .0625	2 @ .500	3.80
S24-100-D	6, 12, 24 VDC	5 W	100%	Cont.	15 @ .0625	1.25 @ .500	3.80

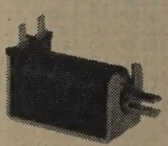


S24 Series

S26 SERIES—UL RECOGNIZED

C-frame, pull-on operate solenoids. **Dielectric Strength:** 1200 VAC, rms, 60 Hz. **Coil Finish:** Molded cover. **Weight:** Unit, 3.5 ozs; plunger, 0.6 oz. **Mounting:** Two 6-32 tapped holes on .438″ x .500″ centers.

S26-20-A	24, 120 VAC	21 VA	20%	4	27 @ .0625	2 @ 1.000	$3.65
S26-100-A	24, 120 VAC	10 VA	100%	Cont.	12.5 @ .0625	4 @ .625	3.65
S26-20-D	6, 12, 24 VDC	18 W	20%	4	46 @ .0625	3 @ .750	3.65
S26-100-D	6, 12, 24 VDC	7 W	100%	Cont.	30 @ .0625	2.5 @ .500	3.65

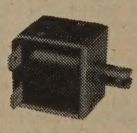


S26 Series

S28 SERIES—UL RECOGNIZED

Box frame, pull-on operate solenoid. **Dielectric Strength:** 1200 VAC, rms, 60 Hz. **Coil: Finish:** Molded cover. **Weight:** Unit, 3.2 ozs; plunger, 0.5 oz. **Mounting:** Two 6-32 tapped holes on .625″ x .406″ centers.

S28-25-A	24, 120 VAC	16.5 VA	25%	5	31 @ .0625	6 @ .500	$4.35
S28-100-A	24, 120 VAC	8 VA	100%	Cont.	20 @ .0625	3 @ .500	4.35
S28-25-D	6, 12, 24 VDC	11.5 W	25%	5	37 @ .0625	2 @ .500	4.35
S28-100-D	6, 12, 24 VDC	5.5 W	100%	Cont.	25 @ .0625	1 @ .500	4.35

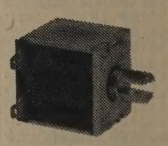


S28 Series

S28H SERIES—UL RECOGNIZED

Box frame, pull-on operate solenoids. **Dielectric Strength:** 1200 VAC, rms, 60 Hz. **Coil Finish:** Molded cover. **Weight:** Unit, 4.3 ozs; plunger, 0.87 oz. **Mounting:** Two 6-32 tapped holes on .625″ x .500″ centers.

S28H-25-A	24, 120 VAC	19 VA	25%	5	35 @ .0625	12 @ .500	$4.95
S28H-100-A	24, 120 VAC	11 VA	100%	Cont.	20 @ .0625	7 @ .500	4.95
S28H-25-D	6, 12, 24 VDC	11 W	25%	5	56 @ .0625	3.5 @ .500	4.95
S28H-100-D	6, 12, 24 VDC	6.5 W	100%	Cont.	35 @ .0625	1.5 @ '500	4.95

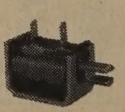


S28H Series

S34 SERIES—UL RECOGNIZED

C-frame, pull-on operate solenoids. **Dielectric Strength:** 900 VAC, rms, 60 Hz. **Coil Finish:** Acetate yarn. **Weight:** Unit, 2.5 ozs; plunger, 0.4 oz. **Mounting:** Two 6-32 tapped holes on .437″ x .500″ centers.

S34-25-A	120 VAC	14 VA	25%	3.5	21 @ .0625	4 @ .500	$4.75
S34-100-A	120 VAC	7 VA	100%	Cont.	11.5 @ .0625	1.5 @ .500	4.75
S34-25-D	24 VDC	10 W	25%	4	36 @ .0312	4 @ .250	4.75
S34-100-D	24 VDC	5 W	100%	Cont.	24 @ .0312	2 @ .250	4.75



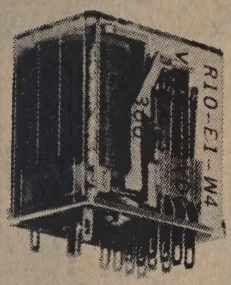
S34 Series

*Specify coil voltage when ordering.

PRICES SHOWN ARE FOR REFERENCE ONLY

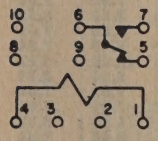
PRICES LISTED ARE FOR GUIDANCE ONLY

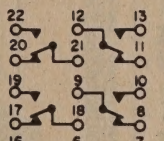
GENERAL PURPOSE RELAYS

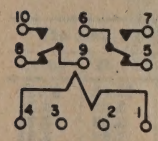


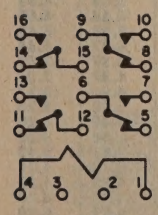
R10-E1

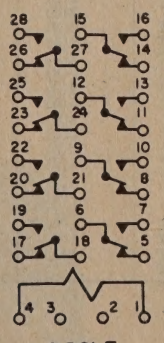
R10 Series: All models are UL recognized and models up to 6PDT have CSA recognition. Contact ratings shown are for 28 VDC or 115 VAC, resistive; maximum current is shown in parentheses. **E1** relays have solder/plug-in terminals and 3-48 stud; **E2** relays have PC board terminals; **E6** relays have solder/plug-in terminals and mounting bracket with 6-32 stud and locating tab on .437" ctrs. **J** relays are DC current actuated; **SS** relays are sensitive DC voltage actuated; **V** relays are DC voltage actuated. All have clear polycarbonate cover. **Size:** .735" x 1.187" x .95" to 1.580" depending on contact arrangement. **Weight:** 0.8 to 1.4 ozs.











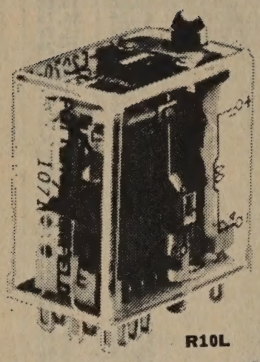
P & B Number	Coil Input	Contacts Arrangement	Contacts Amps, Typ. (Max.)	Net Each, Lots of★ 1-9	10-49	50-99
R10-E1-L2-V185	12 VDC	DPDT	0.0005(0.25)	$ 8.95	$ 8.06	$ 7.16
R10-E1-L2-V700	24 VDC	DPDT	0.0005(0.25)	8.95	8.06	7.16
R10-E1-L2-115V	115 VAC	DPDT	0.0005(0.25)	15.00	13.50	12.00
R10-E1-L4-V185	12 VDC	4PDT	0.0005(0.25)	13.05	11.75	10.44
R10-E1-L4-V700	24 VDC	4PDT	0.0005(0.25)	13.05	11.75	10.44
R10-E1-L4-115V	115 VAC	4PDT	0.0005(0.25)	19.70	17.73	15.76
R10-E1-W4-V185	12 VDC	4PDT	7.5(7.5)	9.95	8.96	7.96
R10-E1-W4-V700	24 VDC	4PDT	7.5(7.5)	9.95	8.96	7.96
R10-E1-Y1-SS1.0K	6 VDC	SPDT	2(3)	9.45	8.51	7.56
R10-E1-Y1-SS220	3 VDC	SPDT	2(3)	9.45	8.51	7.56
R10-E1-Y2-V28	5 VDC	DPDT	2(3)	5.95	5.36	4.76
R10-E1-Y2-V52	6 VDC	DPDT	2(3)	5.95	5.36	4.76
R10-E1-Y2-V185	12 VDC	DPDT	2(3)	5.95	5.36	4.76
R10-E1-Y2-V700	24 VDC	DPDT	2(3)	5.95	5.36	4.76
R10-E1-Y2-V2.5K	48 VDC	DPDT	2(3)	5.95	5.36	4.76
R10-E1-Y2-V15.0K	115 VDC	DPDT	2(3)	9.05	8.15	7.24
R10-E1-Y2-S800	12 VDC	DPDT	2(3)	8.30	7.47	6.64
R10-E1-Y2-115V	115 VAC	DPDT	2(3)	12.00	10.80	9.60
R10-E1-Y4-V52	6 VDC	4PDT	2(3)	7.05	6.35	5.64
R10-E1-Y4-V185	12 VDC	4PDT	2(3)	7.05	6.35	5.64
R10-E1-Y4-V700	24 VDC	4PDT	2(3)	7.05	6.35	5.64
R10-E1-Y4-V2.5K	48 VDC	4PDT	2(3)	7.05	6.35	5.64
R10-E1-Y4-V15.0K	115 VDC	4PDT	2(3)	10.15	9.14	8.12
R10-E1-Y6-V25	6 VDC	6PDT	2(3)	10.50	9.45	8.40
R10-E1-Y6-V90	12 VDC	6PDT	2(3)	10.50	9.45	8.40
R10-E1-Y6-V430	24 VDC	6PDT	2(3)	10.50	9.45	8.40
R10-E1-Y6-V1.5K	48 VDC	6PDT	2(3)	10.50	9.45	8.40
R10-E1-Y6-9.0K	115 VDC	6PDT	2(3)	12.35	11.12	9.88
R10-E1-M2-V700	24 VDC	DPDT	5(7.5)	7.35	6.62	5.88
R10-E1-M4-V700	24 VDC	4PDT	5(7.5)	9.85	8.87	7.88
R10-E1-X2-V28	5 VDC	DPDT	5(7.5)	6.45	5.81	5.16
R10-E1-X2-V52	6 VDC	DPDT	5(7.5)	6.45	5.81	5.16
R10-E1-X2-V185	12 VDC	DPDT	5(7.5)	6.45	5.81	5.16
R10-E1-X2-V700	24 VDC	DPDT	5(7.5)	6.45	5.81	5.16
R10-E1-X2-V2.5K	48 VDC	DPDT	5(7.5)	6.45	5.81	5.16
R10-E1-X2-V15.0K	115 VDC	DPDT	5(7.5)	9.55	8.60	7.64
R10-E1-X2-S800	12 VDC	DPDT	5(7.5)	8.80	7.92	7.04
R10-E1-X4-V52	6 VDC	4PDT	5(7.5)	8.05	7.25	6.44
R10-E1-X4-V185	12 VDC	4PDT	5(7.5)	8.05	7.25	6.44
R10-E1-X4-V700	24 VDC	4PDT	5(7.5)	8.05	7.25	6.44
R10-E1-X4-V2.5K	48 VDC	4PDT	5(7.5)	8.05	7.25	6.44
R10-E1-X4-V15.0K	115 VDC	4PDT	5(7.5)	11.15	10.04	8.92
R10-E1-X6-V25	6 VDC	6PDT	5(7.5)	12.00	10.80	9.60
R10-E1-X6-V90	12 VDC	6PDT	5(7.5)	12.00	10.80	9.60
R10-E1-X6-V430	24 VDC	6PDT	5(7.5)	12.00	10.80	9.60
R10-E1-X6-V1.5K	48 VDC	6PDT	5(7.5)	12.00	10.80	9.60
R10-E1-X6-V9.0K	115 VDC	6PDT	5(7.5)	13.85	12.47	11.08
R10-E1-W2-V185	12 VDC	DPDT	7.5(7.5)	7.40	6.66	5.92
R10-E1-W2-V700	24 VDC	DPDT	7.5(7.5)	7.40	6.66	5.92
R10-E1-Z2-V52	6 VDC	DPDT	0.1(2)	6.65	5.99	5.32
R10-E1-Z2-V185	12 VDC	DPDT	0.1(2)	6.65	5.99	5.32
R10-E1-Z2-V700	24 VDC	DPDT	0.1(2)	6.65	5.99	5.32
R10-E1-Z2-V2.5K	48 VDC	DPDT	0.1(2)	6.65	5.99	5.32
R10-E1-Z2-V15.0K	115 VDC	DPDT	0.1(2)	9.75	8.78	7.80
R10-E1-Z2-S800	12 VDC	DPDT	0.1(2)	9.00	8.10	7.20
R10-E1-Z2-115V	115 VAC	DPDT	0.1(2)	12.70	11.43	10.16
R10-E1-Z4-V52	6 VDC	4PDT	0.1(2)	8.45	7.61	6.76
R10-E1-Z4-V185	12 VDC	4PDT	0.1(2)	8.45	7.61	6.76
R10-E1-Z4-V700	24 VDC	4PDT	0.1(2)	8.45	7.61	6.76
R10-E1-Z4-V2.5K	48 VDC	4PDT	0.1(2)	8.45	7.61	6.76
R10-E1-Z4-V15.0K	115 VDC	4PDT	0.1(2)	11.55	10.40	9.24
R10-E1-Z6-V25	6 VDC	6PDT	0.1(2)	12.60	11.34	10.08
R10-E1-Z6-V90	12 VDC	6PDT	0.1(2)	12.60	11.34	10.08
R10-E1-Z6-V430	24 VDC	6PDT	0.1(2)	12.60	11.34	10.08
R10-E1-Z6-V1.5K	48 VDC	6PDT	0.1(2)	12.60	11.34	10.08
R10-E1-Z6-V9.0K	115 VDC	6PDT	0.1(2)	14.45	13.01	11.56
R10-E1-Y2-J1.0K	8.5 mA	DPDT	2(3)	8.30	7.47	6.64
R10-E1-Y2-J2.5K	5.8 mA	DPDT	2(3)	8.30	7.47	6.64
R10-E1-Y2-J5.0K	4.1 mA	DPDT	2(3)	8.95	8.06	7.16
R10-E1-Y2-J10.0K	3.1 mA	DPDT	2(3)	9.55	8.60	7.64
R10-E1-Y4-J2.5K	8.4 mA	4PDT	2(3)	9.40	8.46	7.52
R10-E1-Y4-J5.0K	6.2 mA	4PDT	2(3)	10.05	9.05	8.04
R10-E1-Y4-J10.0K	4.5 mA	4PDT	2(3)	10.65	9.59	8.52
R10-E1-Z4-J1.0K	13.0 mA	4PDT	0.1(2)	10.80	9.72	8.64
R10-E1-Z4-J2.5K	8.4 mA	4PDT	0.1(2)	10.80	9.72	8.64
R10-E1-Z4-J5.0K	6.2 mA	4PDT	0.1(2)	11.45	10.31	9.16
R10-E1-X2-115V	115 VAC	DPDT	5(7.5)	12.50	11.25	10.00
R10-E1-X4-115V	115 VAC	4PDT	5(7.5)	14.70	13.23	11.76
R10-E1-X6-115V	115 VAC	6PDT	5(7.5)	20.25	18.23	16.20
R10-E1-X8-115V	115 VAC	8PDT	5(7.5)	23.55	21.20	18.84
R10-E2-W2-V185	12 VDC	DPDT	7.5(7.5)	7.40	6.66	5.92
R10-E2-W2-V700	24 VDC	DPDT	7.5(7.5)	7.40	6.66	5.92
R10-E2-X2-V28	5 VDC	DPDT	5(7.5)	6.45	5.81	5.16
R10-E2-X2-V185	12 VDC	DPDT	5(7.5)	6.45	5.81	5.16
R10-E2-X2-V700	24 VDC	DPDT	5(7.5)	6.45	5.81	5.16
R10-E2-X2-S3.2K	24 VDC	DPDT	5(7.5)	8.80	7.92	7.04
R10-E2-X2-115V	115 VAC	DPDT	5(7.5)	12.50	11.25	10.00
R10-E2-X4-V185	12 VDC	4PDT	5(7.5)	8.05	7.25	6.44
R10-E2-X4-V700	24 VDC	4PDT	5(7.5)	8.05	7.25	6.44
R10-E2-Y2-V28	5 VDC	DPDT	2(3)	5.95	5.36	4.76
R10-E2-Y2-V185	12 VDC	DPDT	2(3)	5.95	5.36	4.76
R10-E2-Y2-V700	24 VDC	DPDT	2(3)	5.95	5.36	4.76
R10-E2-Y4-V185	12 VDC	4PDT	2(3)	7.05	6.35	5.64
R10-E2-Y4-V700	24 VDC	4PDT	2(3)	7.05	6.35	5.64

★ LARGER QUANTITY PRICES ON REQUEST. PRICES SHOWN ARE FOR REFERENCE ONLY

SEE ANOTHER P & B PAGE FOR ACCESSORIES

CURRENT PRICES WILL APPLY ON ALL LINES

GENERAL PURPOSE RELAYS (CONT'D.)

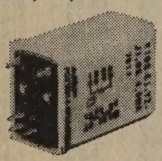


R10L

R10L Series: With light-emitting diode in parallel with coil. Available in solder, **E1,** and PC board, **E2,** terminals.

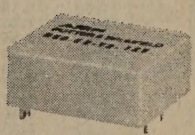
P & B Number	Coil Input	Contacts Arrangement	Contacts Amps, Typ. (Max.)	Net Each, Lots of★ 1-9	10-49	50-99
R10-E2-Y6-V90	12 VDC	6PDT	2(3)	$10.50	$ 9.45	$ 8.40
R10-E2-Y6-V430	24 VDC	6PDT	2(3)	10.50	9.45	8.40
R10-E2-Y6-V1.5K	48 VDC	6PDT	2(3)	10.50	9.45	8.40
R10-E2-Z4-V185	12 VDC	4PDT	0.1(2)	8.45	7.61	6.76
R10-E2-Z4-V700	24 VDC	4PDT	0.1(2)	8.45	7.61	6.76
R10-E2-Z4-J2.5K	8.4 mA	4PDT	0.1(2)	10.80	9.72	8.64
R10-E2-Z4-J5.0K	6.2 mA	4PDT	0.1(2)	11.45	10.31	9.16
R10-E2-Z6-V90	12 VDC	6PDT	0.1(2)	12.60	11.34	10.08
R10-E2-Z6-V430	24 VDC	6PDT	0.1(2)	12.60	11.34	10.08
R10-E2-Z6-V1.5K	48 VDC	6PDT	0.1(2)	12.60	11.34	10.08
R10-E6-X2-V52	6 VDC	DPDT	5(7.5)	7.35	6.62	5.88
R10-E6-X2-V185	12 VDC	DPDT	5(7.5)	7.35	6.62	5.88
R10-E6-X2-V700	24 VDC	DPDT	5(7.5)	7.35	6.62	5.88
R10-E6-X2-115V	115 VAC	DPDT	5(7.5)	13.40	12.06	10.72
R10-E6-X4-V185	12 VDC	4PDT	5(7.5)	8.95	8.06	7.16
R10-E6-X4-V700	24 VDC	4PDT	5(7.5)	8.95	8.06	7.16
R10-E6-X4-115V	115 VAC	4PDT	5(7.5)	15.60	14.04	12.48
R10-E6-Y2-V185	12 VDC	DPDT	2(3)	6.85	6.17	5.48
R10-E6-Y2-V700	24 VDC	DPDT	2(3)	6.85	6.17	5.48
R10-E6-Y4-V185	12 VDC	4PDT	2(3)	7.95	7.16	6.36
R10-E6-Y4-V700	24 VDC	4PDT	2(3)	7.95	7.16	6.36
R10L-E1-X2-V185	12 VDC	DPDT	5(7.5)	11.25	10.13	9.00
R10L-E1-X2-V700	24 VDC	DPDT	5(7.5)	11.25	10.13	9.00
R10L-E1-X4-V185	12 VDC	4PDT	5(7.5)	12.85	11.57	10.28
R10L-E1-X4-V700	24 VDC	4PDT	5(7.5)	12.85	11.57	10.28
R10L-E1-X4-V2.5K	48 VDC	4PDT	5(7.5)	12.85	11.57	10.28
R10L-E1-X6-V430	24 VDC	6PDT	5(7.5)	16.80	15.12	13.44
R10L-E1-Y2-V52	6 VDC	DPDT	2(3)	10.75	9.68	8.60
R10L-E1-Y2-V185	12 VDC	DPDT	2(3)	10.75	9.68	8.60
R10L-E1-Y2-V700	24 VDC	DPDT	2(3)	10.75	9.68	8.60
R10L-E1-Y2-V2.5K	48 VDC	DPDT	2(3)	10.75	9.68	8.60
R10L-E1-Y4-V52	6 VDC	4PDT	2(3)	11.85	10.67	9.48
R10L-E1-Y4-V185	12 VDC	4PDT	2(3)	11.85	10.67	9.48
R10L-E1-Y4-V700	24 VDC	4PDT	2(3)	11.85	10.67	9.48
R10L-E1-Y6-V430	24 VDC	6PDT	2(3)	15.30	13.77	12.24
R10L-E1-Z4-V700	24 VDC	4PDT	0.1(2)	13.25	11.93	10.60
R10L-E2-Y2-V185	12 VDC	DPDT	2(3)	10.75	9.68	8.60
R10L-E2-Y4-V700	24 VDC	4PDT	2(3)	11.85	10.67	9.48

R10S Series: Very sensitive, current actuated DC relays for direct drive from TTL, CMOS, ECL, and HTL. Available in solber, **E1,** and PC board, **E2,** terminals.



R10S

P & B Number	Coil Input	Contacts Arrangement	Contacts Amps, Typ. (Max.)	Net Each, Lots of★ 1-9	10-49	50-99
R10S-E1-Y1-J1.0K	3.2 mA	SPDT	2(3)	$ 8.80	$ 7.92	$ 7.04
R10S-E1-Y1-J2.5K	2.0 mA	SPDT	2(3)	8.80	7.92	7.04
R10S-E1-Y1-J5.0K	1.4 mA	SPDT	2(3)	10.65	9.59	8.52
R10S-E1-Y2-J1.0K	4.5 mA	DPDT	2(3)	9.55	8.60	7.64
R10S-E1-Y2-J2.5K	2.9 mA	DPDT	2(3)	9.55	8.60	7.64
R10S-E1-Y2-J5.0K	2.0 mA	DPDT	2(3)	11.40	10.26	9.21
R10S-E1-Y4-J1.0K	6.5 mA	4PDT	2(3)	10.95	9.86	8.76
R10S-E2-Y1-J1.0K	3.2 mA	SPDT	2(3)	8.80	7.92	7.04
R10S-E2-Y1-J2.5K	2.0 mA	SPDT	2(3)	8.80	7.92	7.04
R10S-E2-Y1-J5.0K	1.4 mA	SPDT	2(3)	10.65	9.59	8.52
R10S-E2-Y2-J2.5K	2.9 mA	DPDT	2(3)	9.55	8.60	7.64
R10S-E2-Y4-J1.0K	6.5 mA	4PDT	2(3)	10.95	9.86	8.76



R50

R50 Series: Small, low profile printed-circuit relays have UL recognition and seat only .460″ high. Have molded polyester case and tin plated PC terminals spaced on 0.1″ grid. **Contact Rating:** R50, 2 amps at 28 VDC or 1 amp at 120 VAC, resistive; R50S, 1 amp at 28 VDC or 0.5 amp at 120 VAC, resistive; R50-X1, 5 amps at 28 VDC or 2.5 amps at 120 VAC, resistive. **Weight:** R50-Y1, 0.3 oz; R50-Y2 and R50-X1, 0.5 oz. **Size:** R50-X, 1.285″ x .795″ x .500″; R50-Y, 1.09″ x .595″ x .460″.

P & B Number	Coil Input	Contacts Arrangement	Contacts Amps, Typ. (Max.)	Net Each, Lots of★ 1-9	10-49	50-99
R50-E2-Y1-5V	5 VDC	SPDT	2(3)	$4.10	$3.69	$3.28
R50-E2-Y1-6V	6 VDC	SPDT	2(3)	4.10	3.69	3.28
R50-E2-Y1-12V	12 VDC	SPDT	2(3)	4.10	3.69	3.28
R50-E2-Y1-24V	24 VDC	SPDT	2(3)	4.40	3.96	3.52
R50-E2-Y1-48V	48 VDC	SPDT	2(3)	5.05	4.55	4.04
R50-E2-Y2-5V	5 VDC	DPDT	2(3)	5.65	5.09	4.52
R50-E2-Y2-6V	6 VDC	DPDT	2(3)	5.65	5.09	4.52
R50-E2-Y2-12V	12 VDC	DPDT	2(3)	5.65	5.09	4.52
R50-E2-Y2-24V	24 VDC	DPDT	2(3)	5.75	5.18	4.60
R50-E2-Y2-48V	48 VDC	DPDT	2(3)	6.75	6.08	5.40
R50-E2-X1-5V	5 VDC	SPDT	5(6)	4.85	4.37	3.88
R50-E2-X1-6V	6 VDC	SPDT	5(6)	4.85	4.37	3.88
R50-E2-X1-12V	12 VDC	SPDT	5(6)	4.85	4.37	3.88
R50-E2-X1-24V	24 VDC	SPDT	5(6)	5.15	4.64	4.12
R50S-E2-Y1-5V	5 VDC	SPDT	1(2)	4.00	3.60	3.20
R50S-E2-Y1-6V	6 VDC	SPDT	1(2)	4.00	3.60	3.20
R50S-E2-Y1-12V	12 VDC	SPDT	1(2)	4.00	3.60	3.20
R50S-E2-Y1-24V	24 VDC	SPDT	1(2)	4.25	3.83	3.40
R50S-E2-Y2-5V	5 VDC	DPDT	1(2)	5.25	4.73	4.20
R50S-E2-Y2-6V	6 VDC	DPDT	1(2)	5.25	4.73	4.20
R50S-E2-Y2-12V	12 VDC	DPDT	1(2)	5.25	4.73	4.20
R50S-E2-Y2-24V	24 VDC	DPDT	1(2)	5.50	4.95	4.40

★ LARGER QUANTITY PRICES ON REQUEST. PRICES SHOWN ARE FOR REFERENCE ONLY

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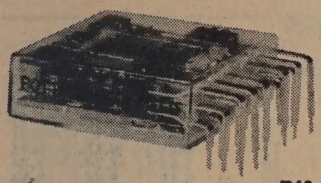
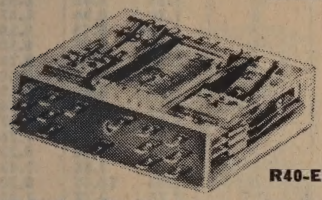
PRICES LISTED ARE FOR GUIDANCE ONLY

GENERAL PURPOSE RELAYS



R40-E3

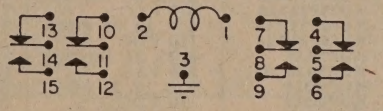


R40-E1

R40 Series: Slimline relays designed for flat PC board mounting have UL and CSA recognition. Available with solder/plug-in, PC board, or right-angle PC board terminals. A variety of contact styles provide switching from dry circuit to 7.5 amps at 28 VDC or 115 VAC, resistive. Bifurcated contacts for low level applications or cross bar contacts for dry circuit use are available. Clear polycarbonate cover. **E1** relays have solder/plug-in terminals; **E2** relays have PC board terminals; **E3** relays have right-angle PC board terminals. **Size:** 1.4″ x 1.2″ x .430″. **Weight:** 0.8 to 1.05 ozs.

P & B Number	Coil Input	Contacts Arrangement	Contacts Amps,* Typ. (Max.)	Net Each, Lots of★ 1-9	10-49	50-99
R40-E1-X4-V200	12 VDC	4PDT	5(7.5)	$13.50	$12.15	$10.80
R40-E1-X4-V800	24 VDC	4PDT	5(7.5)	13.50	12.15	10.80
R40-E1-Y4-V50	6 VDC	4PDT	2(3)	12.50	11.25	10.00
R40-E1-Y4-V200	12 VDC	4PDT	2(3)	12.50	11.25	10.00
R40-E1-Y4-V800	24 VDC	4PDT	2(3)	12.50	11.25	10.00
R40-E1-Y4-V3.2K	48 VDC	4PDT	2(3)	12.50	11.25	10.00
R40-E1-Z4-V200	12 VDC	4PDT	0.1(2)	13.90	12.51	11.12
R40-E1-Z4-V800	24 VDC	4PDT	0.1(2)	13.90	12.51	11.12
R40-E1-L4-V200	12 VDC	4PDT	0.0005(.25)	15.30	13.77	12.24
R40-E1-L4-V800	24 VDC	4PDT	0.0005(.25)	15.30	13.77	12.24
R40-E2-X4-V50	6 VDC	4PDT	5(7.5)	13.50	12.15	10.80
R40-E2-X4-V200	12 VDC	4PDT	5(7.5)	13.50	12.15	10.80
R40-E2-X4-V800	24 VDC	4PDT	5(7.5)	13.50	12.15	10.80
R40-E2-Y4-V200	12 VDC	4PDT	2(3)	12.50	11.25	10.00
R40-E2-Y4-V800	24 VDC	4PDT	2(3)	12.50	11.25	10.00
R40-E2-Z4-V200	12 VDC	4PDT	0.1(2)	13.90	12.51	11.12
R40-E3-X4-V200	12 VDC	4PDT	5(7.5)	14.10	12.69	11.28
R40-E3-X4-V800	24 VDC	4PDT	5(7.5)	14.10	12.69	11.28
R40-E3-Y4-V200	12 VDC	4PDT	2(3)	13.10	11.79	10.48
R40-E3-Y4-V800	24 VDC	4PDT	2(3)	13.10	11.79	10.48
R40-E3-Y4-V3.2K	48 VDC	4PDT	2(3)	13.10	11.79	10.48
R40-E3-Z4-V200	12 VDC	4PDT	0.1(2)	14.50	13.05	11.60
R40-E3-Z4-V800	24 VDC	4PDT	0.1(2)	14.50	13.05	11.60
R40-E3-L4-V200	12 VDC	4PDT	0.0005(.25)	15.90	14.31	12.72
R40-E3-L4-V800	24 VDC	4PDT	0.0005(.25)	15.90	14.31	12.72

*For 28 VDC or 115 VAC, resistive.



R40

GENERAL PURPOSE RELAYS

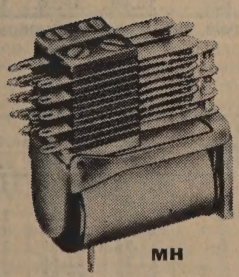
K10

K10 Series: Relays offer reliable DPDT, 10 amp switching capability in a compact package. Recognized under the component program of UL and CSA certified. Enclosed in smoke colored polycarbonate covers with .187″ quick-connect terminals which also fit available sockets. The silver cadmium oxide are rated 10 amps at 30 VDC, resistive, or 277 VAC; ½ H.P. at 250 VAC; ⅓ H.P. at 120 VAC.

P & B Number■	Coil Input	Contacts Arrangement	Contacts Amps, Max.	Net Each, Lots of★ 1-24	25-50	51-99
K10P11A15	6, 12, 24, 48, 120 VAC	DPDT	10	$7.45	$7.08	$6.71
K10P11D15	6, 12, 24 VDC	DPDT	10	6.65	6.32	5.99
K10P11D15	90 VDC	DPDT	10	7.45	7.08	6.71
K10P11D115	110 VDC	DPDT	10	7.80	7.41	7.02

■Specify coil voltage when ordering.

TELEPHONE TYPE RELAYS



MH

MH Series: Miniature relay ideal for applications where space and weight are factors. Open models have pierced solder terminals; all other have hook solder terminals. **Contacts:** Silver. **Mounting:** MH11L, 6-32 stud and locating tab; MH17D and MH23D, four 3-48 tapped holes on .375″ x .375″ ctrs; sealed models with **M** suffix, three 6-32 studs on 1.25″ x .50″ ctrs; sealed models with **D** suffix, three 6-32 studs on 1.188″ x .938″ ctrs. **Weight:** Open models, 2.5 ozs; sealed models, 5 oz. **Size:** 1.63″ lg. x 0.75″ w. x 1.531″ h. max.

P & B Number■	Coil Input	Contacts Arrangement	Contacts Amps, Max.	Net Each, Lots of★ 1-24	25-50	51-99
MH11L	4.5 mA	DPDT	3	$27.45	$26.08	$24.71
MH17D	6, 12, 24 VDC	4PDT	5	28.35	26.93	25.52
MH17DM•	12, 24 VDC	4PDT	5	55.65	52.87	50.09
MH17AMR•	120 VAC	4PDT	5	72.35	68.73	65.12
MH23D	12, 24 VDC	6PDT	5	40.15	38.14	36.14
MH23DD•	24 VDC	6PDT	5	77.00	73.15	69.30

•Sealed relay. ■Specify coil voltage when ordering.

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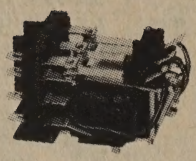
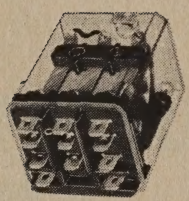
GENERAL PURPOSE RELAYS



KU Series: UL recognized and CSA listed. Open relays mount with one No. 6-32 threaded stud and a .218" locating tab on .437" centers. All models have .187" quick-connect/solder terminals. **Contact Ratings:** 5 amps at 28 VDC and 240 VAC, 80% PF, 1/10 hp at 120 VAC; 1/4 hp at 240 VAC.

P & B Number	Coil Input	Contacts Arrangement	Contacts Amps, Typ. (max.)	Net Each, Lots of★ 1-24	25-50	51-99
KU5A11	6, 12, 24, 120 VAC	SPDT	5	$ 6.40	$ 6.08	$ 5.76
KU5A11	240 VAC	SPDT	5	8.10	7.70	7.29
KU5D11	6, 12, 24 VDC	SPDT	5	6.10	5.80	5.49
KU5D11	110 VDC	SPDT	5	8.85	8.41	7.97
KU5A15	6, 12, 24, 120 VAC	SPDT	10	6.45	6.13	5.81
KU5A15	240 VAC	SPDT	10	8.15	7.74	7.34
KU5D15	6, 12, 24 VDC	SPDT	10	6.15	5.84	5.54
KU5D15	110 VDC	SPDT	10	8.90	8.46	8.01
KU11A11	6, 12, 24, 120 VAC	DPDT	5	7.30	6.94	6.57
KU11A11	240 VAC	DPDT	5	9.00	8.55	8.10
KU11D11	6, 12, 24 VDC	DPDT	5	7.00	6.65	6.30
KU11D11	110 VDC	DPDT	5	9.75	9.26	8.78
KU11A15	6, 12, 24, 120 VAC	DPDT	10	7.40	7.03	6.66
KU11A15	240 VAC	DPDT	10	9.10	8.65	8.19
KU11D15	6, 12, 24 VDC	DPDT	10	7.10	6.75	6.39
KU11D15	110 VDC	DPDT	10	9.85	9.36	8.87
KU14A11	6, 12, 24, 120 VAC	3PDT	5	8.55	8.12	7.70
KU14A11	240 VAC	3PDT	5	10.25	9.74	9.23
KU14D11	6, 12, 24 VDC	3PDT	5	8.25	7.84	7.43
KU14D11	110 VDC	3PDT	5	11.00	10.45	9.90
KU14A15	6, 12, 24, 120 VAC	3PDT	10	8.70	8.27	7.83
KU14A15	240 VAC	3PDT	10	10.40	9.88	9.36
KU14D15	6, 12, 24 VDC	3PDT	10	8.40	7.98	7.56
KU14D15	110 VDC	3PDT	10	11.15	10.59	10.04



KUP, KUEP, KUMP

KUP and KUMP Series: Relays have polycarbonate covers. UL recognized and CSA listed. Models with suffix **25** have push-to-test button to manually actuate contacts; models with suffix **35** have neon lamp to indicate coil power; models with suffix **45** have both button and lamp. **Contact Rating:** KUP with suffix **11**, 5 amps at 28 VDC or 240 VAC; all other KUP models, 10 amps at 28 VDC or 240 VAC. KUMP models, 15 amps at 277 VAC. **Terminals:** .187" quick-connect/solder. **Mounting:** KUP with suffix **55**, bracket mounted; all others use sockets and hold-down springs. **Weight:** 3 ozs.

P & B Number*	Coil Input	Contacts Arrangement	Contacts Amps. Typ.	Net Each, Lots of★ 1-24	25-50	51-99
KUEP3A15	120 VAC	SPST	10	$ 9.50	$ 9.03	$ 8.55
KUEP3D15	24 VDC	SPST	10	8.85	8.41	7.97
KUMP11A18	6, 12, 24, 120 VAC	DPDT	15	8.95	8.50	8.06
KUMP11A18	240 VAC	DPDT	15	10.65	10.12	9.59
KUMP11D18	5, 6, 12, 24 VDC	DPDT	15	8.65	8.22	7.79
KUMP11D18	110 VDC	DPDT	15	11.40	10.83	10.26
KUP5A15	6, 12, 24, 120 VAC	SPDT	10	6.80	6.46	6.12
KUP5A15	240 VAC	SPDT	10	8.50	8.08	7.65
KUP5D15	5, 6, 12, 24 VDC	SPDT	10	6.25	5.94	5.63
KUP5D15	110 VDC	SPDT	10	9.00	8.55	8.10
KUP11A11	120 VAC	DPDT	5	8.10	7.70	7.29
KUP11D11	24 VDC	DPDT	5	7.65	7.27	6.89
KUP11A15	6, 12, 24, 120 VAC	DPDT	10	8.00	7.60	7.20
KUP11A15	240 VAC	DPDT	10	9.70	9.22	8.73
KUP11D15	5, 6, 12, 24 VDC	DPDT	10	7.55	7.17	6.80
KUP11D15	110 VDC	DPDT	10	10.30	9.79	9.27
KUP11A35	6, 12 24 VAC	DPDT	10	12.30	11.69	11.07
KUP11A35	120 VAC	DPDT	10	9.80	9.31	8.82
KUP11D35	12, 24 VDC	DPDT	10	11.85	11.26	10.67
KUP11D35	110 VDC	DPDT	10	12.10	11.50	10.89
KUP14A11	120 VAC	3PDT	5	9.05	8.60	8.15
KUP14A15	6, 12, 24, 120 VAC	3PDT	10	8.90	8.46	8.01
KUP14A15	240 VAC	3PDT	10	10.60	10.07	9.54
KUP14D15	6, 12, 24 VDC	3PDT	10	8.70	8.27	7.83
KUP14D15	48 VDC	3PDT	10	10.15	9.64	9.14
KUP14D15	110 VDC	3PDT	10	11.45	10.88	10.31
KUP14A25	120 VAC	3PDT	10	10.25	9.74	9.23
KUP14A35	120 VAC	3PDT	10	10.70	10.17	9.63
KUP14A45	120 VAC	3PDT	10	11.90	11.31	10.71
KUP5A55	120 VAC	SPDT	10	7.10	6.75	6.39
KUP5D55	24 VDC	SPDT	10	6.55	6.22	5.90
KUP11A55	24, 120 VAC	DPDT	10	8.30	7.89	7.47
KUP11D55	6, 12, 24 VDC	DPDT	10	7.85	7.46	7.07
KUP11D55	110 VDC	DPDT	10	10.60	10.07	9.54
KUP14A55	6, 12, 24, 120 VAC	3PDT	10	9.20	8.74	8.28
KUP14A55	240 VAC	3PDT	10	10.90	10.36	9.81
KUP14D55	6, 12, 24 VDC	3PDT	10	9.00	8.55	8.10
KUP14D55	110 VDC	3PDT	10	11.75	11.16	10.58
KUP17A19	6, 12, 24, 120 VAC	4PDT	10	14.05	13.35	12.65
KUP17A19	240 VAC	4PDT	10	15.75	14.96	14.18
KUP17D19	6, 12, 24 VDC	4PDT	10	13.15	12.49	11.84
KUP17D19	110 VDC	4PDT	10	15.90	15.11	14.31
KUP17A55	6, 12, 24, 120 VAC	4PDT	10*	14.15	13.44	12.74
KUP17A55	240 VAC	4PDT	10*	15.85	15.06	14.27
KUP17D55	6, 12, 24 VDC	4PDT	10*	13.25	12.59	11.93
KUP17D55	110 VDC	4PDT	10*	16.00	15.20	14.40

*Specify coil voltage when ordering. *To 10 amps per pole, not to exceed 30 amps tota for four poles.

KNP

KNP Series: Small relay designed for economical chassis space. Recognized under UL component program and CSA listing for ratings of 1/10 hp at 120 VAC, 3 amps at 32 VDC, resistive, or 3 amps at 240 VAC. Fine silver cross bar contacts. Terminals are .110" quick-connect/solder. **Mounting:** Suffix **11**, 6-32 tapped hole with locating tab; suffix **21**, 3-48 stud. Clear, polycarbonate cover. **Size:** 1.00" x .98" x 1.45". **Weight:** 1.4 ozs.

P & B Number*	Coil Input	Contacts Arrange-ment	Contacts Amps, Typ.	Net Each, Lots of★ 1-24	25-50	51-99
KNP5A21	12, 24, 120 VAC	SPDT	3	$11.75	$11.16	$10.58
KNP5D21	6, 12, 24 VDC	SPDT	3	10.00	9.50	9.00
KNP5D21	110 VDC	SPDT	3	11.75	11.16	10.58
KNP11A11	120 VAC	DPDT	3	14.25	13.54	12.83
KNP11A21	12, 24, 120 VAC	DPDT	3	13.95	13.25	12.56
KNP11D11	12, 24 VDC	DPDT	3	12.10	11.50	10.89
KNP11D21	6, 12, 24 VDC	DPDT	3	11.90	11.31	10.71
KNP11D21	48 VDC	DPDT	3	12.10	11.50	10.89
KNP14A21	12, 24, 120 VAC	3PDT	3	16.25	15.44	14.63
KNP14D21	12, 24 VDC	3PDT	3	14.20	13.49	12.78

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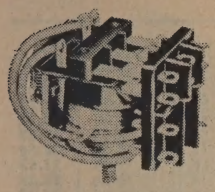
GENERAL PURPOSE RELAYS



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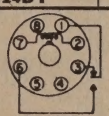
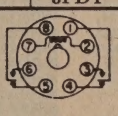
KAP

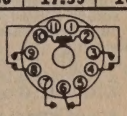
P & B Number*	Coil Input	Contacts Arrangement	Contacts Amps, Typ.	Net Each, Lots of★ 1-24	25-50	51-99
KA5AY	6, 12, 24, 120 VAC	SPDT	5	$ 7.25	$ 6.89	$ 6.53
KA5AY	240 VAC	SPDT	5	8.80	8.36	7.92
KA5AG	6, 12, 24, 120 VAC	SPDT	10	7.80	7.41	7.02
KA5AG	240 VAC	SPDT	10	8.85	8.41	7.97
KA5DY	6, 12, 24 VDC	SPDT	5	7.20	6.84	6.48
KA5DY	110 VDC	SPDT	5	8.30	7.89	7.47
KA5DG	6, 12, 24 VDC	SPDT	10	7.30	6.94	6.57
KA5DG	110 VDC	SPDT	10	8.35	7.93	7.52
KA11AY	6, 12, 24, 120 VAC	DPDT	5	8.75	8.31	7.88
KA11AY	240 VAC	DPDT	5	10.05	9.55	9.05
KA11AG	6, 12, 24, 120 VAC	DPDT	10	9.15	8.69	8.24
KA11AG	240 VDC	DPDT	10	10.25	9.74	9.23
KA11DY	6, 12, 24 VDC	DPDT	5	8.50	8.08	7.65
KA11DY	48 VDC	DPDT	5	9.25	8.79	8.33
KA11DY	110 VDC	DPDT	5	9.45	8.98	8.51
KA11DG	6, 12, 24 VDC	DPDT	10	9.00	8.55	8.10
KA11DG	110 VDC	DPDT	10	9.85	9.36	8.87
KA14AY	6, 12, 24, 120 VAC	3PDT	5	10.70	10.17	9.63
KA14AY	240 VAC	3PDT	5	11.80	11.21	10.62
KA14AG	6, 12, 24, 120 VAC	3PDT	10	11.70	11.12	10.53
KA14AG	240 VAC	3PDT	10	12.35	11.73	11.12
KA14DY	6, 12, 24 VDC	3PDT	5	10.80	10.26	9.72
KA14DY	110 VDC	3PDT	5	11.45	10.88	10.31
KA14DG	6, 12, 24 VDC	3PDT	10	11.75	11.16	10.58
KA14DG	110 VDC	3PDT	10	12.50	11.88	11.25
KAP5AG	24, 120 VAC	SPDT	10	12.85	12.21	11.57
KAP5DG	24 VDC	SPDT	10	12.50	11.88	11.25
KAP5DG	110 VDC	SPDT	10	14.10	13.40	12.69
KAP11AY	24, 120 VAC	DPDT	5	14.10	13.40	12.69
KAP11AY	240 VAC	DPDT	5	14.80	14.06	13.32
KAP11AG	6, 24, 120 VAC	DPDT	10	14.35	13.63	12.92
KAP11DG	24 VDC	DPDT	10	14.20	13.49	12.78
KAP11DG	110 VDC	DPDT	10	15.50	14.73	13.95
KAP11DY	12, 24 VDC	DPDT	5	13.95	13.25	12.56
KAP11DY	110 VDC	DPDT	5	15.35	14.58	13.82
KAP14AY	24, 120 VAC	3PDT	5	17.35	16.48	15.62
KAP14AY	240 VAC	3PDT	5	18.00	17.10	16.20
KAP14AG	24, 120 VAC	3PDT	10	17.55	16.67	15.80
KAP14DG	24 VDC	3PDT	10	17.50	16.63	15.75
KAP14DG	110 VDC	3PDT	10	18.80	17.86	16.92
KAP14DY	12, 24 VDC	3PDT	5	17.15	16.29	15.44
KAP14DY	110 VDC	3PDT	5	18.30	17.39	16.47



KAP5

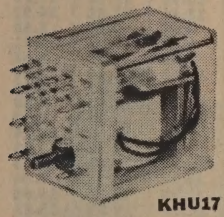


KAP11

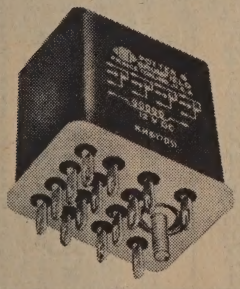


KAP14

KA and KAP Series: Small, efficient relays for light power loads. The series has CSA listing and carries UL component recognition. CSA listed. **Contacts:** Suffix **Y,** 5 amps at 120 VAC or 3 amps at 240 VAC; suffix **G,** silver cadmium rated at 10 amps at 120 VAC or 6 amps at 240 VAC. **Mounting:** KA, 6-32 stud and locating tab on .438″ ctrs.; KAP11, 8-pin plug; KAP14, 11-pin plug. **Size:** KA, 1.844″ x 1.468″ x 1.687″; KAP, clear polycarbonate cover, 1.531″ x 1.437″ x 2.281″. **Weight:** 3 ozs.



KHU17

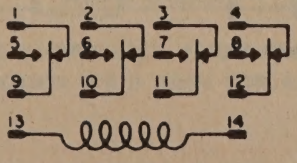


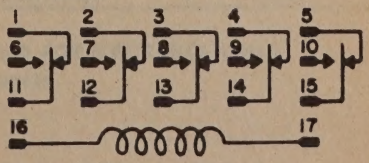
KHS

P & B Number*	Coil Input	Contacts Arrangement	Contacts Amps, Typ.	Net Each, Lots of★ 1-24	25-50	51-99
KHU17A11	6, 12, 24 VAC	4PDT	3	$11.60	$11.02	$10.44
KHU17A11	120 VAC	4PDT	3	11.60	11.02	10.44
KHU17A11N	120 VAC	4PDT	3	14.55	13.82	13.10
KHU17D11	5, 6, 12, 24 VDC	4PDT	3	9.90	9.41	8.91
KHU17D11	48 VDC	4PDT	3	10.25	9.74	9.23
KHU17D11	90, 110 VDC	4PDT	3	11.50	10.93	10.35
KHU17D11	110 VDC	4PDT	3	12.15	11.54	10.94
KHU17D11N	120 VDC	4PDT	3	15.40	14.63	13.86
KHU17A12	120 VAC	4PDT	3	11.60	11.02	10.44
KHU17D12	12, 24 VDC	4PDT	3	9.90	9.41	8.91
KHU17D12	48 VDC	4PDT	3	10.25	9.74	9.23
KHU17D12	110 VDC	4PDT	3	12.15	11.54	10.94
KHU17A13	120 VAC	4PDT	1	33.80	32.11	30.42
KHU17A18	120 VAC	4PDT	3	12.20	11.59	10.98
KHU17D13	24 VDC	4PDT	1	32.10	30.50	28.89
KHU17D13	48 VDC	4PDT	1	32.45	30.83	29.21
KHU17D16	12, 24 VDC	4PDT	1	11.45	10.88	10.31
KHS17A11	6, 12, 24 VAC	4PDT	3	19.45	18.48	17.51
KHS17A11	120 VAC	4PDT	3	19.45	18.48	17.51
KHS17A12	120 VAC	4PDT	3	19.45	18.48	17.51
KHS17A13	120 VAC	4PDT	1	47.50	45.13	42.75
KHS17D11	6, 12, 24 VDC	4PDT	3	17.75	16.86	15.98
KHS17D11	110 VDC	4PDT	3	20.00	19.00	18.00
KHS17D12	24 VDC	4PDT	3	17.75	16.86	15.98
KHS17D12	110 VDC	4PDT	3	20.00	19.00	18.00
KHS17D13	24 VDC	4PDT	1	45.80	43.51	41.22
KHU20A11	24 VAC	5PDT	2	14.20	13.49	12.78
KHU20A11	120 VAC	5PDT	2	14.20	13.49	12.78
KHU20D11	12, 24 VDC	5PDT	2	12.50	11.88	11.25
KHU20D11	48 VDC	5PDT	2	12.85	12.21	11.57
KHU20D11	110 VDC	5PDT	2	14.75	14.01	13.28
KHU20A12	120 VAC	5PDT	2	14.20	13.49	12.78
KHU20D12	24 VDC	5PDT	2	12.50	11.88	11.25

*Specify coil voltage when ordering.

KHS and KHU Series: KHU style is recognized under component program of UL and CSA, and has clear polycarbonate cover; KHS has hermetically sealed metal cover. Designed for data processing, computers and process control. **Contacts Available:** Suffix **1,** silver rated 3 amps at 30 VDC or 120 VAC; suffix **2,** silver cadmium oxide rated 3 amps; suffix **3,** gold alloy rated low level to 1 amp; suffix **6,** gold overlay on silver, bifurcated, rated 1 amp at 30 VDC, resistive, or 120 VAC. Suffix **N** denotes neon lamp in parallel with coil for visual indication. Solder terminals. Mount with 3-48 stud or socket. **Weight:** KHU17, 1.12 ozs.; KHU20, 1.3 ozs.; KHS, 1.63 ozs. **Size:** KHU17, 1.109″ x .859″ x 1.281″; KHU20, 1.160″ x 1.040″ x 1.281″; KHS, 1.156″ x .91″ x 1.281″.





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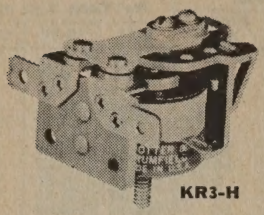
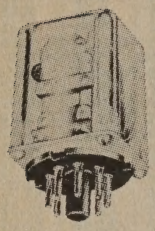
SEE ANOTHER P & B PAGE FOR ACCESSORIES

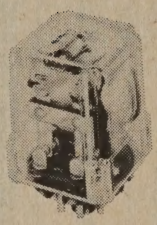
GENERAL PURPOSE RELAYS



KR3-H



KRP



KRP-N

UL recognized KR3_H and KRP3_H Series: Small, heavy-duty relay. Silver cadmium oxide contacts rated 20 amps at 120 VAC, resistive, or 28 VDC; 1 hp at 120/240 VAC, 60 Hz. **Terminals:** KR3_H, .250″ quick-connect/solder for the contacts, solder only for the coil; KRP3_H, octal plug. **Mounting:** KR3_H, 6-32 stud and locating tab on .437″ ctrs. **Size:** KR3_H, 1.67″ x 1.6″ x 1.52″; KRP3_H, 1.406″ x 1.531″ x 2.281″. **Weight:** KR3_H, 2 ozs; KRP3_H, 3 ozs.

KR11_E and KR14_E Series: Hermetically sealed in metal can with octal plug. **Contacts:** Silver rated 5 amps at 120 VAC or 28 VDC, resistive; except suffix **G** denotes silver cadmium oxide rated 10 amps at 120 VAC or 28 VDC, resistive. **Size:** 1.656″ x 1.437″ x 2.125″.

CSA & UL recognized KRP Series: Clear, polycarbonate cover. Octal plug on KRP5 and KRP11; 11-pin plug on KRP14. **Contacts:** Silver rated 5 amps except suffix **G** denotes silver cadmium oxide rated 10 amps. **Size:** 1.406″ x 1.406″ x 2.00″. **Weight:** 3 oz.

UL KRP-N Series: A general purpose relay incorporating a lamp in parallel with the coil. **Contacts:** Silver cadmium oxide rated 10 amps. Clear polycarbonate cover and octal plug. **Size:** 1.406″ x 1.406″ x 2.00″. **Weight:** 3 ozs.

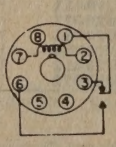
UL KRPA Series: A low cost version of the KRP relay. Clear polycarbonate cover with octal plug. **Contacts:** Silver rated 5 amps ;silver cadmium oxide rated 10 amps. **Size:** 1.406″ x 1.406″ x 2.000″. **Weight:** 3 ozs.

UL KRPA-N Series: Same, except incorporates lamp in parallel with relay coil.

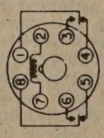
P & B Number■	Coil Input	Contacts: Arrangement	Contacts: Amps, Typ.	Net Each, Lots of★ 1-24	25-50	51-99
KR3AH	12, 24, 120 VAC	SPST*	20	$11.00	$10.45	$ 9.90
KR3DH	12, 24 VDC	SPST*	20	10.80	10.26	9.72
KR3DH	110 VDC	SPST*	20	11.80	11.21	10.62
KR11AE•	120 VAC	DPDT	5	31.10	29.55	27.99
KR11AGE•	120 VAC	DPDT	10	32.10	30.50	28.89
KR11DE•	24 VDC	DPDT	5	30.50	28.98	27.45
KR11DGE•	24 VDC	DPDT	10	31.45	29.88	28.31
KR14AGE•	120 VAC	3PDT	10	41.90	39.81	37.71
KRP3AH▲	12, 24, 120 VAC	SPST*	20	15.55	14.77	14.00
KRP3DH▲	12, 24 VDC	SPST*	20	15.30	14.54	13.77
KRP3DH▲	110 VDC	SPST*	20	16.40	15.58	14.76
KRP5AY▲	6, 12, 24, 120 VAC	SPDT	5	11.85	11.26	10.67
KRP5AG▲	6, 12, 24, 120 VAC	SPDT	10	12.35	11.73	11.12
KRP5DY▲	6, 12, 24 VDC	SPDT	5	11.80	11.21	10.62
KRP5DY▲	110 VDC	SPDT	5	13.25	12.59	11.93
KRP5DG▲	6, 12, 24 VDC	SPDT	10	12.30	11.69	11.07
KRP5DG▲	110 VDC	SPDT	10	13.60	12.92	12.24
KRP11AY▲	6, 12, 24, 120 VAC	DPDT	5	13.40	12.73	12.06
KRP11AY▲	240 VAC	DPDT	5	14.10	13.40	12.69
KRP11AG▲	6, 12, 24, 120 VAC	DPDT	10	13.75	13.06	12.38
KRP11AG▲	240 VAC	DPDT	10	14.55	13.82	13.10
KRP11DY▲	6, 12, 24 VDC	DPDT	5	13.25	12.59	11.93
KRP11DY▲	48 VDC	DPDT	5	13.90	13.21	12.51
KRP11DY▲	110 VDC	DPDT	5	14.55	13.82	13.10
KRP11DG▲	6, 12, 24 VDC	DPDT	10	13.70	13.02	12.33
KRP11DG▲	48 VDC	DPDT	10	14.50	13.78	13.05
KRP11DG▲	110 VDC	DPDT	10	14.95	14.20	13.46
KRP14AY▲	6, 12, 24, 120 VAC	3PDT	5	16.50	15.68	14.85
KRP14AY▲	240 VAC	3PDT	5	17.10	16.25	15.39
KRP14AG▲	6, 12, 24, 120 VAC	3PDT	10	16.90	16.06	15.21
KRP14AG▲	240 VAC	3PDT	10	17.90	17.01	16.11
KRP14DY▲	6, 12, 24 VDC	3PDT	5	16.40	15.58	14.76
KRP14DY▲	48 VDC	3PDT	5	16.90	16.06	15.21
KRP14DY▲	110 VDC	3PDT	5	17.60	16.72	15.84
KRP14DG▲	6, 12, 24 VDC	3PDT	10	16.80	15.96	15.12
KRP14DG▲	48 VDC	3PDT	10	17.70	16.82	15.93
KRP14DG▲	110 VDC	3RDT	10	18.15	17.24	16.34
KRP11AN▲	6, 12, 24, 120 VAC	DPDT	10	15.65	14.87	14.09
KRP11AN▲	240 VAC	DPDT	10	16.55	15.72	14.90
KRP11DN▲	6, 12, 24 VDC	DPDT	10	15.55	14.77	14.00
KRP11DN▲	110 VDC	DPDT	10	16.80	15.96	15.12
KRP14AN▲	6, 12, 24, 120 VAC	3PDT	10	19.05	18.10	17.15
KRP14AN▲	240 VAC	3PDT	10	19.95	18.95	17.96
KRP14DN▲	24 VDC	3PDT	10	18.80	17.86	16.92
KRPA5AY▲	6, 12, 24, 120 VAC	SPDT	5	9.55	9.07	8.60
KRPA5AG▲	6, 12, 24, 120 VAC	SPDT	10	9.90	9.41	8.91
KRPA5DY▲	6, 12, 24 VDC	SPDT	5	9.50	9.03	8.55
KRPA5DY▲	110 VDC	SPDT	5	10.65	10.12	9.59
KRPA5DG▲	6, 12, 24 VDC	SPDT	10	9.90	9.41	8.91
KRPA5DG▲	110 VDC	SPDT	10	10.95	10.40	9.86
KRPA11AY▲	6, 12, 24, 120 VAC	DPDT	5	10.80	10.26	9.72
KRPA11AY▲	240 VAC	DPDT	5	11.40	10.83	10.26
KRPA11AG▲	6, 12, 24, 120 VAC	DPDT	10	11.05	10.50	9.95
KRPA11AG▲	240 VAC	DPDT	10	11.70	11.12	10.53
KRPA11DY▲	6, 12, 24 VDC	DPDT	5	10.65	10.12	9.59
KRPA11DY▲	48 VDC	DPDT	5	11.20	10.64	10.08
KRPA11DY▲	110 VDC	DPDT	5	11.70	11.12	10.53
KRPA11DG▲	6, 12, 24 VDC	DPDT	10	11.05	10.50	9.95
KRPA11DG▲	48 VDC	DPDT	10	11.65	11.07	10.49
KRPA11DG▲	110 VDC	DPDT	10	12.05	11.45	10.85
KRPA14AY▲	6, 12, 24, 120 VAC	3PDT	5	13.30	12.64	11.97
KRPA14AY▲	240 VAC	3PDT	5	13.80	13.11	12.42
KRPA14AG▲	6, 12, 24, 120 VAC	3PDT	10	13.60	12.92	12.24
KRPA14AG▲	240 VAC	3PDT	10	14.45	13.73	13.01
KRPA14DY▲	6, 12, 24 VDC	3PDT	5	13.20	12.54	11.88
KRPA14DY▲	48 VDC	3PDT	5	13.65	12.97	12.29
KRPA14DY▲	110 VDC	3PDT	5	14.20	13.49	12.78
KRPA14DG▲	6, 12, 24 VDC	3PDT	10	13.55	12.87	12.20
KRPA14DG▲	48 VDC	3PDT	10	14.25	13.54	12.83
KRPA14DG▲	110 VDC	3PDT	10	14.65	13.92	13.19
KRPA11AN▲	6, 12, 24, 120 VAC	DPDT	10	12.60	11.97	11.34
KRPA11AN▲	240 VAC	DPDT	10	13.30	12.64	11.97
KRPA11DN▲	6, 12, 24 VDC	DPDT	10	12.50	11.88	11.25
KRPA11DN▲	110 VDC	DPDT	10	13.55	12.87	12.20
KRPA14AN▲	6, 12, 24, 120 VAC	3PDT	10	15.35	14.58	13.82
KRPA14AN▲	240 VAC	3PDT	10	16.10	15.30	14.49
KRPA14DN▲	24 VDC	3PDT	10	15.15	14.39	13.64

*Normally open—double make. •Sealed relay. ▲Enclosed relay. ■Specify coil voltage when ordering.

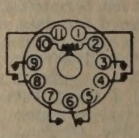
KRP3AH



KRP5



KRP11



KRP14

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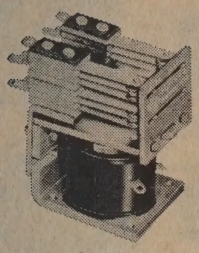
PRICES LISTED ARE FOR GUIDANCE ONLY

GENERAL PURPOSE RELAYS

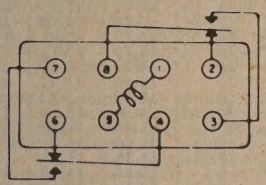


GA

GA Series: Multiple contact, voltage operated relay designed for industrial control applications. Self-cleaning, silver contacts rated 5 amps at 28 VDC or 120 VAC. Tinned, pierced, solder type terminals. Mounts on 8-32 tapped core with locating boss. **Size:** 1.063″ x 1.719″ x 1.781″. **Weight:** 3½ ozs.

P & B Number*	Coil Input	Contacts Arrangement	Contacts Amps, Typ.	Net Each, Lots of ★ 1-24	25-50	51-99
GA11A	6, 12, 24, 120 VAC	DPDT	5	$15.15	$14.39	$13.64
GA11D	6, 12, 24 VDC	DPDT	5	15.05	14.30	13.55
GA11D	110 VDC	DPDT	5	15.75	14.96	14.18
GA14A	24, 120 VAC	3PDT	5	19.45	18.48	17.51
GA17A	6, 12, 24, 120 VAC	4PDT	5	23.25	22.09	20.93
GA17A	240 VAC	4PDT	5	23.50	22.33	21.15
GA17D	6, 12, 24 VDC	4PDT	5	22.30	21.19	20.07
GA17D	110 VDC	4PDT	5	23.00	21.85	20.70

HP, HPS



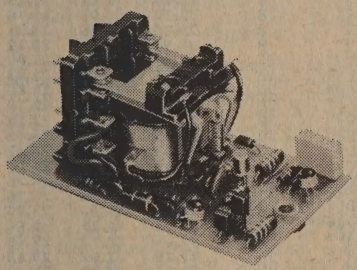
HP Series: Designed for TV cameras, computers, copiers, etc. Terminals on a .2″ grid for plug-in or PC board. DPDT contacts rated 2 amps at 28 VDC, resistive; 0.5 amp at 120 VAC. Has nylon, non-hermetic cover. **Size:** .48″ x .88″ x .49″. **Weight:** 0.3 oz.

HPS Series: Hermetically sealed version of HP. For reliable performance in logic circuits or where prolonged submersion in cleaning solvents is required. Sealed metal cover. **Size:** .41″ x .81″ x .41″. **Weight:** 0.25 oz.

P & B Number*	Coil Input	Contacts Arrangement	Contacts Amps, Typ.	Net Each, Lots of ★ 1-24	25-50	51-99
HP11D	5, 6, 12, 24 VDC	DPDT	2	$18.20	$17.29	$16.38
HP11D	48 VDC	DPDT	2	18.95	18.00	17.06
HPS11D	12, 24 VDC	DPDT	2	21.45	20.38	19.31

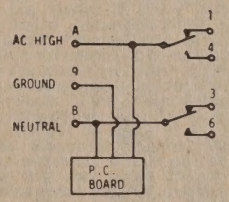
*Specify coil voltage when ordering.

GROUND LINE INTEGRITY MONITOR



CZS

The ground line integrity monitor is intended to detect inordinate leakage currents and excessive resistance in ground lines from motors, etc. Resistances above approx. 1 megohm and/or currents developing voltages of 15 V rms, max., will trip the output relay and remove power from the load. The fault condition must be removed before power can be reapplied. **Size:** 3.30″ lg. (3.40″ for 240 VAC models) x 1.80″ w. x 1.50″ h. max. **Contacts:** DPDT. **Oper. Temp.:** 0° C to +55° C. **Terminals:** .187″ quick-connect and solder lugs.



P & B Number	Input Volts	Output Amps/Volts	Net Each, Lots of 1-9	10-24	25-49
CZS-01-70000*	120	10/120	$46.50	$44.18	$41.85
CZS-01-80000	240*	10/240	58.80	55.86	52.92
CZS-01-70001*	120	15/120	47.90	45.51	43.11
CZS-01-80001	240*	15/240	62.80	59.66	56.52

*Single phase only. *UL Recognized.

AC CURRENT SENSOR

SDAS

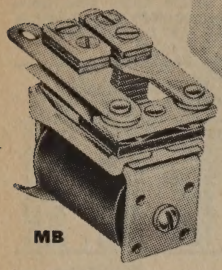
The SDAS-01 is a field-adjustable AC current sensor. To sense current, the unit must be inductively coupled to a power line by passing the insulated power line conductor through the loop on the end of the enclosure. The unit's solid-state sensing circuit controls an internal DPDT relay. Both undercurrent and overcurrent models are available. The undercurrent unit's relay picks up when sense current drops below the potentiometer setting for at least 350 msec. It remains energized until sense current exceeds the potentiometer setting or control voltage is removed. A 350 msec delay after control voltage is applied allows line components time to turn on. The overcurrent unit's relay energizes when sense current exceeds the potentiometer setting for longer than the built-in delay allows (200 msec, min.). Actual time delay depends on the potentiometer setting and the magnitude of overcurrent. The relay remains energized until control voltage is removed, even if the overcurrent condition ceases to exist. The SDAS-01 is enclosed in a polycarbonate cover measuring 1.406″ x 1.531″ x 2.781″ high; the sensing loop extends .515″ above the cover. Terminals are .187″ quick-connect type and fit into standard KU sockets. **Contacts:** DPDT rated 2 amps at 28 VDC, 1 amp at 120 VAC, resistive. **Control Voltage:** 24 VAC, 50/60 Hz, or DC, 1.7 watts or 1.7 VA. **Sense-Current Range:** 1.5 to 15 amps AC. **Operating Temperature Range:** −40° C to +85° C.

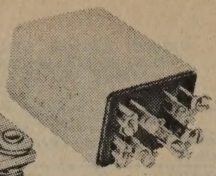
P & B Number	Description	Net Each★
SDAS-01-7Y2S1024	Undercurrent	$54.50
SDAS-01-8Y2S1024	Overcurrent	48.75

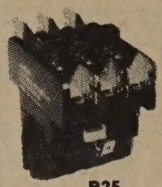
★LARGER QUANTITY PRICES ON REQUEST. PRICES SHOWN ARE FOR REFERENCE ONLY

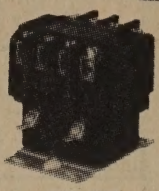
SEE ANOTHER P & B PAGE FOR ACCESSORIES

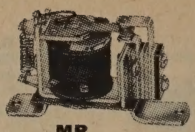
POWER RELAYS

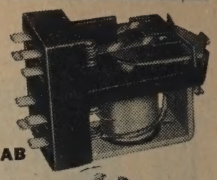












AB Series: UL and CSA recognized. For applications requiring long life and quiet operation. Connections are .250″ quick-connect; screw adapters are available. Contacts are silver. **Contact Rating:** Suffix **H**, 15 amps at 277 VAC; suffix **Y**, 10 amps at 120 VAC or 5 amps at 240 VAC, resistive. **Mounting:** Two 8-32 tapped holes on 1.25″ ctrs. **Size:** 1.375″ x 1.906″ x 3.0″. **Weight:** 5 ozs.

ABC Series: AB type in non-hermetic metal cover. **Mounting:** 8-32 stud and locating tab on .562″ ctrs. **Size:** 2.094″ x 1.469″ x 2.781″. **Weight:** 7 ozs.

MB Series: Miniature DC contactor designed for very high current applications. Silver contacts rated 60 amps at 28 VDC, resistive. **Mounting:** Four 3-48 tapped holes on .375″ x .375″ ctrs. **Weight:** 2 ozs. **Size:** 1.44″ x .88″ x 1.66″.

UL & CSA recognized P25 Series: Designed for 3-phase motor loads of up to 25 amps at 600 VAC, resistive loads of up to 30 amps at 600 VAC. Contacts are field-replaceable silver-cadmium oxide in a 3PDT-NO-DM arrangement. Main contact terminals are 8-32 screws for straight-through wiring. Other terminals are available. Coil terminals are combination screw and ¼″ quick-connect. P25C models have an auxiliary SPDT snap switch with silver contacts rated 10 amps at 125–250 VAC and ¼″ quick-connect terminals. Models with "1" as the eighth character in the part No. mount using two #10 screws on 2.125″ centers. Others have universal mounting plate.

UL P30/P40 Series: Similar to Series P25, except all models have mounting plate and P30 is rated for 30 amp motor loads and P40 is rated for 40 amp motor loads.

MR Series: A medium duty power relay that can handle small motors, transmitters, and general purpose applications. Silver contacts. **Mounting:** Two .156″ dia. holes on 2.25″ ctrs. for MR3 and MR11; on 2.625″ ctrs for MR5 and MR14. **Size:** 2.969″ x 2.188″ x 2.0″. **Weight:** 4 ozs.

PM Series: A compact power relay for polyphase and heavy duty applications. Type PM has screw terminals; type PMT has .250″ quick-connect terminals. Contacts are silver cadmium oxide rated 25 amps at 240 VAC, resistive; 1 hp per movable arm at 120 or 240 VAC. UL and CSA. **Mounting:** one front keyhole and two rear slots for 8-32 screws. **Size:** 3.394″ x 2.657″ x 2.719″. **Weight:** 14 ozs.

PRD Series: A direct replacement for the popular PR series. Has reinforced screw terminals and plastic enclosure around coil. UL and CSA listed. PRD relays with 12 or 24 VDC coils are compatible with IC drivers used to terminate logic boards. PRDA11AYA relay has an auxiliary miniature snap-action switch with SPDT contacts rated 5 amps at 120 VAC. **Mounting:** Two .188″ dia. holes on 1.875″ ctrs. **Size:** 2.531″ x 3.375″ x 2.50″. **Weight:** 11 ozs. UL listed.

S87R Series: UL recognized for use in vending machines, washing machines, machine tool control systems, etc. Connections are .250″ quick-connect. **Contact Rating:** 20 amps at 277 VAC; 60 LRA, 12 FLA, 1 HP at 125 VAC; 48 LRA, 8 FLA, 2 HP at 250 VAC. **Pilot Duty:** 360 VA, 125/250 VAC. **Mounting:** .166″ diam. hole and .160″ diam. boss. **Size:** 1.62″ x 2.60″ x 2.07″.

P & B Number■	Coil Input	Contacts Arrangement	Contacts Amps, Max.	Net Each, Lots of ★ 1-24	25-50	51-99
AB11AH	24, 120 VAC	DPDT	15	$17.50	$16.63	$15.75
AB11AH	240 VAC	DPDT	15	18.50	17.58	16.65
AB11AY	24, 120 VAC	DPDT	10	17.70	16.82	15.93
AB11AY	240 VAC	DPDT	10	18.70	17.77	16.83
AB11DH	12, 24 VDC	DPDT	15	18.45	17.53	16.61
AB11DH	110 VDC	DPDT	15	19.60	18.62	17.64
AB11DY	12, 24 VDC	DPDT	10	18.80	17.86	16.92
AB11DY	110 VDC	DPDT	10	19.60	18.62	17.64
ABC11AH▲	24, 120 VAC	DPDT	15	18.45	17.53	16.61
ABC11AH▲	240 VAC	DPDT	15	19.35	18.38	17.42
ABC11AY▲	24, 120 VAC	DPDT	10	18.75	17.81	16.88
ABC11AY▲	240 VAC	DPDT	10	19.70	18.72	17.73
ABC11DH▲	6, 12, 24 VDC	DPDT	15	19.35	18.38	17.42
ABC11DH▲	110 VDC	DPDT	15	20.45	19.43	18.41
ABC11DY▲	12, 24 VDC	DPDT	10	19.70	18.72	17.73
MB3D	6, 12, 24 VDC	SPST*	60	21.20	20.14	19.08
MB3D	110 VDC	SPST*	60	21.80	20.71	19.62
MR3A	24, 120 VAC	SPST*	10	13.90	13.21	12.51
MR3D	12, 24 VDC	SPST*	10	14.35	13.63	12.92
MR5A	6, 12, 24, 120 VAC	SPDT	8	11.85	11.26	10.67
MR5A	240 VAC	SPDT	8	13.10	12.45	11.79
MR5D	6, 12, 24 VDC	SPDT	8	12.00	11.40	10.80
MR5D	110 VDC	SPDT	8	13.20	12.54	11.88
MR11A	6, 12, 24, 120 VAC	DPDT	8	15.85	15.06	14.27
MR11A	240 VAC	DPDT	8	16.85	16.01	15.17
MR11D	6, 12, 24 VDC	DPDT	8	15.95	15.15	14.36
MR11D	110 VDC	DPDT	8	17.05	16.20	15.35
MR14A	6, 12, 24, 120 VAC	3PDT	8	21.40	20.33	19.26
MR14A	240 VAC	3PDT	8	22.20	21.09	19.98
MR14D	12, 24 VDC	3PDT	8	21.45	20.38	19.31
MR14D	110 VDC	3PDT	8	22.35	21.23	20.12
P25C42A12D1	24, 120, 240 VAC	3PST#•	25	23.40	22.23	21.06
P25C42A22D1	24, 120, 240 VAC	3PST#•	25	24.25	23.04	21.83
P25P42A12P1	24, 120, 240 VAC	3PST#•	25	21.55	20.47	19.40
P25P42A22P1	24, 120, 240 VAC	3PST#•	25	22.40	21.28	20.16
P30P42A12P1	24, 120, 240 VAC	3PST#	30	25.75	24.46	23.18
P30C42A12D1	24, 120, 240 VAC	3PST#•	30	28.75	27.31	25.88
P30P47A12P1	24, 120, 240 VAC	4PST#	30	29.30	27.84	26.37
P30C47A12D1	24, 120, 240 VAC	4PST#•	30	32.30	30.69	29.07
P40P42A12P1	24, 120, 240 VAC	3PST#	40	26.95	25.60	24.26
P40C42A12D1	24, 120, 240 VAC	3PST#•	40	29.95	28.45	26.96
P40P47A12P1	24, 120, 240 VAC	4PST#	40	30.95	29.40	27.86
P40C47A12D1	24, 120, 240 VAC	4PST#•	40	33.95	32.25	30.56
PM17AY	6, 12, 24, 120 VAC	4PDT	25	32.55	30.92	29.30
PM17AY	240 VAC	4PDT	25	32.70	31.07	29.43
PM17AY	480 VAC	4PDT	25	35.15	33.39	31.64
PM17DY	6, 12, 24 VDC	4PDT	25	29.90	28.41	26.91
PM17DY	110 VDC	4PDT	25	31.70	30.12	28.53
PMT17AY	24, 120 VAC	4PDT	25	31.30	29.74	28.17
PRD1AYO	24, 120 VAC	SPST#	25	8.80	8.36	7.92
PRD3AYO	6, 12, 24, 120 VAC	SPST*	25	8.80	8.36	7.92
PRD3AYO	208, 240 VAC	SPST*	25	9.00	8.55	8.10
PRD3DYO	5, 6, 12, 24 VDC	SPST*	25	8.45	8.03	7.61
PRD3DYO	110 VDC	SPST*	25	9.80	9.31	8.82
PRD5AYO	6, 12, 24, 120 VAC	SPDT	25	10.10	9.60	9.09
PRD5AYO	208, 240 VAC	SPDT	25	10.30	9.79	9.27
PRD5DYO	5, 6, 12, 24 VDC	SPDT	25	9.75	9.26	8.78
PRD5DYO	110 VDC	SPDT	25	11.10	10.55	9.99
PRD7AGO	120 VAC	DPST#	30	10.90	10.36	9.81
PRD7AYO	6, 12, 24, 120 VAC	DPST#	25	10.95	10.40	9.86
PRD7AYO	208, 240 VAC	DPST#	25	11.15	10.59	10.04
PRD7DGO	24 VDC	DPST	30	10.55	10.02	9.50
PRD7DYO	5, 6, 12, 24 VDC	DPST#	25	10.60	10.07	9.54
PRD7DYO	110 VDC	DPST#	25	11.95	11.35	10.76
PRD11AGO	120 VAC	DPDT	30	13.55	12.87	12.20
PRD11AYO	6, 12, 24, 120 VAC	DPDT	25	13.60	12.92	12.24
PRD11AYO	208, 240 VAC	DPDT	25	13.80	13.11	12.42
PRD11AYO	480 VAC	DPDT	25	17.80	16.91	16.02
PRDA11AYA	12, 24, 120 VAC	DPDT•	25	21.30	20.24	19.17
PRDA11AYA	240 VAC	DPDT•	25	21.50	20.43	19.35
PRD11DGO	24 VDC	DPDT	30	13.20	12.54	11.88
PRD11DYO	5, 6, 12, 24 VDC	DPDT	25	13.25	12.59	11.93
PRD11DYO	110 VDC	DPDT	25	14.60	13.87	13.14
S87R5A2B1D1	24, 120 VAC	SPDT	20	5.75	5.46	5.18
S87R5A2B1D1	240 VAC	SPDT	20	6.35	6.03	5.72
S87R11A2B1D1	24, 120 VAC	DPDT	20	7.80	7.41	7.02
S87R11A2B1D1	240 VAC	DPDT	20	8.40	7.98	7.56
S87R5D2B1D1	12, 24 VDC	SPDT	20	5.35	5.08	4.82
S87R11D2B1D1	24 VDC	DPDT	20	7.35	6.98	6.62

*Normally open—double make. #Normally open. ▲Enclosed relay. ■Specify coil voltage when ordering. •Has auxiliary SPDT switch.

★LARGER QUANTITY PRICES ON REQUEST. PRICES SHOWN ARE FOR REFERENCE ONLY

SEE ANOTHER P & B PAGE FOR ACCESSORIES

PRICES LISTED ARE FOR GUIDANCE ONLY

SPECIAL PURPOSE RELAYS

AP Series: A ratchet impulse relay for applications requiring on-off or reversing action on alternate operations. Positive ratchet operation at all speeds on impulses as short as 60 msec. Intermittent operation only. **Contacts:** Silver, rated 5 amps at 120 VAC, resistive. **Mounting:** Three .156″ holes on 3.375″ x .875″ triangular ctrs. **Size:** 3.75″ x 2.25″ x 2.313″. **Weight:** 7 ozs.

BU Series: AC operated buzzer has spring steel armature which buzzes when coil is energized. UL recognized CSA file. **Mounting:** 6-32 tapped core. **Size:** 1.032″ x 1.375″ x 1.032″. **Weight:** 1⅝ ozs.

GM Series: An impulse sequencing relay especially suitable for applications requiring single-coil latching. The 2 Form C contact arrangement is switched alternately by cam action during drop-out of the armature. Can also be furnished with additional 2 Form C auxiliary contacts (**L** suffix). Contacts rated 3 amps at 120 VAC. **Mounting:** 8-32 tapped core with locating tab. **Weight:** 4 ozs.; with auxiliary contacts, 4.75 ozs. **Size:** 2.07″ x 1.437″ x 2.031″.

GM1N Series: The basic structure of the GM relay with added printed circuit board with 10 or 12 steps. The board is attached to an extension of the ratchet shaft. The movable contact arm advances one position each time the armature drops out. **Contacts:** Rated .25 amp; SP 10 pos. and SP 12 pos. **Size:** 2.312″ x 1.875″ x 2″.

KB Series: Latching relay ideal for memory work and overload applications. One coil operates relay to set latch and other coil releases it. Operates on momentary impulse to either coil. **Contacts:** Suffix **Y**, silver rated 5 amps at 120 VAC; suffix **G**, silver cadmium oxide rated 10 amps at 120 VAC. AC relays with 5 amp contacts recognized by UL and CSA. **Mounting:** Two .156″ dia. holes on 1.375″ ctrs. **Size:** 1.812″ x 2.13″ x 3.22″. **Weight:** 6 ozs.

KBP Series: A KB relay enclosed in polycarbonate cover and furnished with 11-pin or 20-pin plug. Not UL recognized. **Size:** 1.781″ x 2.406″ x 3.56″. **Weight:** 8 ozs.

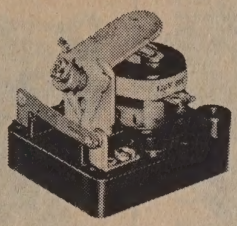
KM Series: Subminiature relay for applications requiring unusually small relays with solder terminals. **Contacts:** Silver, rated 2 amps at 28 VDC or 120 VAC, resistive. **Mounting:** 2-56 tapped core and locater on .187″ ctrs. **Size:** .688″ x 1.125″ x .828″. **Weight:** .58 oz.

KT Series: Antenna switching relay with glass base insulation for minimum RF loss while switching 300-ohm line. **Contacts:** Silver, rated 5 amps at 120 VAC or 500 watts RF. **Mounting:** 6-32 stud and locating tab on .438″ ctrs. **Size:** 1.312″ x 1.625″ x 1.687″. **Weight:** 1.5 ozs.

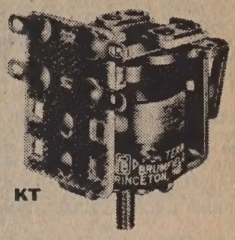
KUL Series: Small, magnetic latching relay. Designed for continuous duty in applications requiring good memory stability. UL recognized and CSA listed. All DPDT AC models include diodes inside the clear polycarbonate case. **Contacts:** Silver cadmium oxide, rated 10 amps at 28 VDC, resistive, or 120 VAC. **Mounting:** Socket. **Size:** 1.531″ x 1.406″ x 2.156″. **Weight:** 3.4 ozs.

MS Series: Relay operates from back emf of motor starting winding to disconnect the starting capacitor. UL recognized. **Contacts:** MS2, fine silver, rated ¼ hp; MS4, silver cadmium, rated 3 hp. **Mounting:** Two .156″ dia. holes on 1.563″ ctrs. **Size:** 3.063″ x 2.063″ x 2.125″. **Weight:** 5 ozs.

UL & CSA recognized S89R Series: A low cost, bistable, impulse relay for use where the load is on for long periods of time. A 75 msec. pulse is needed to set the relay; a second 75 msec. pulse releases the relay. **Contact Rating:** ½ HP, 125/250 VAC; 5 amps, 125 VAC inductive; ½ amp, 125 VDC; ¼ amp, 250 VDC. **Mounting:** Two 8-32 tapped holes on 1.844″ ctrs. **Termination:** Suffix **D1**, .250″ quick-connect. Suffix **C1**, .187″ quick-connect. **Size:** 1.73″ x 3.05″ x 1.95″–2.37″; depending on contact form.


MS

KM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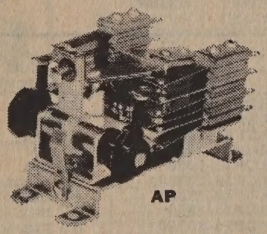
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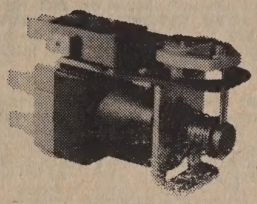

S-89R

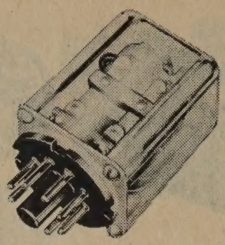
P & B Number*	Coil Input	Contacts Arrangement	Contacts Amps, Typ.	Net Each, Lots of ★ 1-24	25-50	51-99
AP11A	6, 12, 24, 120 VAC	DPDT	5	$37.95	$36.05	$34.16
AP11A	240 VAC	DPDT	5	38.10	36.20	34.29
AP11D	6, 12, 24 VDC	DPDT	5	38.20	36.29	34.38
AP11D	110 VDC	DPDT	5	38.70	36.77	34.83
AP17A	24, 120 VAC	4PDT	5	54.75	52.01	49.28
AP17D	12, 24 VDC	4PDT	5	53.35	50.68	48.02
AP17D	110 VDC	4PDT	5	53.90	51.21	48.51
BU	6, 12, 24, 120 VAC	.....	.....	4.35	4.13	3.92
BU	240 VAC	.....	.....	5.60	5.32	5.04
GM11A	24, 120 VAC	DPDT	3	35.20	33.44	31.68
GM11AL11	120 VAC	DPDT•	3	44.60	42.37	40.14
GM11D	12, 24 VDC	DPDT	3	33.10	31.45	29.79
GM11D	110 VDC	DPDT	3	33.50	31.83	30.15
GM1N10A	120 VAC	10SP	.25	35.15	33.39	31.64
GM1N12A	120 VAC	12SP	.25	34.10	32.40	30.69
GM1N10D	24 VDC	10SP	.25	35.00	33.25	31.50
GM1N12D	24 VDC	12SP	.25	33.60	31.92	30.24
KB17AY	6, 12, 24, 120 VAC	4PDT	5	25.15	23.89	22.64
KB17AY	240 VAC	4PDT	5	27.80	26.41	25.02
KB17AG	6, 12, 24, 120 VAC	4PDT	10	26.75	25.41	24.08
KB17AG	240 VAC	4PDT	10	28.60	27.17	25.74
KB17D	6, 12, 24 VDC	4PDT	5	25.85	24.56	23.27
KB17D	110 VDC	4PDT	5	26.75	25.41	24.08
KB17DG	6, 12, 24 VDC	4PDT	10	26.55	25.22	23.90
KB17DG	110 VDC	4PDT	10	27.80	26.41	25.02
KB23AY	24, 120 VAC	6PDT	5	34.50	32.78	31.05
KB23AG	24, 120 VAC	6PDT	10	36.90	35.06	33.21
KB23D	24 VDC	6PDT	5	32.50	30.88	29.25
KB23DG	24 VDC	6PDT	10	34.90	33.16	31.41
KB23DG	110 VDC	6PDT	10	36.05	34.25	32.45
KBP11DG	24 VDC	DPDT	10	33.70	32.02	30.33
KBP11A▲	120 VAC	DPDT	5	32.90	31.26	29.61
KBP11AG▲	120 VAC	DPDT	10	33.20	31.54	29.88
KBP17A▲	120 VAC	4PDT	5	44.85	42.61	40.37
KBP17AG▲	120 VAC	4PDT	10	46.00	43.70	41.40
KBP17D▲	24 VDC	4PDT	5	44.40	42.18	39.96
KBP17DG▲	12, 24 VDC	4PDT	10	45.65	43.37	41.09
KBP20A▲	120 VAC	5PDT	5	51.90	49.31	46.71
KBP20AG▲	120 VAC	5PDT	10	54.30	51.59	48.87
KBP20DG▲	12, 24 VDC	5PDT	10	53.00	50.35	47.70
KM5D	6, 12, 24 VDC	SPDT	2	15.70	14.92	14.13
KM11D	6, 12, 24 VDC	DPDT	2	18.30	17.39	16.47
KM14D	6, 12, 24 VDC	3PDT	2	22.40	21.28	20.16
KT11A	6, 120 VAC	DPDT	5	13.25	12.59	11.93
KT11D	6, 12 VDC	DPDT	5	12.70	12.07	11.43
KUL5A15S	120 VAC	SPDT	10	14.30	13.59	12.87
KUL5D15S	24 VDC	SPDT	10	10.85	10.31	9.77
KUL11A15S	12, 24, 120 VAC	DPDT	10	16.40	15.58	14.76
KUL11D15D	12, 24 VDC	DPDT	10	19.80	18.81	17.82
KUL11D15S	12, 24 VDC	DPDT	10	13.05	12.40	11.75
MS2AY	120 VAC	SPST†	¾ hp	14.10	13.40	12.69
MS2AY	240 VAC	SPST†	¾ hp	14.25	13.54	12.83
MS4AY	120 VAC	SPST§	3 hp	16.30	15.49	14.67
MS4AY	240 VAC	SPST§	3 hp	16.45	15.63	14.81
S89R5ABD1	24, 120 VAC	SPDT	15	9.00	8.55	8.10
S89R5ABD1	240 VAC	SPDT	15	9.20	8.74	8.28
S89R11AAC1	6, 12, 24, 120 VAC	DPDT	15	10.85	10.31	9.77
S89R11AAC1	240 VAC	DPDT	15	11.05	10.50	9.55
S89R11ABD1	24, 120 VAC	DPDT	15	10.85	10.31	9.77
S89R11ABD1	240 VAC	DPDT	15	11.05	10.50	9.55
S89R17AAC1	24, 120 VAC	4PDT	15	15.60	14.82	14.04
S89R11DAC1	6, 12, 24 VDC	DPDT	15	10.35	9.83	9.32
S89R5DBD1	12, 24 VDC	SPDT	15	8.50	8.08	7.65
S89R17DAC1	24 VDC	4PDT	15	15.15	14.39	13.64
S89R11DBD1	12, 24 VDC	DPDT	15	10.35	9.83	9.32

†Normally closed. §Normally closed—double break. ▲Enclosed relay. •Has auxiliary 2 Form C contacts. *Specify coil voltage when ordering.

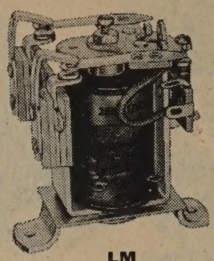
★LARGER QUANTITY PRICES ON REQUEST. PRICES SHOWN ARE FOR REFERENCE ONLY

SEE ANOTHER P & B PAGE FOR ACCESSORIES

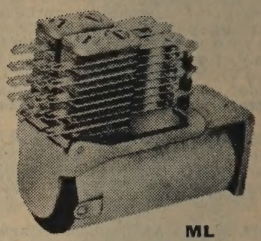
SENSITIVE RELAYS



KCP



LM



ML

KCP Series: Low cost, DC sensitive relay enclosed in clear polycarbonate cover. **Contacts:** Silver, rated 2 amps at 30 VDC or 120 VAC, resistive. **Mounting:** KCP5 and KCP11, 8-pin plug; KCP14, 11-pin plug. **Size:** 1.406″ x 1.406″ x 2.0″. **Weight:** 3 ozs.

LB Series: Each relay coil is wound to a specific resistance and the relay is adjusted to operate on minimum current requirements. **Contacts:** Silver, rated 5 amps at 28 VDC or 120 VAC, resistive. **Mounting:** Two .188″ dia. holes on 2.219″ ctrs. **Size:** 2.656″ x 1.25″ x 1.375″. **Weight:** 2 ozs.

LM Series: Medium cost, high quality relay. Pick-up adjustable by tail spring adjusting screw. **Contacts:** Silver, rated 5 amps at 120 VAC. **Mounting:** Two 6-32 tapped holes on 1.813″ ctrs. **Size:** 2.25″ x 2.188″ x 2.563″. **Weight:** 5 ozs.

ML Series: A small telephone-type relay with excellent sensitivity. Pierced solder terminals. **Contacts:** Silver, rated 3 amps at 120 VAC. **Mounting:** Four 3-48 holes on .375″ ctrs. **Size:** 1.969″ x .75″ x 1.594″. **Weight:** 2.5 ozs.

PW Series: For applications requiring a precision, lightweight, hermetically sealed relay. **Contacts:** Rated 1 amp at 28 VDC or 120 VAC, resistive. **Mounting:** Standard 7-pin miniature tube base. **Size:** .765″ dia. x 1.688″. **Weight:** 1 oz.

RS Series: Low cost, small, sensitive relay for radiosonde, light dimmer, and model applications. **Contacts:** Bar palladium, rated 2 amps at 28 VDC or 120 VAC, resistive. **Mounting:** Two 4-40 tapped holes on diagonal .75″ x .625″ ctrs. **Size:** 1.0″ x 1.172″ x .938″. **Weight:** 1.5 oz.

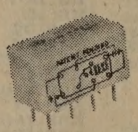
SS Series: Ultra sensitive precision relay. Dual, series-connected coils with balanced armature on needle-point bearings for all low energy circuits such as instruments and bridge balancing. May also be used as a differential relay by connecting the two coils in separate circuits. **Contacts:** Silver, rated 2 amps at 28 VDC or 120 VAC, resistive. **Mounting:** Two 6-32 tapped holes on .719″ ctrs. **Size:** 1.75″ x 1.375″ x 1.688″. **Weight:** 3.5 ozs.

P & B Number■	Coil Input	Contacts: Arrangement	Contacts: Amps, Typ.	Net Each, Lots of ★ 1-24	25-50	51-99
KCP5-2500▲	7.2 mA	SPDT	2	$13.00	$12.35	$11.70
KCP5-5000▲	5.0 mA	SPDT	2	13.10	12.45	11.79
KCP5-10000▲	3.6 mA	SPDT	2	13.95	13.25	12.56
KCP11-2500▲	10 mA	DPDT	2	13.75	13.06	12.38
KCP11-5000▲	7.2 mA	DPDT	2	13.95	13.25	12.56
KCP11-10000▲	5.0 mA	DPDT	2	15.00	14.25	13.50
KCP14-2500▲	12.3 mA	3PDT	2	16.80	15.96	15.12
KCP14-5000▲	8.7 mA	3PDT	2	17.05	16.20	15.35
KCP14-10000▲	6.1 mA	3PDT	2	18.10	17.20	16.29
LB5-2500	9.0 mA	SPDT	5	10.35	9.83	9.32
LB5-5000	6.3 mA	SPDT	5	11.05	10.50	9.95
LB5-10000	4.5 mA	SPDT	5	11.95	11.35	10.76
LM5-2500	6.3 mA	SPDT	5	14.70	13.97	13.23
LM5-5000	4.5 mA	SPDT	5	14.90	14.16	13.41
LM5-10000	3.2 mA	SPDT	5	16.20	15.44	14.63
LM11-2500	9.0 mA	DPDT	5	22.60	21.47	20.34
LM11-5000	6.3 mA	DPDT	5	22.85	21.71	20.52
LM11-10000	4.5 mA	DPDT	5	23.85	22.66	21.47
ML11D-2500	4.0 mA	DPDT	3	25.10	23.85	22.59
ML11D-5000	2.8 mA	DPDT	3	25.20	23.94	22.68
ML11D-10000	2.0 mA	DPDT	3	27.65	26.27	24.89
ML17D-2500	5.65 mA	4PDT	3	30.45	28.93	27.41
ML17D-5000	4.0 mA	4PDT	3	32.75	31.11	29.48
ML17D-10000	2.8 mA	4PDT	3	33.20	31.54	29.88
ML23D-2500	6.93 mA	6PDT	3	37.30	35.44	33.57
PW5DS•	6, 12, 24 VDC	SPDT	1	37.75	35.86	33.98
PW5LS-5000•	2.8 mA	SPDT	1	38.35	36.43	34.52
PW5LS-10000•	2.0 mA	SPDT	1	39.35	37.38	35.42
RS5D	6, 12 VDC	SPDT	2	13.70	13.02	12.33
RS5D-2500	5.0 mA	SPDT	2	13.85	13.16	12.47
RS5D-5000	3.5 mA	SPDT	2	14.45	13.73	13.01
RS5D-10000	2.5 mA	SPDT	2	15.80	15.01	14.22
SS5D-10000	1.0 mA	SPDT	2	60.85	57.81	54.77

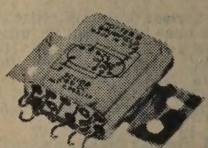
▲Enclosed relay. •Sealed relay. ■Specify coil voltage when ordering.

HIGH RELIABILITY RELAYS

FC, FL



HC, HCM



SC

FC Series: Relay meets applicable specifications of MIL-R-5757 and MSFC-SPEC-339. **Contacts:** Bifurcated, rated dry circuit to 3 amps at 28 VDC, resistive. Terminal pins arranged on a .2″ grid. **Size:** 1.10″ x .925″ x .485″. **Weight:** 0.75 oz.

FL Series: Same specifications as FC series. Dual-coil latching relay operates by pulsing each coil alternately, or by connecting the coils in series across a reversible power source. Remains latched without coil power.

HC Series: Miniature, non-polarized, non-latching, half-size crystal case relay meeting or exceeding all applicable specifications of MIL-R-5757 and complying with MSFC-SPEC-339. Hermetically welded case. **Contacts:** Gold-plated silver, rated dry circuit to 2 amps at 28 VDC, resistive. **Mounting:** HC11D, plain case and plug-in terminals; HC11DA, shoulder brackets and hook solder terminals; HC11DB, flat mounting plate and hook solder terminals. **Size:** .81″ x .41″ x .41″. **Weight:** 0.25 oz.

HCM Series: Military version of HC series; has same construction and mounting styles. Meets or exceeds appropriate sections of MIL-R-5757.

SC Series: Miniature, permanent magnet relay for low power, high shock and vibration applications. **Contacts:** Rated 2 amps at 30 VDC or 1 amp at 120 VAC. **Mounting:** SC11D, socket terminals on 0.2″ grid; SC11DA, shoulder flanges with two .104″ x .136″ holes on 1.062″ ctrs; SC11DB, welded bracket with four .125″ holes on 1.062″ x .281″ ctrs; SC11DC, two 4-40 studs on .488″ x .220″ ctrs; SC11DD, plain case with hook solder terminals. **Weight:** 0.5 oz.

SL Series: Dual coil, magnetic latching version of SC series. Coils may be connected in series for polar operation.

P & B Number■	Coil Input	Contacts: Arrangement	Contacts: Amps, Typ.	Net Each, Lots of ★ 1-24	25-50	51-99
FC11D	6, 12, 24 VDC	DPDT	3	$67.55	$64.17	$60.80
FCH11D	24 VDC	DPDT	5	68.40	64.98	61.56
FL11D	6, 12, 24 VDC	DPDT	3	67.85	64.46	61.07
HC11D	12, 24 VDC	DPDT	2	64.40	61.18	57.96
HC11DA	24 VDC	DPDT	2	66.85	63.51	60.17
HC11DB	24 VDC	DPDT	2	66.75	63.41	60.08
HCM11D	24 VDC	DPDT	2	49.40	46.93	44.46
HCM11DA	24 VDC	DPDT	2	51.65	49.07	46.49
HCM11DB	24 VDC	DPDT	2	51.20	48.64	46.08
SC11D	12, 24 VDC	DPDT	2	68.50	65.08	61.65
SC11DA	12, 24 VDC	DPDT	2	68.30	64.89	61.47
SC11DB	6, 12, 24 VDC	DPDT	2	67.60	64.22	60.84
SC11DC	24 VDC	DPDT	2	68.70	65.27	61.83
SC11DD	24 VDC	DPDT	2	66.40	63.08	59.76
SCG11D	24 VDC	DPDT	2	75.80	72.01	68.22
SL11D	6, 12, 24 VDC	DPDT	2	70.40	66.88	63.36
SL11DA	24 VDC	DPDT	2	71.05	67.50	63.95
SL11DB	6, 12, 24 VDC	DPDT	2	70.40	66.88	63.36
SL11DC	24 VDC	DPDT	2	71.55	67.97	64.40
SLG11D	24 VDC	DPDT	2	73.20	69.54	65.88

■Specify coil voltage when ordering.

SEE ANOTHER P & B PAGE FOR ACCESSORIES

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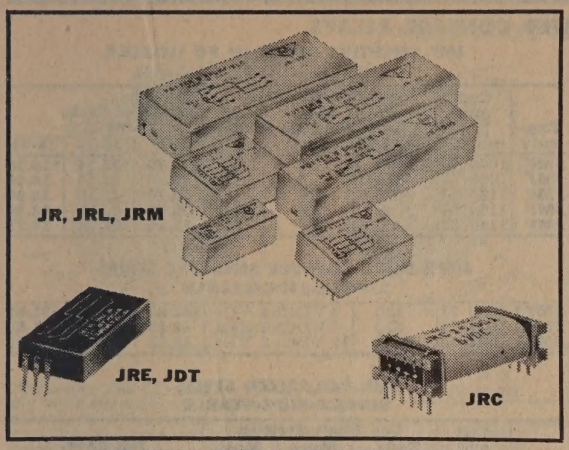

JDT DUAL THIN-LINE REED RELAYS

Low profile relays ideal for high density packaging applications. Feature hermetically sealed glass capsules in epoxy encapsulation. Dual in-line terminals on .100″ grid. Contacts will switch 10 watts max., resistive, 50 VDC or .5 amp max. Operate time is 3.5 msec including bounce; release time is 3.5 msec max. Weight: .35 to .7 oz. approx.

P & B Number	No. Cav-ities	Nom. V	Res. Ohms	Contact Arrange-ment	Net Each, Lots of 1-9	10-24	25-99
JDT7DA1	2	6	115	2A	$14.50	$10.82	$ 9.21
		12	460		14.50	10.82	9.21
		24	1840		14.95	11.15	9.49
JDT15DB1	4	6	115	4A	17.85	13.32	11.33
		12	460		17.85	13.32	11.33
		24	1840		17.85	13.32	11.33
JDT21DC1	6	6	100	6A	21.30	15.89	13.53
		12	400		21.30	15.89	13.53
		24	1600		21.30	15.89	13.53
JDT27DD1	8	6	60	8A	26.20	19.55	16.64
		12	240		26.60	19.55	16.64
		24	960		26.20	19.55	16.64

JRE LOW PROFILE DRY REED RELAYS

Relays have a mounted height of .360″ allowing board spacing of 0.6″. Terminals are on .1″ grid. Molded epoxy package. Each reed contact will switch a load of 10 watts, 200 VDC or 10 VA, 140 VAC. Max. contact rating is 500 mADC and 350 mAAC.

P & B Number	No. Cav-ities	Nom. V	Res. Ohms	Contact Arrange-ment	Net Each, Lots of 1-24	25-49	50-74
JRE1DA1	1	5	200	1A	$7.10	$6.39	$6.04
		6	200		7.10	6.39	6.04
		12	1264		7.20	6.48	6.12
		15	1264		7.20	6.48	6.12
		24	5056		8.20	7.38	6.97
JRE2DB1	2	5	210	1B	9.10	8.19	7.74
		12	880		9.20	8.28	7.82
		24	3600		9.60	8.64	8.16
JRE7DB1	2	5	118	2A	8.60	7.74	7.31
		12	555		8.80	7.92	7.48
		24	2250		8.90	8.01	7.57
JRE50DC1	3	5	52	1A+1B	10.70	9.63	9.10
		12	330		10.90	9.81	9.27
		24	1320		11.00	9.90	9.35

MINIATURE OPEN STYLE DRY REED RELAYS
JRC SERIES UL RECOGNIZED

PC terminals arranged on 0.100″ x 1.00″ grid layout. Rhodium contacts rated 10 watts max ; 0.5 amp max. and 125 V max. for DC resistive loads. Operate speed of 1 msec typ. including bounce for pick-up; 0.05 msec for drop-out. Contact protection is recommended to assure long operating life. **Size:** 1.00″ l. x .360″ h. max. Wt., 0.3 to 1.0 oz. approx.

P&B No.*	Cavity No.	Cavity Width, In.	Coil Nom. V	Coil Resis. Ohms	Contact Arrange-ment	Net Ea., Lots of* 1-24	25-49	50-74
JRC1DA1	1	.375	6	240	1A	$9.75	$8.78	$8.29
			12	960	1A	9.75	8.78	8.29
			24	3840	1A	9.75	8.78	8.29
JRC2DB1	2	.460	12	625	1B	12.05	10.85	10.24
			24	2500	1B	12.05	10.85	10.24
JRC7DB1	2	.460	6	155	2A	11.85	10.67	10.07
			12	625	2A	11.85	10.67	10.07
			24	2500	2A	11.85	10.67	10.07
JRC15DD1	4	.660	12	320	4A	16.25	14.63	13.81
			24	1280	4A	16.25	14.63	13.81
JRC50DD1	4	.660	12	320	1A+1B	13.75	12.38	11.69
			24	1280	1A+1B	13.75	12.38	11.69

*Specify coil voltage when ordering.

JR AND JRM SERIES DRY REED RELAYS

Fast response, reliable performance, high sensitivity and long life are characteristic of JR standard and JRM miniature relays. Specially suited for data processing applications, computer equipment, logic circuitry and various other sophisticated control circuits. Both JR and JRM relays have reed switches with either Form A (SPST-NO) or Form C (SPDT) contact configuration. Biasing with a permanent magnet changes Form A to a Form B (SPST-NC); arrangement requires that coil polarity be observed. Combining one Form A with one Form B results in a single Form C (SPDT) break-before-make. A "true" Form C (SPDT) uses a reed switch with two stationary and one movable contact (movable contact is normally closed until the coil is energized). **Size:** 2.718″ l. x 0.656″ h. max. (JR); 1.125″ l. x 0.468″ h. max. (JRM).

JR STANDARD SERIES Cavity No.	Cavity Width, Inches	Coil Power/ Capsule	Wt., Oz.	JRM MINIATURE SERIES Cavity No.	Cavity Width, Inches	Coil Power/ Capsule	Wt., Oz.
1	.687	240 mW	1.5	1	.437	180 mW	.366
2	.890	360 mW	2.0	2	.562	275 mW	.395
3	1.094	720 mW	2.5	3	.703	420 mW	.530
4	1.297	960 mW	3.0	4	.813	540 mW	.620
5	1.516	1.5 W	3.5	5	.968	720 mW	.781

JR STANDARD SERIES

P&B No.	No. Cav-ities	Coil Nom. V	Coil Res. Ohms	Contacts Arrange-ment	Contacts Rat-ing	Net Each, Lots of* 1-9	10-24	25-99
JR1000	1	6	150	1A	15 W	$ 9.05	$ 6.75	$ 5.75
JR1001	2	6	100	2A	15 W	12.10	9.03	7.68
JR1020	1	6	150	1A	50 W	11.25	8.39	7.14
JR1040	1	6	150	1C*	10 W	18.70	13.95	11.87
JR1041	2	6	100	2C*	10 W	20.15	15.03	12.80
JR1005	1	12	600	1A	15 W	9.45	7.05	6.00
JR1006	2	12	400	2A	15 W	12.15	9.06	7.72
JR1008	4	12	150	4A	15 W	17.60	13.13	11.18
JR1025	1	12	600	1A	50 W	11.60	8.65	7.37
JR1045	1	12	600	1C*	10 W	18.70	13.95	11.87
JR1046	2	12	400	2C*	10 W	24.60	18.35	15.62
JR1063	2	12	400	1B	15 W	11.95	8.91	7.59
JR1086	3	12	200	1A+1B	15 W	18.15	13.54	11.53
JR1010	1	24	2400	1A	15 W	10.15	7.57	6.45
JR1011	2	24	1600	2A	15 W	12.70	9.47	8.06
JR1013	4	24	600	4A	15 W	18.05	13.47	11.46
JR1030	1	24	2400	1A	50 W	12.40	9.25	7.87
JR1031	2	24	1600	2A	50 W	17.65	13.17	11.21
JR1050	1	24	2400	1C*	10 W	18.65	13.91	11.84
JR1051	2	24	1600	2C*	10 W	20.75	15.48	13.18
JR1066	2	24	1600	1B	15 W	12.50	9.33	7.94
JR1088	3	24	800	1A+1B	15 W	18.10	13.50	11.49
JR1100	1	5	104	1A	15 W	9.10	6.79	5.78
JR1101	2	5	79	2A	15 W	12.20	9.10	7.75
JR1102	1	5	104	1A	50 W	11.25	8.39	7.14
JR1103	1	5	104	1C*	10 W	18.70	13.95	11.87
JR1104	2	5	79	2C*	10 W	20.15	15.03	12.80

*True Form C.

JRM MINIATURE SERIES

P&B No.	No. Cav-ities	Coil Nom. V	Coil Res. Ohms	Contacts Arrange-ment	Contacts Rat-ing	Net Each, Lots of* 1-9	10-24	25-99
JRM1000	1	6	200	1A	10 W	$ 9.05	$ 6.75	$ 5.75
JRM1001	2	6	130	2A	10 W	12.50	9.33	7.94
JRM1036	2	6	130	1B	10 W	11.45	8.54	7.27
JRM1048	3	6	86	1A+1B	10 W	14.30	10.67	9.08
JRM1006	1	12	800	1A	10 W	9.10	6.79	5.78
JRM1007	2	12	520	2A	10 W	12.50	9.33	7.94
JRM1009	4	12	268	4A	10 W	19.80	14.77	12.57
JRM1040	2	12	520	1B	10 W	11.50	8.58	7.30
JRM1041	3	12	344	2B	10 W	15.00	11.19	9.53
JRM1050	3	12	344	1A+1B	10 W	14.40	10.74	9.14
JRM1051	5	12	200	2A+2B	10 W	22.60	16.86	14.35
JRM1012	1	24	3200	1A	10 W	9.90	7.39	6.29
JRM1013	2	24	2080	2A	10 W	12.85	9.59	8.16
JRM1015	4	24	1072	4A	10 W	20.00	14.92	12.70
JRM1044	2	24	2080	1B	10 W	11.60	8.65	7.37
JRM1045	3	24	1376	2B	10 W	15.25	11.38	9.68
JRM1052	3	24	1376	1A+1B	10 W	14.50	10.82	9.21
JRM1053	5	24	800	2A+2B	10 W	22.60	16.86	14.35

JRL SERIES DRY REED LATCHING RELAYS

Reliable bi-stable relays designed for memory work. Single-wound coils switch contacts on polarity reversal. Needs no coil current to maintain contact in either position. Can be mounted on PC boards in any position; not position sensitive. **Contact Arrangement:** 1 Form A and 2 Form A rated 15 watts resistive. **Operate Time:** 1.0 msec at 25° C including bounce. **Size:** Same as JR standard series above. Weight, same as JR standard series above.

P&B No.	No. Cav-ities	Coil Nom. VDC	Coil Res. Ohms	Contacts Arrange-ment	Contacts Rat-ing	Net Each, Lots of* 1-9	10-24	25-99
JRL1000	2	6	400	1 A	15 W	$13.15	$9.81	$8.35
JRL1001	2	12	1600	1 A	15 W	13.60	10.15	8.64
JRL1002	2	24	6400	1 A	15 W	14.15	10.56	8.99
JRL1012	3	6	300	2 A	15 W	17.00	12.68	10.80
JRL1013	3	12	1200	2 A	15 W	17.20	12.83	10.92

★LARGER QUANTITY PRICES ON REQUEST

PRICES SHOWN ARE FOR REFERENCE ONLY

JM SERIES MERCURY-WETTED CONTACT RELAYS

JM, JML, JMP

JMF, JMS

Reservoir of mercury and contact assembly are hermetically sealed under high pressure hydrogen atmosphere to do away with contact chatter and bounce. Make or break is positive every time. Capsule used in JMF, JMF2 (2 capsules), JML and JMS relays has a SPDT, break-before-make (Form C), non-bridging contact arrangement. Each capsule used in JM1–JM4, and JMP relays has a SPDT, make-before-break (Form D), bridging contact arrangement. JMF, JMF2, JML, JMP and JMS series achieve a high rate of sensitivity by factory-adjusted magnet biasing. Upright mounting required, but deviation from upright up to 30° causes only minor deviation in operating characteristics. **Contact Ratings:** JMF, JMF2, JML and JMS 500 volts max. and 2 amps max., with contact protection unless in a low level circuit. Details of a simple protection circuit consisting of resistor and capacitor in series are included with each relay. JM1 thru JM4 and JMP 500 volts max. and 5 amps max., 250 VA max. Octal style mounting except Fig. 41, 14-pin miniature plug; JMF, JMF2 and JMS are designed for printed circuit board mounting on 0.200″ grid spacing. Sizes given are overall.

P&B Capsule	Size, Inches Dia. x H.	P&B Capsule	Size, Inches W. x D. x H.
JM1	1.105 x 3.196	JMF	0.625 x 0.625 x 2.062
JM2, JM3	1.531 x 3.937	JMF2	1.120 x 0.78 x 2.07
JM4	1.687 x 3.562	JMS	0.625 x 0.625 x 2.062
JML	1.234 x 3.218		
JMP	1.110 x 3.665		

JMS SENSITIVE SERIES IN PC MODULE
40 mW SINGLE-SIDE-STABLE, SINGLE-WOUND COIL

Capsule	Coil and Terminal*	Coil Characteristics: Resis., Ohms (±10%)	Must Operate mADC	Must Release mADC	Net Each, Lots of ★: 1-9	10-24	25-99
JMS	1070 61	34	32	7.7	$35.25	$26.30	$22.38
JMS	1130 61	620	7	33	35.25	26.30	22.38
JMS	1160 61	2430	3.6	65	35.60	26.56	22.61

JML SENSITIVE SERIES
SINGLE-SIDE-STABLE

Capsule	Coil and Terminal*	Coil Characteristics: Resis., Ohms (±10%)	Must Operate mADC	Must Release mADC	Net Each, Lots of ★: 1-9	10-24	25-99
JML	1061 81	40	9.75	1.68	$30.95	$23.09	$19.65
JML	1110 81	350	3.56	.61	30.95	23.09	19.65
JML	1160 81	1000	2.21	.38	30.95	23.09	19.65
JML	1190 81	2500	1.43	.17	33.20	24.77	21.08
JML	1200 81	4000	1.25	.25	33.20	24.77	21.08
JML	1240 81	11000	.72	.12	33.20	24.77	21.08
JML	1260 81	25000	.52	.09	35.70	26.63	22.67

BI-STABLE

Capsule	Coil and Terminal*	Coil Characteristics: Resis., Ohms (±10%)	Must Operate mADC	Must Release mADC	Net Each, Lots of ★: 1-9	10-24	25-99
JML	5200 81	4000	+0.53	−0.53	$33.20	$24.77	$21.08
JML	5430 82	(1) 1100 (2) 1100	+1.76	−1.76	34.45	25.70	21.88

JMF SENSITIVE SERIES IN PC MODULE
SINGLE-SIDE-STABLE

Capsule	Coil and Terminal*	Coil Characteristics: Resis., Ohms (±10%)	Must Operate mADC	Must Release mADC	Net Each, Lots of ★: 1-9	10-24	25-99
JMF	1070 61	450	12.9	2.1	$29.70	$22.16	$18.86
JMF	1080 61	675	11.6	1.9	29.70	22.16	18.86
JMF	1120 61	1425	8.4	1.4	29.70	22.16	18.86
JMF	1150 61	2400	7.8	1.3	29.70	22.16	18.86
JMF	1160 61	4000	4.0	.67	31.15	23.24	19.78

JMF2 DUAL-CAPSULE SENSITIVE SERIES
SINGLE-SIDE-STABLE

Capsule	Coil and Terminal*	Coil Characteristics: Resis., Ohms (±10%)	Must Operate mADC	Must Release mADC	Net Each, Lots of ★: 1-9	10-24	25-99
JMF2	1000 71	130	3 VDC	.5 VDC	$48.85	$36.44	$31.02
JMF2	1001 71	520	6 VDC	1 VDC	48.85	36.44	31.02
JMF2	1002 71	2200	12 VDC	2 VDC	48.85	36.44	31.02

JMP POLARIZED SERIES
SINGLE-SIDE-STABLE

Capsule	Coil and Terminal*	Coil Characteristics: Resis., Ohms (±10%)	Must Operate mADC	Must Release mADC	Net Each, Lots of ★: 1-9	10-24	25-99
JMP	1160 11	1000	5.60	.40	$50.70	$37.82	$32.19
JMP	1200 11	4000	2.96	.24	54.40	40.58	34.54

JM1 TO JM4 SERIES
SINGLE CAPSULE, SPDT SINGLE COIL

Capsule	Coil and Terminal*	Coil Characteristics: Resis., Ohms (±10%)	Must Operate mADC	Max. Volts at 35° C	Net Each, Lots of: 1-9	10-24	25-99
JM1	106 12	40	67.7	9.0	$48.50	$36.18	$30.80
JM1	109 12	130	38.8	16.1	46.80	34.91	29.72
JM1	112 11	500	20.1	31.6	48.30	36.03	30.67
JM1	114 11	700	20.0	37.4	48.25	35.99	30.64
JM1	114 12	700	20.0	37.4	48.50	36.18	30.80
JM1	118 11	2500	10.1	70.7	48.25	35.99	30.64
JM1	119 11	4000	8.1	89.5	36.05#	.....	.....
JM1	120 11	7000	6.0	117.0	48.70	36.33	30.92
JM1	121 11	11K	5.0	148.0	48.40	36.11	30.73
JM1	123 11	25K	3.6	224.0	48.70	36.33	30.92

#Net Each—1 and Up.

TWO CAPSULES, DPDT SINGLE COIL

Capsule	Coil and Terminal*	Coil Characteristics: Resis., Ohms (±10%)	Must Operate mADC	Max. Volts at 35° C	Net Each, Lots of: 1-9	10-24	25-99
JM2	104 22	50	110.0	12.25	$79.30	$59.16	$50.36
JM2	106 21	140	66.5	20.5	78.90	58.86	50.10
JM2	109 22	315	44.0	30.7	79.30	59.16	50.36
JM2	110 22	500	34.8	38.7	79.30	59.16	50.36
JM2	111 22	700	30.5	45.8	79.30	59.16	50.36
JM2	112 22	1250	22.1	61.2	79.40	59.23	50.42
JM2	115 21	5000	11.3	122.0	79.40	59.23	50.42
JM2	115 22	5000	11.3	122.0	79.40	59.23	50.42

THREE CAPSULES, 3PDT SINGLE COIL

Capsule	Coil and Terminal*	Coil Characteristics: Resis., Ohms (±10%)	Must Operate mADC	Max. Volts at 35° C	Net Each, Lots of: 1-9	10-24	25-99
JM3	109 31	315	44.0	30.7	$107.45	$80.16	$68.23
JM3	110 31	500	34.8	38.7	107.45	80.16	68.23
JM3	115 31	5000	11.3	122.0	107.55	80.23	68.29

FOUR CAPSULES, 4PDT SINGLE COIL

Capsule	Coil and Terminal*	Coil Characteristics: Resis., Ohms (±10%)	Must Operate mADC	Max. Volts at 35° C	Net Each, Lots of: 1-9	10-24	25-99
JM4	110 41	390	42.0	37.0	$143.10	$106.75	$90.87

*Last two digits indicate termination diagram figure, e.g., JML 1061 **81**, see Figure 81; JM1 106 **12**, see Figure 12.

TERMINATION DIAGRAMS

Figure 11

Figure 12

Figure 21

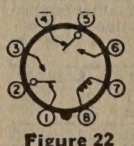
Figure 22

Figure 31

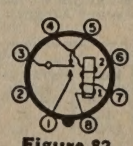
Figure 82

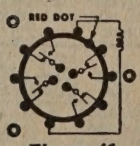

Figure 41

Figure 81

Figure 61

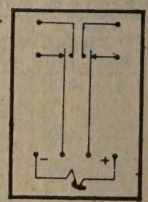
Figure 71

★LARGER QUANTITY PRICES ON REQUEST
PRICES SHOWN ARE FOR REFERENCE ONLY

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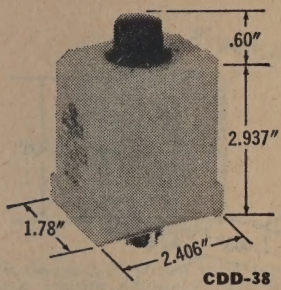
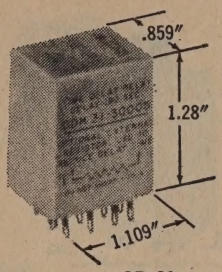
SOLID STATE TIME DELAY RELAYS

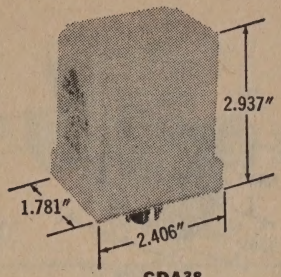


CDD-38

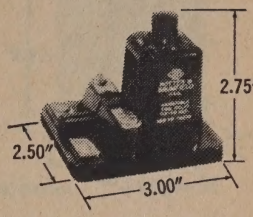
CD-21



CD-31

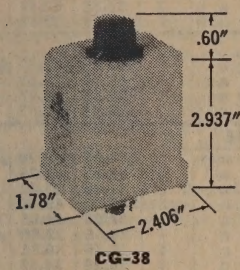


CDA38



CD-45

CD Series: The CD series offers an unusually wide selection of operational configurations, all with accurate time delays, fast reset time and excellent repeatability. It is available in two types: Knob-adjustable in two versions, one with a relay in the same enclosure as the solid state unit, the other with an auxiliary relay. A second type is adjustable with an external resistor. **Tolerance:** ±5%. For AC units, add ±½ cycle 60 Hz. **Delta Time:** ±5%. For AC units, add 1 cycle 60 Hz. **Repeatability:** ±1% for 38 style. All others ±2%. For AC units, add 1 cycle 60 Hz. **Oper. Temp. Range:** −40° C to +55° C. **Release Time:** 45 msec. typ.; 60 msec. max. **Recycle Time:** Less than 60 msec. for CD-38 units; 2 sec. for others. **Timing Cycle Interrupt Transfer:** None.

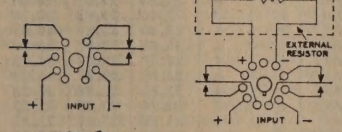


CG-38

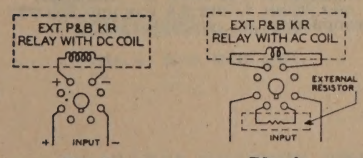
CG Series: CG relays feature a C/MOS IC controlling a DPDT relay with 10 amp contacts. The time delay is not normally affected by voltage transients. **Repeatability:** AC, ±0.1%; DC, ±0.05%. **Tolerance:** +10% −0% of max. specified at high end of dial scale; +0% −10% at low end. **Delta Time:** ±2%. **Oper. Temp. Range:** −10° C to +55° C. **Release Time:** 30 msec. typ.; 45 msec. max. **Recycle Time:** AC, 60 msec. max.; DC, 45 msec. max. **Timing Cycle Interrupt Transfer:** None. **Weight:** Approx. 8 ozs.

P & B Number	Delay Seconds	Method of Control	Input Volts	Notes	Dia. No.	Net Each, Lots of★ 1-9	10-24	25-49
DELAY ON OPERATE								
CDA38-70012	1.0	Fixed	120 VAC	a	1	$61.40	$58.33	$55.26
CDB21-70001	1.8–180	Knob	120 VAC	b	4	58.85	55.91	52.97
CDB21-70003	0.1–10	Knob	120 VAC	b	4	58.85	55.91	52.97
CDB38-30001	0.1–10	Knob	24 VAC	a	1	66.45	63.13	59.81
CDB38-30002	0.6–6	Knob	24 VAC	a	1	66.45	63.13	59.81
CDB38-70001	0.1–1	Knob	120 VAC	a	1	66.45	63.13	59.81
CDB38-70002	0.1–5	Knob	120 VAC	a	1	66.45	63.13	59.81
CDB38-70003	0.1–10	Knob	120 VAC	a	1	66.45	63.13	59.81
CDB38-70004	0.6–60	Knob	120 VAC	a	1	66.45	63.13	59.81
CDB38-70005	1.8–180	Knob	120 VAC	a	1	66.45	63.13	59.81
CDB38-70006	0.3–30	Knob	120 VAC	a	1	66.45	63.13	59.81
CDB45-70002	0.6–60	Knob	120 VAC	c	6	62.85	59.71	56.57
CDD21-30001	1.8–180	Knob	24 VDC	d	3	59.30	56.34	53.37
CDD21-30003	0.1–10	Knob	24 VDC	d	3	59.30	56.34	53.37
CDD38-30003	0.1–10	Knob	24 VDC	a	1	64.15	60.94	57.74
CDD38-30004	0.6–60	Knob	24 VDC	a	1	64.15	60.94	57.74
CDD38-30005	1.8–180	Knob	24 VDC	a	1	64.15	60.94	57.74
CDD38-40002	0.6–60	Knob	48 VDC	a	1	64.15	60.94	57.74
CDF31-70003	10 max.	Resistor	120 VAC	e, f	7	70.85	67.31	63.77
CDF38-70001	1 max.	Resistor	120 VAC	a, g	2	74.20	70.49	66.78
CDF38-70002	5 max.	Resistor	120 VAC	a, h	2	74.20	70.49	66.78
CDF38-70003	10 max.	Resistor	120 VAC	a, f	2	74.20	70.49	66.78
CDH31-30005	180 max.	Resistor	24 VDC	i, j	8	75.40	71.63	67.86
DELAY ON RELEASE								
CDB38-70012	0.6–60	Knob	120 VAC	a	5	$79.35	$75.38	$71.42
CDB38-70014	0.1–10	Knob	120 VAC	a	5	79.35	75.38	71.42
CDB38-70015	1.8–180	Knob	120 VAC	a	5	79.35	75.38	71.42
CDD38-30008	1.8–180	Knob	24 VDC	a	5	76.15	72.34	68.54
CDD38-30012	0.6–60	Knob	24 VDC	a	5	76.15	72.34	68.54
CDD38-30014	0.1–10	Knob	24 VDC	a	5	76.15	72.34	68.54
CDA38-70025	1.0	Fixed	120 VAC	a	5	68.20	64.79	61.38
CDB38-70016	0.1–1	Knob	120 VAC	a	5	79.35	75.38	71.42
CDB38-70091	0.1–5	Knob	120 VAC	a	5	79.35	75.38	71.42
DELAY ON OPERATE								
CGB38-70010M	1–10*	Knob	120 VAC	a	1	$79.20	$75.24	$71.28
CGB38-70050M	5–50*	Knob	120 VAC	a	1	79.20	75.24	71.28
CGB38-70100M	10–100*	Knob	120 VAC	a	1	79.20	75.24	71.28
CGD38-30010M	1–10*	Knob	24 VDC	a	1	76.90	73.06	69.21
CGD38-30050M	5–50*	Knob	24 VDC	a	1	76.90	73.06	69.21
CGD38-30100M	10–100*	Knob	24 VDC	a	1	76.90	73.06	69.21
INTERVAL ON								
CGB38-79010M	1–10*	Knob	120 VAC	a	1	$79.20	$75.24	$71.28
CGB38-79050M	5–50*	Knob	120 VAC	a	1	79.20	75.24	71.28
CGB38-79100M	10–100*	Knob	120 VAC	a	1	79.20	75.24	71.28
CGD38-39010M	1–10*	Knob	24 VDC	a	1	76.90	73.06	69.21
CGD38-39050M	5–50*	Knob	24 VDC	a	1	76.90	73.06	69.21
CGD38-39100M	10–100*	Knob	24 VDC	a	1	76.90	73.06	69.21
DELAY ON RELEASE								
CGB38-78010M	1–10*	Knob	120 VAC	a	....	$83.20	$79.04	$74.88

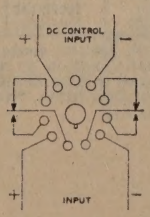
a. Has internal relay with DPDT contacts rated 10 A, 120 VAC. **b.** Use with P & B KRP5AG—120 VAC, KRP11AG—120 VAC or KRP14AG—120 VAC relay. **c.** Use with P & B PRD11AY—120 VAC relay. **d.** Use with P & B KRP5DG—24 VDC, KRP11DG—24 VDC or KRP14DG—24 VDC relay. **e.** Use with P & B KHP17A11—120 VAC relay. **f.** Use 400K resistor for ½ max. time. **g.** Use 33K resistor for ½ max. time. **h.** Use 200K resistor for ½ max. time. **i.** Use 1.6 megohm resistor for ½ max. time. **j.** Use with P & B KHP17D11—24 VDC relay. *Minutes.



Dia. 1 Dia. 2



Dia. 3 Dia. 4



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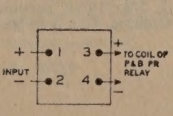

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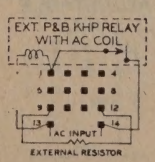

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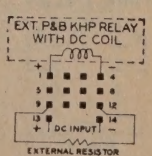

Dia. 8

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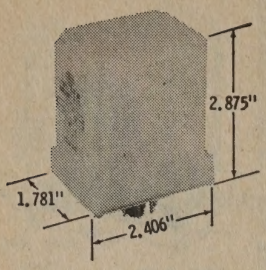
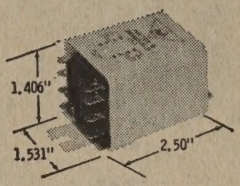
SEE ANOTHER P & B PAGE FOR ACCESSORIES

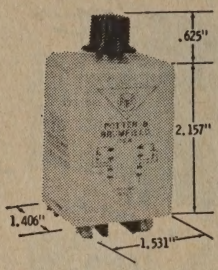
SOLID STATE TIME DELAY RELAYS



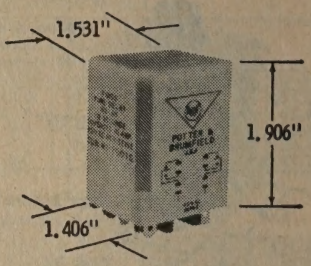
CH-38



CL-42 CU-42



CL-51 CU-51

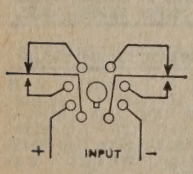


CU-41 CL-41

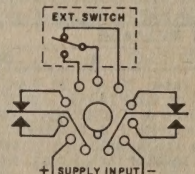
CH Series: CH relays are intended for industrial applications where economy is more important than performance. It is available as a knob-adjustable type with a relay in the same case or as a fixed time delay that is set at the factory. The CH series is available for time delay on operate or on release. **Tolerance:** Knob adj. units, −0 +20% at high end of dial scale/min. or less at low end; others, ±5%. **Delta Time:** ±10%. For AC units, add 1 cycle 60 Hz. **Repeatability:** ±2%. For AC units, add 1 cycle 60 Hz. **Oper. Temp. Range:** −10° C to +55° C. **Release Time:** 125 msec. **Recycle Time:** 125 msec. **Timing Cycle Interrupt Transfer:** Contacts may transfer momentarily if timing cycle is interrupted. **Contacts:** DPDT, 10 A, 120 VAC.

CL Series: For applications where false operation cannot be tolerated. Designed for delay on operate. Includes internally mounted DPDT 10-amp relay in case. Plug-in terminals. **Tolerance:** Knob adj. types, −0 +20% of max. at high end of dial scale/min. or less at low end; res. adj. types, ±10% at high end/min. or less at low end; fixed types, ±5%. **Repeatability:** ±3%. For AC units, add 1 cycle 60 Hz. **Oper. Temp. Range:** −10° C to +40° C. **Release Time:** 100 msec. **Recycle Time:** 100 msec. **Timing Cycle Interrupt Transfer:** None. UL recognized.

CU Series: Available in three types: fixed, resistor adjustable or knob adjustable. Has internal DPDT 10-amp relay. **Tolerance:** Knob adj. types, −0 +20% of max. at high end of dial scale/min. or less at low end; res. adj. types, ±10%. For AC units, add ½ cycle 60 Hz. **Repeatability:** ±3%. For AC units, add 1 cycle 60 Hz. **Oper. Temp. Range:** −10° C to +40° C. **Contact Rating:** DPDT, 10 A, 120 VAC. **Release Time:** 150 msec. **Recycle Time:** 150 msec. **Timing Cycle Interrupt Transfer:** Contacts may transfer momentarily if timing cycle is interrupted. UL recognized.

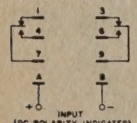


Dia. 1



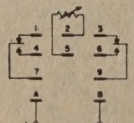
Dia. 2

FIXED & KNOB ADJUSTABLE TIME DELAY



Dia. 3

EXTERNAL RESISTOR ADJUSTABLE



Dia. 4

P & B Number	Delay Seconds	Method of Control	Input Volts	Notes	Dia. No.	Net Each, Lots of★ 1-9	10-24	25-49
DELAY ON OPERATE								
CHA38-70001	10	Fixed	120 VAC•	a	1	$41.70	$39.62	$37.53
CHB38-30001	1–10	Knob	24 VAC	a	1	38.30	36.39	34.47
CHB38-30003	1–180	Knob	24 VAC	a	1	38.30	36.39	34.47
CHB38-70001	1–10	Knob	120 VAC•	a	1	37.40	35.53	33.66
CHB38-70002	1–60	Knob	120 VAC•	a	1	37.40	35.53	33.66
CHB38-70003	1.8–180	Knob	120 VAC•	a	1	37.40	35.53	33.66
CHB38-80001	1–10	Knob	240 VAC•	a	1	42.85	40.71	38.57
CHD38-30001	1–10	Knob	24 VDC	a	1	45.45	43.18	40.91
CHD38-30003	1–180	Knob	24 VDC	a	1	45.45	43.18	40.91
DELAY ON RELEASE								
CHB38-30011	1–10	Knob	24 VAC	a, b	2	$57.30	$54.44	$51.57
CHB38-70011	1–10	Knob	120 VAC•	a, b	2	54.95	52.20	49.46
CHB38-70012	1–60	Knob	120 VAC•	a, b	2	54.95	52.20	49.46
CHB38-70013	1–180	Knob	120 VAC•	a, b	2	54.95	52.20	49.46
CHD38-30011	1–10	Knob	24 VDC	a, b	2	65.80	62.51	59.22
CHD38-30013	1–180	Knob	24 VDC	a, b	2	65.80	62.51	59.22
INTERVAL ON								
CHB38-70021	1–10	Knob	120 VAC•	a	1	$51.65	$49.07	$46.49
CHB38-70022	1–60	Knob	120 VAC•	a	1	51.65	49.07	46.49
CHB38-70023	1–180	Knob	120 VAC•	a	1	51.65	49.07	46.49
CHD38-30021	1–10	Knob	24 VDC	a	1	62.65	59.52	56.39
DELAY ON OPERATE								
CLA41-70010	10	Fixed	120 VAC	a	3	$34.95	$33.20	$31.46
CLB51-30010	0.1–10	Knob	24 VAC	a	3	43.45	41.28	39.11
CLB51-70010	0.1–10	Knob	120 VAC	a	3	41.50	39.43	37.35
CLB51-70030	0.3–30	Knob	120 VAC	a	3	47.45	45.08	42.71
CLB51-70120	1.2–120	Knob	120 VAC	a	3	47.20	44.84	42.48
CLF41-70010	0.1–10	Resistor	120 VAC	c	4	38.95	37.00	35.06
CLF42-70010	0.1–10	Resistor	120 VAC	c	4	38.75	36.81	34.88
CLH41-30010	0.1–10	Resistor	24 VDC	d	4	36.20	34.39	32.58
DELAY ON OPERATE								
CUA41-30010	10	Fixed	24 VAC	a	3	$30.75	$29.21	$27.68
CUA41-70001	1	Fixed	120 VAC	a	3	30.75	29.21	27.68
CUA41-70003	1–30	Knob	120 VAC	a	3	30.80	29.26	27.72
CUA41-70005	5	Fixed	120 VAC	a	3	30.85	29.31	27.77
CUA41-70010	10	Fixed	120 VAC	a	3	30.85	29.31	27.77
CUA41-70120	120	Fixed	120 VAC	a	3	30.85	29.31	27.77
CUA42-30010	10	Fixed	24 VAC	a	3	30.75	29.21	27.68
CUA42-70010	10	Fixed	120 VAC	a	3	30.85	29.31	27.77
CUA42-70120	120	Fixed	120 VAC	a	3	30.85	29.31	27.77
CUB51-70010	1–10	Knob	120 VAC	a	3	40.00	38.00	36.00
CUB51-70030	1–30	Knob	120 VAC	a	3	40.00	38.00	36.00
CUB51-70060	1–60	Knob	120 VAC	a	3	40.00	38.00	36.00
CUB51-70120	1–120	Knob	120 VAC	a	3	40.00	38.00	36.00
CUC41-30010	10	Fixed	24 VDC	a	3	31.20	29.64	28.08
CUC41-30120	120	Fixed	24 VDC	a	3	31.40	29.83	28.26
CUC42-30010	10	Fixed	24 VDC	a	3	31.15	29.59	28.04
CUC42-30120	120	Fixed	24 VDC	a	3	31.40	29.83	28.26
CUF41-30010	1–10	Resistor	24 VAC	c	4	33.85	32.16	30.47
CUF41-70010	1–10	Resistor	120 VAC	c	4	34.70	32.97	31.23
CUF41-70030	1–30	Resistor	120 VAC	e	4	34.70	32.97	31.23
CUF41-70120	1–120	Resistor	120 VAC	f	4	34.70	32.97	31.23
CUF42-30010	1–10	Resistor	24 VAC	c	4	33.75	32.06	30.38
CUF42-70010	1–10	Resistor	120 VAC	c	4	34.70	32.97	31.23
CUF42-70120	1–120	Resistor	120 VAC	f	4	34.70	32.97	31.23
CUH41-30010	1–10	Resistor	24 VDC	d	4	34.00	32.30	30.60
CUH41-30120	1–120	Resistor	24 VDC	g	4	34.00	32.30	30.60
CUH42-30010	1–10	Resistor	24 VDC	d	4	33.95	32.25	30.56
CUH42-30120	1–120	Resistor	24 VDC	g	4	33.95	32.25	30.56

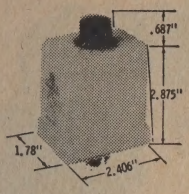
a. Has internal relay with DPDT contacts rated 10 A, 120 VAC, except CU series, 10 A, 250 VAC. **b.** External switch or relay required. **c.** Use 200K for max time. **d.** Use 160K for max. time. **e.** Use 600K for max. time. **f.** Use 2.4 megohm for max time. **g.** Use 2 megohm for max. time. •Not recommended for continuous duty.

PRICES SHOWN ARE FOR REFERENCE ONLY

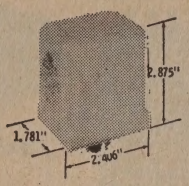
★LARGER QUANTITY PRICES ON REQUEST (SEE ANOTHER P & B PAGE FOR ACCESSORIES)

PRICES LISTED ARE FOR GUIDANCE ONLY

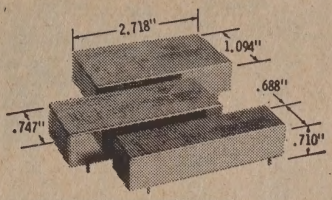
SOLID STATE TIME DELAY RELAYS



CK-38

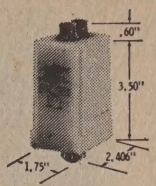


CK-38



CJ Series

CW Series



CR Series

CK Series: Available in three types: fixed time, resistor adjustable, and knob adjustable for AC or DC operation. Will not false operate and will time as low as 0.1 sec. All include a DPDT relay rated 10 amps. Has octal-type plug-in terminals. **Tolerance:** Knob adj. types, −0 +20% of max. at high end of dial scale/min. or less at low end; others, ±5%. For AC units, add ½ cycle 60 Hz. **Delta Time:** ±10%. For AC units, add 1 cycle 60 Hz. **Repeatability:** ±2%. For AC units, add 1 cycle 60 Hz. **Oper. Temp. Range:** −10° C to +55° C. **Contact Rating:** 10 A, 120 VAC. **Release Time:** 60 msec. **Recycle Time:** 60 msec. **Timing Cycle Interrupt Transfer:** None.

CJ Series: Time delay dry reed relays available. **Tolerance:** Fixed, ±5%; res. adj., ±10% of max. at high end of dial scale/min. or less at low end. **Delta Time:** ±10%. **Repeatability:** ±2%. **Oper. Temp. Range:** −10° C to +55° C. **Release Time:** 50 msec. **Recycle Time:** 50 msec. **Timing Cycle Interrupt Transfer:** None.

CR Series: The CR series recycle timer has two control knobs for adjusting ON and OFF delays. The recycling sequence is initiated by applying power to the terminals. When the first preset delay is complete, the normally OFF contacts transfer to ON, at which time the ON delay begins. If power is removed during any part of the operate cycle, the relay will revert to its OFF state (contacts open). **Tolerance:** −0 +20% at max. time/min. or less at min. time. **Delta Time:** ±10%. **Repeatability:** ±2%. **Oper. Temp. Range:** −10° C to +55° C. **Contact Rating:** 10 A, 120 VAC. **Release Time:** 60 msec.

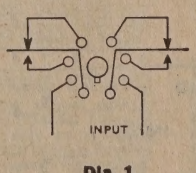
CW Series: Programmable time delay relays feature a CMOS IC with delay on operate, delay on release, and interval timing functions. Timing controlled by four toggle switches on top of unit's case; one selects timing function; one selects seconds or minutes; other two select timing range. Actual timing controlled by a knob on top of case. Internal 10-amp DPDT relay controls switching. An LED indicates when unit is on. Plug-in, octal-type terminals. **Tolerance:** +10%, −0% of maximum specified at high end; +0%, −20% of maximum specified at low end; not less than ±16 msec. for AC units; ±10 msec. for DC units. **Delta Time:** ±5% max. **Repeatability:** (Including first cycle of operation): AC, ±0.5% max., but not less than ±16 msec.; DC, ±0.1% max., but not less than ±3 msec. **Temp. Range:** −10° C to +55° C. **Contact Rating:** 10 amps at 120/240 VAC or 30 VDC. **Release Time:** 50 msec. max. **Recycle Time:** 75 msec. max. **Timing Cycle Interrupt Transfer:** None. **Weight:** Approx. 8 oz. **Time Delay Ranges:** 0.5–5, 1–10, 5–50 and 10–100 min. or sec. (all models). **Method of Control:** Toggle switches and adjustable control.

P & B Number	Delay Seconds	Method of Control	Input Volts	Notes	Dia. No.	Net Each, Lots of★ 1-9	10-24	25-49
DELAY ON OPERATE								
CKA38-70010	10	Fixed	120 VAC	a	1	$39.25	$37.29	$35.33
CKB38-30010	0.1–10	Knob	24 VAC	a	1	40.55	38.52	36.50
CKB38-70010	0.1–10	Knob	120 VAC	a	1	40.55	38.52	36.50
CKB38-70060	0.6–60	Knob	120 VAC	a	1	41.90	39.81	37.71
CKB38-70120	1.2–120	Knob	120 VAC	a	1	46.75	44.41	42.08
CKB38-70180	1.8–180	Knob	120 VAC	a	1	59.85	56.86	53.87
CKD38-20010	0.1–10	Knob	12 VDC	a	1	38.95	37.00	35.06
CKF38-70010	0.1–10	Resistor	120 VAC	a, b	2	38.10	36.20	34.29
CKH38-30010	0.1–10	Resistor	24 VDC	a, b	2	38.15	36.24	34.34
DELAY ON RELEASE								
CKB38-78010	0.1–10	Knob	120 VAC	a	3	$51.25	$48.69	$46.13
P & B Number	**Delay Seconds**	**Method of Control**	**Input Volts**	**Notes**	**Dia. No.**	**Net Each, Lots of★ 1-9**	**10-24**	**25-49**
DELAY ON OPERATE								
CJH01-20010	0.1–10	Resistor	12 VDC	b	4	$41.55	$39.47	$37.40
CJH01-20120	1–120	Resistor	12 VDC	c	4	47.40	45.03	42.66
CJH01-30010	0.1–10	Resistor	24 VDC	b	4	41.55	39.47	37.40
CJH01-30120	1–120	Resistor	24 VDC	c	4	47.40	45.03	42.66
CJH03-20010	0.1–10	Resistor	12 VDC	b	5	45.65	43.37	41.09
CJH03-30010	0.1–10	Resistor	24 VDC	b	5	45.70	43.42	41.13
P & B Number	**Delay Seconds**	**Method of Control**	**Input Volts**	**Notes**	**Dia. No.**	**Net Each, Lots of★ 1-9**	**10-24**	**25-49**
DELAY ON OPERATE AND RELEASE								
CRB48-30180	1.8–180	Knob	24 VAC	a	1	127.50	121.13	114.75
CRB48-70010	0.1–10	Knob	120 VAC	a	1	81.50	77.43	73.35
CRB48-70060	0.6–60	Knob	120 VAC	a	1	91.25	86.69	82.13
CRB48-70180	1.8–180	Knob	120 VAC	a	1	109.80	104.31	98.82
CRD48-30180	1.8–180	Knob	24 VDC	a	1	105.10	99.85	94.59

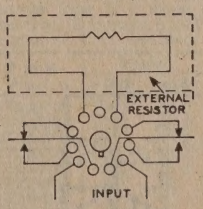
a. Has internal relay with DPDT contacts rated at 10 A, 120 VAC. **b.** Use 750K resistor for max. time. **c.** Use 1.8 megohm resistor for max. time.

PROGRAMMABLE DELAY ON OPERATE AND RELEASE

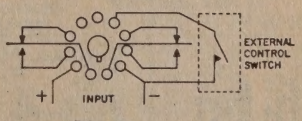
P & B Number	Input Volts	Diag. No.	Net Each
CWB-38-36000	24 VAC	6	$89.25
CWB-38-76000	120 VAC	6	89.25
CWB-38-86000	240 VAC	6	97.25
CWD-38-26000	12 VDC	6	89.25
CWD-38-36000	24 VDC	6	89.25
CWD-38-46000	48 VDC	6	89.25
CWD-38-66000	110 VDC	6	89.25



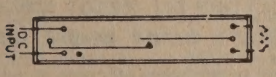
Dia. 1



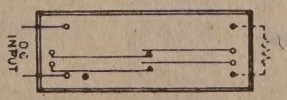
Dia. 2



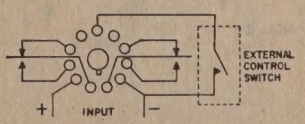
Dia. 3



Dia. 4 N/O RED DOT



Dia. 5 RED

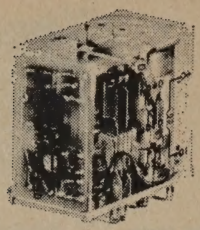


Dia. 6

★LARGER QUANTITY DISCOUNTS AVAILABLE. PRICES SHOWN ARE FOR REFERENCE ONLY

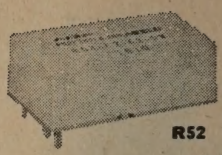
SEE ANOTHER P & B PAGE FOR ACCESSORIES

SOLID STATE TIME DELAY RELAYS



R12, R14, R15

R16



R52

R12 Series: Small size DPDT with 5 amp contacts and silicon transistor circuitry. Delay time .1 to 120 seconds in three ranges; no false operation. Time is varied with high-resolution 15-turn potentiometer. Solder/plug-in terminals. **Tolerance:** −0% +60% of max. at high end of potentiometer; min. or less at low end. **Delta Time:** ±10%. **Repeatability:** ±3% at 25° C. **Recycle Period:** 100 msec. **Timing Cycle Interrupt Transfer:** None. **Temp. Range:** −10° C to +55° C. **Weight:** 1.7 ozs.

R14 Series: DC operated, fixed or externally adjustable time delay relay available in three ranges from 0.1 to 120 seconds. The coil is polarity protected. Shock rated at 15 g. operating and 30 g. mechanical.

R15 Series: AC operated fixed or externally adjustable time delay relay available in three timing ranges from 0.3 to 60 seconds. Shock rated at 15 g. operating and 30 g. mechanical. **Tolerance at 25° C:** Fixed, ±25%. **Repeatability:** ±3%. **Recycle Period:** 200 msec. **Timing Cycle Interrupt Transfer:** None. **Temp. Range:** −10° C to +55° C. **Weight:** 1.7 ozs.

R14/R15 TIMING RESISTOR

Max. Delay Time	Resistance
2 sec.	1.32 meg
10 sec.	434K
30 sec.	1.32 meg
120 sec.	1.32 meg
300 sec.	1.65 meg

For minimum time, short the external-resistor terminals together.

P & B Number	Delay Seconds	Input Volts	Contacts Arrangement	Contacts Rating▲ Typ. (max.)	Dia. No.	Net Each, Lots of★ 1-9	10-49	50-99
DELAY ON OPERATE								
R12-2-12-X2-E1	0.1–2	12 VDC	DPDT	5	1	$32.80	$29.52	$26.24
R12-2-24-X2-E1	0.1–2	24 VDC	DPDT	5	1	32.80	29.52	26.24
R12-30-12-X2-E1	1.0–30	12 VDC	DPDT	5	1	33.60	30.24	26.88
R12-30-24-X2-E1	1.0–30	24 VDC	DPDT	5	1	33.60	30.24	26.88
R12-120-12-X2-E1	5.0–120	12 VDC	DPDT	5	1	36.30	32.67	29.04
R12-120-24-X2-E1	5.0–120	24 VDC	DPDT	5	1	36.30	32.67	29.04
R14-2A-12-X2-E1	0.1–2	12 VDC	DPDT	5	2	29.15	26.24	23.32
R14-2A-12-X4-E1	0.1–2	12 VDC	4PDT	5	4	31.60	28.44	25.28
R14-30A-24-X2-E1	0.3–30	24 VDC	DPDT	5	2	30.45	27.41	24.36
R14-30A-24-X4-E1	0.3–30	24 VDC	4PDT	5	4	33.00	29.70	26.40
R14-120A-24-X2-E1	1.0–120	24 VDC	DPDT	5	2	31.85	28.67	25.48
R14-120A-24-X4-E1	1.0–120	24 VDC	4PDT	5	4	34.35	30.92	27.48
R15-10A-24-W2-E1	0.3–10	24 VAC	DPDT	7.5	2	40.50	36.45	32.40
R15-30A-115-X2-E1	0.3–30	115 VAC	DPDT	5	2	40.90	36.81	32.72
R15-60A-115-Y2-E1	1–60	115 VAC	DPDT	2	2	40.40	36.36	32.32
R16-30A-24A-Y2	2.0–30	24 VAC	DPDT	2(3)	5	23.80	21.42	19.04
R16-30A-120A-Y2	2.0–30	120 VAC	DPDT	2(3)	5	25.15	22.64	20.12
R52-2B-1E1	0.2–2.0	4.5–30 VDC	SPST-NO	.35*	6	9.15	8.24	7.32
R52-30B-1E1	2.0–30	4.5–30 VDC	SPST-NO	.35*	6	9.15	8.24	7.32
R52-100B-1E1	5–100	4.5–30 VDC	SPST-NO	.35*	6	9.90	8.91	7.92

▲At 28 VDC or 115 VAC resistive, except R52 series, 4.5 to 30 VDC. *At 25° C, derated to .26 A at +55° C.

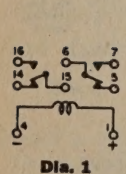
R16 Series: Available in the timing range of 2 to 30 seconds. A potentiometer is used to set the timing values. Relay and timing components are mounted on a glass epoxy circuit board having .25" quick-connect terminals. **Tolerance:** Potentiometer adjustable. **Delta Time:** ±10%. **Repeatability:** ±3% max. **Recycle Time:** 100 msec. typical. **Oper. Temp. Range:** −10° C to +55° C. **Timing Cycle Interrupt Transfer:** Momentary for AC inputs. **Weight:** 1.5 ozs. approx.

R52 Series: Low cost, solid state timing modules can make time delay relays of all but a few of the P & B 5, 6, 12 and 24 VDC relays. R52 will conduct 350 mA at voltages from 4.5 to 30 VDC. **Tolerance:** ±25% plus that of the timing resistor. **Delta Time:** ±10%. **Repeatability:** ±3%. **Release Time:** 100 msec. **Recycle Time:** 100 msec. **Timing Cycle Interrupt Transfer:** None. **Oper. Temp. Range:** −10° C to +55° C. **Weight:** 2 ozs.

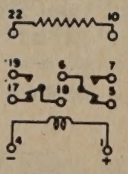
R52 TIMING RESISTOR

Max. Time Delay	Resistance
2 sec.	1.20 meg
30 sec.	1.24 meg
100 sec.	1.1 meg

For minimum time, short the external-resistor terminals together.



Dia. 1



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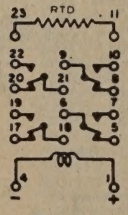

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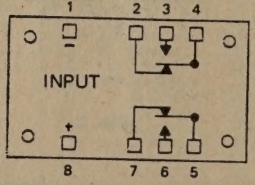
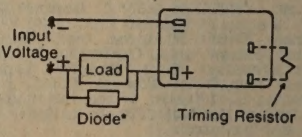


Dia. 5



Dia. 6

★ LARGER QUANTITY DISCOUNTS AVAILABLE. PRICES SHOWN ARE FOR REFERENCE ONLY

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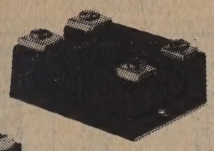
EOM-EOT SOLID-STATE RELAYS



EOM LOW-PROFILE

EOM

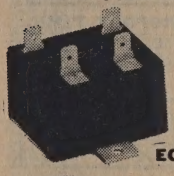
EOT1DB

EOT1DC

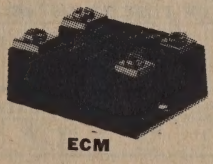
P & B Number▪	Input DC	Input mA	Output Volts	Output Amps*	Net Each, Lots of 1-9	10-24	25-49	50-Up
EOM1DA42	3–32	15	120	5(10)	$15.45	$13.91	$12.51	$11.28
EOM1DA42	5, 12, 24	15	120	5(10)	13.60	12.24	11.02	9.93
EOM1DB22	3–32	15	120	2(4)	20.05	18.05	16.24	14.64
EOM1DB42	3–32	15	120	4(8)	22.70	20.43	18.39	16.57
EOM1DB52	3–32	15	120	5(12)	22.90	20.61	18.55	16.72
EOM1DB72	3–32	15	120	7(20)	25.20	22.68	20.41	18.40
EOM1DB24	3–32	15	240	2(4)	21.40	19.26	17.33	15.62
EOM1DB44	3–32	15	240	4(8)	24.10	21.69	19.52	17.59
EOM1DB74	3–32	15	240	7(20)	27.75	24.98	22.48	20.26
EOM1DB22	5, 12, 24	11	120	2(4)	17.80	16.02	14.42	12.99
EOM1DB42	5, 12, 24	11	120	4(8)	20.50	18.45	16.61	14.97
EOM1DB52	5, 12, 24	11	120	5(12)	20.70	18.63	16.77	15.11
EOM1DB72	5, 12, 24	11	120	7(20)	22.90	20.61	18.55	16.72
EOM1DB24	5, 12, 24	11	240	2(4)	19.15	17.24	15.51	13.98
EOM1DB44	5, 12, 24	11	240	4(8)	21.85	19.67	17.70	15.95
EOM1DB74	5, 12, 24	11	240	7(20)	25.45	22.91	20.61	18.58
EOM1DE42	3–32	15	120	4(10)	14.20	12.78	11.50	10.37
EOM1DE42	5, 12, 24	15	120	4(10)	12.35	11.12	10.00	9.02
EOT1DB22	3–32	15	120	2(4)	16.50	14.85	13.37	12.05
EOT1DB42	3–32	15	120	4(8)	19.15	17.24	15.51	13.98
EOT1DB52	3–32	15	120	5(12)	19.35	17.42	15.67	14.13
EOT1DB72	3–32	15	120	7(20)	21.90	19.71	17.74	15.99
EOT1DC22	3–32	15	120	2(4)	16.50	14.85	13.37	12.05
EOT1DC42	3–32	15	120	4(8)	19.10	17.19	15.47	13.94
EOT1DC72	3–32	15	120	7(20)	21.85	19.67	17.70	15.95
EOT1DC74	3–32	15	240	7(20)	24.35	21.92	19.72	17.78
EOT1DC22	5, 12, 24	11	120	2(4)	14.30	12.87	11.58	10.44
EOT1DC42	5, 12, 24	11	120	4(8)	16.90	15.21	13.69	12.34
EOT1DC72	5, 12, 24	11	120	7(20)	19.70	17.73	15.96	14.38
EOT1DC74	5, 12, 24	11	240	7(20)	22.15	19.94	17.94	16.17

▪Specify input voltage when ordering. *First value is without heat sink; value in () is with factory recommended heat sink of 10″ x 10″ x .125″ aluminum with silicon grease.

The EOM-EOT Series feature a solid-state switch controlled and isolated by an opto-electronic coupler. Both feature zero voltage turn-on and zero current turn-off. Life expectancy is greater than 100 million operations at rated values. The EOM-EOT may be driven directly by DTL, TTL, ECL, HTL or MOS logic. The EOM has screw terminals. The EOT has .250″ quick-connect terminals. Non-hermetic seal. Approx. weight: 4.5 ozs. Maximum load current derating is linear between 25° C and 55° C ambient. At 55° C, the rating is 60% of that at 25° C. UL recognized.



ECT



ECM

KUA

EAX

KUR

EBT

EBT SERIES SOLID STATE HYBRID RELAYS

Combines the input/output isolation of a reed relay with the inrush switching capabilities and long life of a solid state switch. EBT relays switch 7 A, 60 Hz at 25° ambient temperature with nominal load voltage of 120 V. Rated 5 A rms, 60 Hz at 55° C ambient. Min. operating current, 200 mA, 60 Hz. Expected life, greater than 10 million bounce-free operations. Operate time: 2 msec. max. Typical turn-off is at first zero-crossover. Typical "closed contact" voltage drop, 1.1 V. Octal terminals for standard 8-pin socket. Weight, approximately 5.5 oz. UL recognized.

P & B No.▪	Contacts	Nominal Voltage†	Net Each, Lots of 1-9	10-24	25-49	50-Up
EBT1DA52	SPST	12, 24	$13.40	$12.06	$10.85	$9.78

▪Specify coil voltage when ordering. †VDC.

KUA SOLID STATE AMPLIFIER-DRIVEN RELAY

Amplifier driven KUP relay operates from low power signals associated with IC circuits. Input sensitivity of 60 μW. Control signal of 2.4 VDC at 25 μA approx. operates relay at specified voltage. Control signal 30 VDC or 1 mA max. Must release control voltage 0.5 VDC at specified supply voltage. Polarity protection. Fine silver contacts switch 5 A at 28 VDC resis. or 120 V, 60 Hz, 80% PF. Clear polycarbonate case; .187″ quick-connect/solder terminals fit KU sockets. Weight, 3.5 oz. approx.

KUA5G11	SPDT	24 VDC	$16.65	$14.99	$13.49	$12.15
KUA11G11	DPDT	24 VDC	17.10	15.39	13.85	12.48

KUR SERIES SOLID STATE HYBRID RELAYS

KUR direct action impulse relays for applications requiring on-off operation or alternate energizing of two loads. Solid state flip-flop circuit precedes permanent magnet latching relay; allows relay to remain latched during complete power loss. Requires 25 msec min. pulse width; up to 1200 pulses per minute repetition rate. Fine silver contacts rated 5 amps at 28 VDC or 120 VAC, 80% PF. Terminals are .187″ quick-connect/solder type and fit standard KU sockets. Yellow plastic cover. Weight, 3½ oz. approx.

KUR11D11	DPDT	24 VDC	$33.30	$29.97	$26.97	$24.31

EAX SERIES SOLID-STATE RELAYS

The EAX Series consists of a solid-state output switch controlled and isolated by a toroidal transformer that is driven by a pulse circuit. The series is compatible with TTL, MOS and I^2L logic. Input current is a maximum of 12 mA at all input voltages. Load current is 1.2 amp, 120 VAC, 50/60 Hz, at 25° C and is derated linearly to +55° C. Operate time is 0.5 msec. max.; typical turn-off is at first zero-crossover. **Size:** 1.74″ x 1.44″ x 0.8″. **Weight:** Approx. 1 oz. UL recognized.

P & B Number▪	Input DC Volts	Contact AC Volts	Net Each, Lots of 1-9	10-24	25-49	50-99
EAX1DA12	5	120	$14.00	$12.60	$11.34	$10.22
EAX1DA12	12	120	14.00	12.60	11.34	10.22
EAX1DA12	24	120	14.00	12.60	11.34	10.22

▪Specify coil voltage when ordering.

ECM SOLID STATE HYBRID RELAYS

The ECM Series consists of a solid state switch, controlled an isolated by an internal reed relay. Operate directly from logic ICs such as CMOS, TTL, I^2L, ECL and HTL. Non-potted, screw terminal enclosure. Switches loads up to 40 amps. Max. operate time is 1 ms.; typical turn-off is at first zero crossover. Expected life rating is over 10 million operations.

ECM1DE72	5, 12, 24	120	$13.25	$11.93	$10.73	$ 9.67
ECM1DE74	5, 12, 24	240	13.90	12.51	11.26	10.15
ECM1DE92	5, 12, 24	120	18.60	16.74	15.07	13.58
ECM1DE94	5, 12, 24	240	19.90	17.91	16.12	14.53

ECT SOLID STATE HYBRID RELAYS

ECT series is a medium power triac controlled and isolated by a reed relay. Expected life is in excess of 10 million operations. Operate time is 2 msec max.; typical turn-off is at first zero-crossover. Contacts SPST-N.O. **Size:** 2.64″ x 1.50″ x 1.52″. UL recognized. CSA certified.

P & B No.▪	Input Volts	Input mA	Contact Amps*	Net Each, Lots of 1-9	10-24	25-49	50-99
ECT1AC22	120‡	6.2	2	$13.15	$11.84	$10.65	$ 9.60
ECT1AC42	120‡	6.2	4	15.25	13.73	12.35	11.13
ECT1AC52	120‡	6.2	4	16.55	14.90	13.41	12.08
ECT1AC72	120‡	6.2	7(20)	18.75	16.88	15.19	13.69
ECT1AC74	120‡	6.2	7(20)	18.50	16.65	14.99	13.51
ECT1DB44	24†	12	4(8)	11.60	10.44	9.40	8.47
ECT1DC22	5†	57	2	9.70	8.73	7.86	7.08
ECT1DC22	12†	24	2	9.70	8.73	7.86	7.08
ECT1DC22	24†	12	2	9.70	8.73	7.86	7.08
ECT1DC42	5†	57	4	11.40	10.26	9.23	8.32
ECT1DC42	12†	24	4	11.40	10.26	9.23	8.32
ECT1DC42	24†	12	4	11.40	10.26	9.23	8.32
ECT1DC52	5†	57	5(12)	12.65	11.39	10.25	9.23
ECT1DC52	12†	24	5(12)	12.65	11.39	10.25	9.23
ECT1DC52	24†	12	5(12)	12.65	11.39	10.25	9.23
ECT1DC72	5†	57	7(20)	14.85	13.37	12.03	10.84
ECT1DC72	12†	24	7(20)	14.85	13.37	12.03	10.84
ECT1DC72	24†	12	7(20)	14.85	13.37	12.03	10.84
ECT1DC74	5†	89	7(20)	14.90	13.41	12.07	10.88
ECT1DC74	12†	37.5	7(20)	14.90	13.41	12.07	10.88
ECT1DC74	24†	18.8	7(20)	14.90	13.41	12.07	10.88

▪Specify input voltage when ordering. *First value is without heat sink; value in () is with factory recommended heat sink of 10″ x 10″ x .062″ aluminum with silicon grease. †VDC. ‡VAC.

SEE ANOTHER P & B PAGE FOR ACCESSORIES

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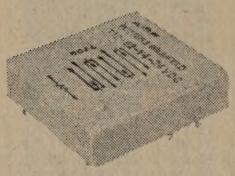
CURRENT PRICES WILL APPLY ON ALL LINES

GENERAL PURPOSE RELAYS



T10

T10 Series: DPDT and 4PDT models have UL recognition. Polyester cover withstands immersion cleaning. Seats only .425″ high for close spacing of PC boards. **Contacts:** Suffix **Y**, silver rated 3 amps at 28 VDC or 120 VAC, resistive; suffix **Z**, silver, bifurcated, rated 1 amp at 60 VDC or 120 VAC, resistive. **Size:** 1.48″ x .425″ x 1.24″ to 1.84″ depending on contact arrangement. **Weight:** Approx. 1.06 oz.

P & B Number	Coil Input	Contacts Arrangement	Contacts Amps, Typ. (Max.)	Net Each, Lots of★ 1-9	10-49	50-99
T10-E2-Y2-5V	5 VDC	DPDT	3(4)	$ 6.55	$ 5.90	$ 5.24
T10-E2-Y2-6V	6 VDC	DPDT	3(4)	6.55	5.90	5.24
T10-E2-Y2-12V	12 VDC	DPDT	3(4)	6.55	5.90	5.24
T10-E2-Y2-24V	24 VDC	DPDT	3(4)	6.55	5.90	5.24
T10-E2-Y2-48V	48 VDC	DPDT	3(4)	7.35	6.62	5.88
T10-E2-Z2-5V	5 VDC	DPDT	1(2)	7.25	6.53	5.80
T10-E2-Z2-6V	6 VDC	DPDT	1(2)	7.25	6.53	5.80
T10-E2-Z2-12V	12 VDC	DPDT	1(2)	7.25	6.53	5.80
T10-E2-Z2-24V	24 VDC	DPDT	1(2)	7.25	6.53	5.80
T10-E2-Z2-48V	48 VDC	DPDT	1(2)	8.05	7.25	6.44
T10-E2-Y4-6V	6 VDC	4PDT	3(4)	8.40	7.56	6.72
T10-E2-Y4-12V	12 VDC	4PDT	3(4)	8.40	7.56	6.72
T10-E2-Y4-24V	24 VDC	4PDT	3(4)	8.40	7.56	6.72
T10-E2-Y4-48V	48 VDC	4PDT	3(4)	8.85	7.97	7.08
T10-E2-Z4-6V	6 VDC	4PDT	1(2)	9.80	8.82	7.84
T10-E2-Z4-12V	12 VDC	4PDT	1(2)	9.80	8.82	7.84
T10-E2-Z4-24V	24 VDC	4PDT	1(2)	9.80	8.82	7.84
T10-E2-Z4-48V	48 VDC	4PDT	1(2)	10.25	9.23	8.20
T10-E2-Y6-6V	6 VDC	6PDT	3(4)	10.40	9.36	8.32
T10-E2-Y6-12V	12 VDC	6PDT	3(4)	10.40	9.36	8.32
T10-E2-Y6-24V	24 VDC	6PDT	3(4)	10.40	9.36	8.32
T10-E2-Y6-48V	48 VDC	6PDT	3(4)	11.45	10.31	9.16
T10-E2-Z6-6V	6 VDC	6PDT	1(2)	12.50	11.25	10.00
T10-E2-Z6-12V	12 VDC	6PDT	1(2)	12.50	11.25	10.00
T10-E2-Z6-24V	24 VDC	6PDT	1(2)	12.50	11.25	10.00
T10-E2-Z6-48V	48 VDC	6PDT	1(2)	13.55	12.20	10.84

CS SERIES SOLID STATE VOLTAGE SENSORS

CS series voltage sensor is designed to energize and de-energize its internal relay at predetermined voltages. Desired values are either fixed or knob adjustable. Fixed sensors are factory set—cannot be changed; knob-adjustable versions allow the levels to be varied over a selected range. Voltage sensors consist of sensing circuit that turns on or off a solid state switch, energizing or de-energizing the internal relay. Both the solid state switch and DPDT relay are enclosed in molded nylon dust cover. Reverse polarity protection on DC types. Octal mounting plug. **Load Switching Relay:** 2 Form C (DPDT) rated 10 amps at 28 VDC resistive or 120 VAC resistive. **Temp. Range:** −10° C to +55° C. **Temp. Coefficient:** 0.2%/° C max. **Repeatability:** ±1% max. **Size:** 2.406″ x 1.781″ x 4.035″ (including knob and mounting plug). Weight, 8 oz. approx.

P&B Number	Pick-Up Volts	Drop-Out Volts	Type Voltage	Net 1-9★
FIXED PICKUP TIME/ADJUSTABLE DROPOUT TIME				
CSJ38-30010	20–30	18–28	AC (50/60 Hz)	$45.00
CSJ38-70010	92–140	90–138	AC (50/60 Hz)	45.70
CSL38-30010	20–30	18–28	DC	45.10
CSL38-60010	92–140	90–138	DC	47.50
ADJUSTABLE PICKUP TIME/ADJUSTABLE DROPOUT TIME				
CSJ38-71010	105	90–103	AC (50/60 Hz)	$39.65
CSL38-31010	22	16–21	DC	37.60

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Pioneer-Standard

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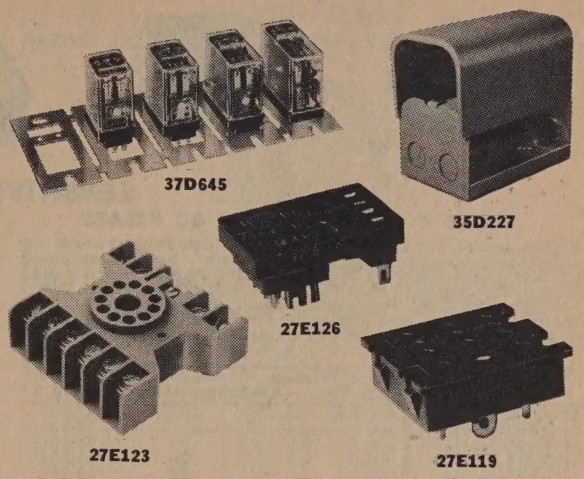
SOCKETS

P & B Number	For Relay	Contacts	Terminals	Net Each ★
27E006	KHS, KHU, CD-31	4PDT	Solder	$1.06
27E007			Printed circuit	1.09
27E166			Screw—5A	10.19
27E043	KUP, KUMP	SPDT,	Solder—10A	1.33
27E046	in plain case	DPDT,	Printed circuit	1.58
27E067	KUA, KUL,	3PDT	.187″ Q.C.—10A	2.10
27E121	KUR, CU, CL,		Screw—15A	6.66
27E396	KU, KUEP		.187″ Q.C.	2.10
27E400	SDAS sensor		Solder	1.33
27E062	HP, HPS, HCM	DPDT	Solder	1.42
27E118	KNP	SPDT,	Solder	1.14
27E119		DPDT, 3PDT	Printed Circuit	1.14
27E122	EBA, EBT†	8-pin	Screw—10A	4.20
27E123	CW time delay	11-pin	Screw—10A	6.29
27E125	R10, R10S	DPDT	Solder*	.88
27E701		DPDT	Solder*■	1.37
27E126		4PDT	Solder*	1.11
27E702		4PDT	Solder*■	1.99
27E127		6PDT	Solder*	1.42
27E703		6PDT	Solder*■	2.62
27E211		8PDT	Solder*	2.19
27E704		8PDT	Solder*■	3.71
27E162		DPDT	Solder	.88
27E705		DPDT	Solder■	1.37
27E163		4PDT	Solder	1.11
27E706		4PDT	Solder■	1.99
27E164		6PDT	Solder	1.42
27E128		DPDT	Printed circuit*	.88
27E709		DPDT	Printed circuit*■	1.37
27E129		4PDT	Printed circuit*	1.11
27E710		4PDT	Printed circuit*■	1.99
27E130		6PDT	Printed circuit*	1.42
27E711		6PDT	Printed circuit*■	2.62
27E254		8PDT	Printed circuit*	2.19
27E193		DPDT	Printed circuit§	.88
27E717		DPDT	Printed circuit§■	1.37
27E194		4PDT	Printed circuit§	1.11
27E740		4PDT	Printed circuit§■	1.99
27E195		6PDT	Printed circuit§	1.42
27E215		DPDT	Printed ciruclt#	6.45
27E732		DPDT	Printed circuit#■	6.67
27E216		4PDT	Printed circuit#	7.40
27E734		4PDT	Printed circuit#■	7.98
27E212		DPDT	Printed circuit	.88
27E713		DPDT	Printed circuit■	1.37
27E213		4PDT	Printed circuit	1.11
27E714		4PDT	Printed circuit■	1.99
27E271		6PDT	Printed circuit	1.42
27E715		6PDT	Printed circuit■	2.62
27E317		DPDT	Solder▲	1.46
27E152		4PDT	Solder▲	1.69
27E737		4PDT	Solder▲■	2.54
27E169		6PDT	Solder▲	2.00
27E131	R12	DPDT	Solder*	1.42
27E132			Printed circuit*	1.42
27E328	R14, R15	DPDT, 4PDT	Solder*	2.19
27E323	R40	4PDT	Printed circuit#	2.31
27E134			Printed circuit	1.95
27E135			Solder•	2.33
27E487	K10	DPDT	Screw—10A	5.16
27E488		DPDT	Solder—10A	1.34
27E489		DPDT	Printed circuit—10A	1.41

†And KAP, KBP, KCP, KRP, KRP3_H, CD21, CD38, CH, CK, CR, and CS38. *Has grounding strip for 5 amps or less AC. §Has grounding terminals for 5 amps or less AC. #Right-angle mounting. •Chassis mount. ▲Has mounting bracket. ■With gold flash on terminals.



RELAY MOUNTING STRIPS

P & B Number	No. of Sockets and Type	Size, Inches	Net Each★
37D632	6 KU*	11.9″ x 3.00″ x .062″	$2.65
37D633#	8 KH†, 8 K10	10.9″ x 2.25″ x .062″	2.05
37D645#	10 R10-R15	12.00″ x 2.56″ x .064″	1.92

#Breakaway strips will mount from one relay to the maximum number shown. *Except No. 27E121. †Except No. 27E166.

SOCKET RETAINERS

P & B Number	Used With Socket No.	Net Each ★
24A032	27E006	$0.09
24A051	27E062	.24
24A060	27E135	.11

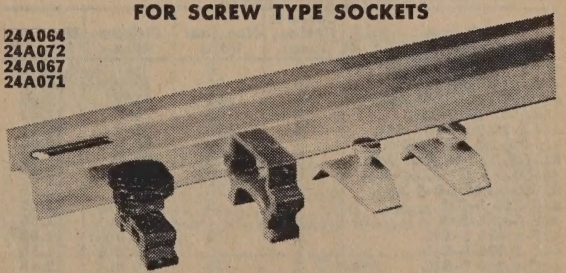
HOLD-DOWN SPRINGS

P & B Number	Use With Relays	Net Each ★
20C176	KCP, KRP, KRPA	$0.30
20C206	KAP, KRP3_H	.28
20C217	CD-31, KHS, KHU, K10	.22
20C228	CL, CU, KUA, KUL, KUMP*, KUP*, KUR, KU, KUEP	.30
20C246	KNP	.20
20C247	CL-51, CU, KUL	.42
20C249	R10/2P	.11
20C250	R10/4P	.11
20C251	R10/6P	.11
20C252	R40	.11
20C259	R10S-E2	.11
20C266	R10/8P, R14, R15	.11
20C297	K10	.22
20C300	R10S/2P	.16
20C301	R10S/4P	.16

*Plain case.

TRACK MOUNT SYSTEM FOR SCREW TYPE SOCKETS

24A064
24A072
24A067
24A071



For mounting several industrial screw type sockets. **No. 24A064:** Three ft. aluminum track with slotted holes on 6″ centers for #8 screws. **No. 24A072:** Plastic clip for mounting 27E122 and 27E123 sockets; two required per socket. **No. 24A071:** Steel retaining clip and 6-40 screw for mounting 27E121, 27E122, 27E123, and 27E166 sockets; two required per socket. **No. 24A067:** Plastic twist-clip for mounting 27E487 socket; two required per socket.

P & B Number	Description	No. Required per Socket	Net Each ★
24A064	Aluminum track	.....	$3.29
24A072	Plastic clip	2	.20
24A067	Plastic twist clip	2	.21

RELAY COVERS

Model 35D013—Metal dust cover for PRD Series only. Net Each..... **$7.41**

Model 35D070—Clear polycarbonate case for mounting components. Octal plug termination. Net Each..... **$1.19**

Model 35D072—Same as 35D070, except 11-pin plug termination. Net Each..... **$1.42**

Model 35D130—Metal dust cover for MS/MR Series only. Net Each..... **$6.27**

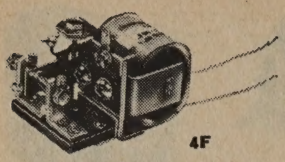
Model 35D203—Plastic dust cover for PM Series only. Net Each..... **$1.74**

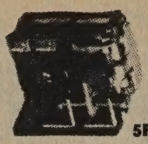
Model 35D227—Metal dust cover for PM Series only. Net Each..... **$8.98**

PRICES SHOWN ARE FOR REFERENCE ONLY

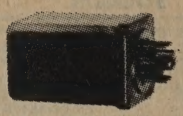
★LARGER QUANTITY PRICES ON REQUEST

SIGMA Relays


4F


5F

41R


42JO

48F

SENSITIVE RELAYS

SERIES 4 SPDT SENSITIVE DC RELAYS

Stable, precise. For applications requiring high dropout or narrow differential, and operation from gradually changing or on-off signals. Ideal for circuits where energizing current does not drop to zero. Pickup power, 20 mW. Contact rating, 2 amps at 28 VDC/120 VAC resistive. Temperature range, 0° C to +50° C. **4F:** Unenclosed, screw mounting, solder terminals. Size, 1⅜" w. x 1½" d. x 1$\frac{53}{64}$" h. Weight, 2¼ oz. **4R:** UL and CSA Listed. Dust cover, 5-pin plug. Size, 1$\frac{37}{64}$" sq. x 2$\frac{9}{16}$" h. Weight, 3¾ oz.

Sigma Type No.	Coil Ohms	Pickup, Max. mADC	Dropout Min. mADC	Net Each Disc. Sch. 1*
4F-1,000 S-SIL	1,000	4.5	2.0	$17.10
4F-2,500 S-SIL	2,500	3.0	1.3	17.10
4F-5,000 S-SIL	5,000	2.0	.90	18.00
4F-8,000 S-SIL	8,000	1.6	.75	16.85
4F-10,000 S-SIL	10,000	1.4	.65	16.85
4R-1,000 S-SIL	1,000	4.5	2.0	25.75
4R-2,500 S-SIL	2,500	3.0	1.3	25.75
4R-5,000 S-SIL	5,000	2.0	.90	24.15
4R-8,000 S-SIL	8,000	1.6	.75	24.70
4R-10,000 S-SIL	10,000	1.4	.65	24.70

SERIES 48 SPDT DC RELAYS

Excellent, sensitive relay for use in burglary, fire or police alarm systems requiring operation from 10 mW minimum input signal. Bridge-type contact structure. Solid contacts. Compliant armature for good contact wipe. Contact rating (at 28 VDC/120 VAC resistive): 2 amps. Temperature range, −20° C to +70° C. **48F:** Unenclosed, screw mounting, solder terminals. Size, 1¼" w. x 2¼" d. x 1⅜" h. Weight, 3 oz. **48RO:** Plastic dust cover, 8-pin octal plug. Size, 1$\frac{23}{64}$" sq. x 2$\frac{7}{64}$" h. Weight, 4 oz.

Sigma Type No.	Coil Ohms	Pickup, Max. mADC	Dropout, Min. mADC	Net Each Disc. Sch. 1*
48F-1,000 G-SIL	1,000	3.2	.32	$14.95
48F-2,500 G-SIL	2,500	2.0	.2	14.95
48RO-1,000 G-SIL	1,000	3.2	.32	16.30
48RO-2,500 G-SIL	2,500	2.0	.2	16.30

SERIES 41 SPDT INDUSTRIAL AC AND DC RELAYS

Rugged, versatile industrial relay. One-billion-operation mechanical life. Balanced design for coil overload capacity 4-6 times rated input; long contact life. Operates from on-off AC or DC signals, gradually changing DC signals. Pickup power: Adjustment S: 40 mW; ACS: .2 VA; ACG: .4 VA. Contact rating: ACG, 5 amps at 28 VDC/120 VAC; S, ACS: 2 amps; G-BSL, 10 amps. Temperature range, −55° C to +70° C except plastic covers, to +80° C. All open and dust-covered types are UL and CSA Listed. **41F, 41FZ:** Unenclosed, screw mounting, solder terminals. Size, 1¼" w. x 2¼" d. x 1$\frac{53}{64}$" h. **41RO, 41ROZ:** Dust cover, 8-pin octal plug. Size, 1$\frac{21}{64}$" sq. x 2$\frac{1}{16}$" h. **41RO6:** Plastic dust cover, 8-pin octal plug. Size, 1$\frac{19}{64}$" sq. x 2$\frac{3}{64}$" h. **41JOZ:** Hermetically sealed, 8-pin octal plug. Size, 1$\frac{13}{32}$" sq. x 1$\frac{31}{64}$" h. **41R, 41RZ:** Dust cover, 5-pin plug. Size, 1$\frac{37}{64}$" sq. x 1$\frac{7}{8}$" h. Weights: Enclosed, 5¼ oz. max.; unenclosed, 2½ oz.

Sigma Type No.	Contact Rating, Amps.	Nominal Volts	Pickup Max.	Net Ea., Sch. 1*
41FZ-10 ACG-BSL	5	6	4 V	$10.90
41FZ-200 ACG-BSL	5	24	18 V	10.90
41FZ-5,000 ACG-BSL	5	120	90 V	10.90
41FZ-35 ACS-SIL	2	6	4 V	12.45
41FZ-10,000 ACS-SIL	2	120	85 V	13.40
41JOZ-10,000 ACS-SIL	2	120	85 V	32.90
41JOZ-12,000 ACS-SIL	2	150	95 V	33.95
41ROZ-5,000 ACG-BSL	5	120	90 V	16.55
41RZ-5,000 ACG-BSL	5	120	90 V	15.45
41F-200 S-SIL	2	6	15 mA	11.95
41F-500 S-SIL	2	.....	9.0 mA	11.95
41F-1,000 S-SIL	2	12	6.5 mA	11.95
41F-2,500 S-SIL	2	.....	4.0 mA	11.95
41F-5,000 S-SIL	2	24	3.0 mA	12.45
41F-10,000 S-SIL	2	.....	2.0 mA	13.25
41F-200 G-BSL	10	12	32 mA	10.90
41F-1,000 G-BSL	10	24	14 mA	10.90
41F-5,000 G-BSL	10	.....	6.5 mA	10.90
41R-1,000 S-SIL	2	12	6.5 mA	17.00
41R-5,000 S-SIL	2	24	3.0 mA	17.65
41R-8,000 S-SIL	2	.....	2.3 mA	18.30
41RO-1,000 S-SIL	2	12	6.5 mA	17.95
41RO-2,500 S-SIL	2	.....	4.0 mA	17.95
41RO-5,000 S-SIL	2	24	3.0 mA	18.70
41RO-10,000 S-SIL	2	.....	2.0 mA	19.25
41RO6-500 S-SIL	2	.....	9.0 mA	17.00
41RO6-1,000 S-SIL	2	12	6.5 mA	17.00
41RO6-2,500 S-SIL	2	.....	4.0 mA	17.00
41RO6-5,000 S-SIL	2	24	3.0 mA	17.65

✱SEE ANOTHER SIGMA PAGE FOR QUANTITY DISCOUNTS

SERIES 5 SPDT HIGH-SENSITIVITY DC RELAYS

An exceptionally versatile, rugged relay; highly sensitive, precise, stable. Unusually high contact forces at inputs as low as 1 mW (adjustment SS; 5 mW, S), gradually changing or on-off. Useful for overload-underload detection. Reacts without amplification to minute variations from normal. Withstands heavy voltage or current 30-to-1 overloads. Contact ratings, S, 1 amp; SS, .25 amp; both 28 VDC/120 VAC resistive. All types are UL and CSA Listed. Temperature range: S, −20° C to +70° C; SS, −10° C to +40° C. **5F:** Unenclosed, screw mounting, solder terminals. Size, 1⅜" w. x 1¼" d. x 1½" h. Weight, 4¼ oz. **5JO:** Hermetically sealed; 8-pin plug. Size, 1⅝" sq. x 2$\frac{13}{32}$" h. Weight, 7¼ oz. **5R:** Dust cover; 5-pin plug, 5RO, 8-pin. Size, 1$\frac{15}{16}$" sq. x 2$\frac{9}{32}$" h. Wt., 5¾ oz.

Sigma Type No.	Contact Rating, Amps.	Pickup, Max. mADC	Dropout, Min. mADC	Net Ea., Disc. Sch. 1*
5F-1,000 S-SIL	1	2.3	.80	$23.55
5F-2,500 S-SIL	1	1.4	.50	23.55
5F-5,000 S-SIL	1	1.0	.40	25.20
5F-10,000 S-SIL	1	.70	.25	29.50
5F-16,000 S-SIL	1	.55	.20	29.60
5F-1,000 SS-PAL	0.25	1.0	.40	35.15
5F-10,000 SS-PAL	0.25	.30	.13	39.20
5JO-1,000 S-SIL	1	2.3	.80	43.05
5JO-2,500 S-SIL	1	1.4	.50	43.05
5JO-5,000 S-SIL	1	1.0	.40	44.90
5JO-10,000 S-SIL	1	.70	.25	46.95
5JO-16,000 S-SIL	1	.55	.20	49.60
5R-1,000 S-SIL	1	2.3	.80	31.95
5R-2,500 S-SIL	1	1.4	.50	31.95
5R-5,000 S-SIL	1	1.0	.40	33.40
5R-10,000 S-SIL	1	.70	.25	36.05
5R-16,000 S-SIL	1	.55	.20	36.05
5R-1,000 SS-PAL	0.25	1.0	.40	41.25
5R-10,000 SS-PAL	0.25	.30	.13	42.95
5RO-1,000 S-SIL	1	2.3	.80	31.95
5RO-2,500 S-SIL	1	1.4	.50	31.95
5RO-5,000 S-SIL	1	1.0	.4	33.40
5RO-10,000 S-SIL	1	.70	.25	36.05
5RO-16,000 S-SIL	1	.55	.20	36.05

SERIES 42 DPDT AC AND DC RELAYS

For general-purpose applications from alarm and control systems Pickup power: Adjustment S: 100 mW; G: 200 mW; ACS: .3 VA; AGC: .5 VA. Contact ratings (at 28 VDC/120 VAC resistive): ACG, G: 5 A; ACS, S: 2 A. Dust-covered and open types UL and CSA Listed. Temperature range, −55° C to +70° C except plastic covers, to +80° C. **42RO, 42ROZ:** Plastic dust cover, 8-pin octal plug. **Size,** 1$\frac{21}{64}$" sq. x 1$\frac{35}{64}$" h. **42RO6, 42RO6Z:** Differ in wiring only. **42JOZ:** Hermetically sealed, 8-pin plug. Size, 1$\frac{13}{32}$" sq. x 1$\frac{13}{32}$" h. **42F:** Unenclosed, stud mounting, solder terminals. 1½" w. x 1$\frac{13}{32}$" h. Weight, 2½ to 5¼ oz.

Sigma Type No.	Contact Rating, Amps.	Nominal Volts	Pickup Max.	Net Ea., Disc. Sch. 1*
42JOZ-4,000 ACG-SIL	5	120 VAC	90 V	$31.25
42ROZ-8 ACG-SIL	5	6 VAC	4 V	17.40
42ROZ-50 ACG-SIL	5	12 VAC	9 V	17.40
42ROZ-200 ACG-SIL	5	24 VAC	18 V	17.40
42ROZ-4,000 ACG-SIL	5	120 VAC	90 V	17.40
42ROZ-7,000 ACS-SIL	2	120 VAC	90 V	22.15
42RO6Z-8 ACG-SIL	5	6 VAC	4 V	17.95
42RO6Z-4,000 ACG-SIL	5	120 VAC	90 V	17.95
42F-150 G-SIL	5	.....	38 mA	13.55
42F-500 G-SIL	5	.....	20 mA	13.55
42F-1,000 G-SIL	5	24 VDC	14 mA	13.55
42F-2,500 G-SIL	5	48 VDC	9.0 mA	13.55
42RO-50 G-SIL	5	6 VDC	65 mA	17.40
42RO-100 G-SIL	5	.....	45 mA	17.40
42RO-200 G-SIL	5	12 VDC	32 mA	17.40
42RO-500 G-SIL	5	.....	20 mA	17.40
42RO-1,000 G-SIL	5	24 VDC	14 mA	17.40
42RO-2,500 G-SIL	5	48 VDC	9.0 mA	17.40
42RO-5,000 G-SIL	5	.....	6.5 mA	17.95
42RO-10,000 G-SIL	5	.....	4.5 mA	18.60
42RO-12,000 G-SIL	5	.....	4.0 mA	20.20
42RO-100 S-SIL	2	.....	32 mA	19.95
42RO-150 S-SIL	2	6 BDC	26 mA	19.95
42RO-200 S-SIL	2	.....	22 mA	19.95
42RO-500 S-SIL	2	12 VDC	14 mA	19.95
42RO-1,000 S-SIL	2	.....	10 mA	19.95
42RO-2,500 S-SIL	2	24 VDC	6.2 mA	19.95
42RO-5,000 S-SIL	2	.....	4.5 mA	21.00
42RO-10,000 S-SIL	2	.....	3.1 mA	21.35
42RO6-50 G-SIL	5	6 VDC	65 mA	17.40
42RO6-500 G-SIL	5	.....	20 mA	17.40
42RO6-1,000 G-SIL	5	25 VDC	14 mA	17.40
42RO6-2,500 G-SIL	5	48 VDC	9.0 mA	17.40
42RO6-5,000 G-SIL	5	.....	6.5 mA	17.95
42RO6-10,000 G-SIL	5	.....	4.5 mA	18.60
42RO6-500 S-SIL	2	12 VDC	14 mA	19.95
42RO6-1,000 S-SIL	2	.....	10 mA	19.95
42RO6-2,500 S-SIL	2	24 VDC	6.2 mA	19.95

PRICES LISTED ARE FOR GUIDANCE ONLY

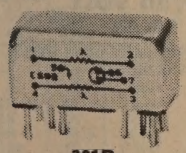
SIGMA Solid State and Hybrid Relays

SOLID STATE RELAYS
SERIES 226 MINIATURE

Low cost solid state relay designed to switch low to medium current AC loads from low level logic signals. Can be PC board mounted, projecting less than 0.5". Can be chassis mounted and connected with standard Molex slip-on connectors. Compatible with TTL logic. Can be operated from AC or DC input. Unit is completely potted to resist shock and moisture effects. DC input versions have LED activated opto-isolator input. AC input versions have incandescent or neon activated opto-isolators. Operate time, 8 msec typ. Release time, 25 msec typ. Dielectric strength, 2500 VAC rms from input to output and case. Size, 1.5" x 0.65" x 0.75" high for chassis version; 0.62" high for PC version. Units have continuous current rating without heatsink of 0.05 to 1.5 amps; 0.05 to 7 amps with heatsink.

Sigma Numbers		Input VDC	Output		Net Each, Disc. Sch. 5*
Push-On Terms. 226-	P.C. Terms. 226-		Applied VAC	Blocking Voltage ±VDC	
R1-5A1	RE1-5A1	5	120	200	$ 8.00
R1-12A1	RE1-12A1	12	120	200	8.00
R2-5A1	RE2-5A1	5	240	400	9.15
R2-12A1	RE2-12A1	12	240	400	9.15
R4-5A1	RE4-5A1	5	120	300	8.55
R4-12A1	RE4-12A1	12	120	300	8.55
R5-5A1	RE5-5A1	5	240	500	10.30
R5-12A1	RE5-12A1	12	240	500	10.30
R6-5A1	RE6-5A1	5	240	600	10.85
R6-12A1	RE6-12A1	12	240	600	10.85
R7-5A1	RE7-5A1	5	120–240	400	9.15
R7-12A1	RE7-12A1	12	120–240	400	9.15
R8-5A1	RE8-5A1	5	240	700	11.40
R8-12A1	RE8-12A1	12	240	700	11.40

SERIES 301 OPTO-ISOLATORS
1 TO 4 POLES—AC AND DC INPUTS AND OUTPUTS



301R

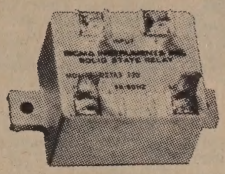
301T

Optical coupling provides high input-to-output isolation. Couplers can be used as on/off switches or as voltage-controlled resistors. Ideal for triggering SCR's and triacs. **Off Resistance:** 10 megohms, min. **Output Voltage:** 250 VAC/DC except No. 301T1-2A2, 100 VDC or AC peak. **Dielectric Strength:** 1000 V rms between all insulated points. **Insulation Resistance:** 10^9 ohms. **Operating Temperature Range:** −40° C to +60° C. **Size:** 301T1 shrink tube case, 1 5/16" long x 7/16" w. x 5/16" h.; metal case, 1" long x 1/2" w. x 1/2" h. seated.

Sigma No.	Input Volts	Input mA	Output On Resis. Ohms	Output Power Diss. mW	Response Time On msec	Response Time Off msec	Net Ea. Disc. Sch. 5*
SHRINK TUBE CASE							
301T1-2A1†	1.7 DC	40	2000	200	10	50	$2.40
301T1-2A2†	1.7 DC	40	800	200	5	150	2.40
301T1-2B1†	2.0 DC	25	1000	400	5	100	3.60
301T1-6B1‡	6 AC/DC	50	400	400	150	250	2.35
301T1-12B1‡	12 AC/DC	24	400	400	150	300	2.35
301T1-120A1§	120 AC/DC*	1.3	1200	400	35	100	2.50
METAL CASE							
SINGLE POLE							
301R1-6‡	6 AC/DC	40	400	500	200	500	$5.85
301R1-12‡	12 AC/DC	19	500	500	100	300	5.85
301R1-24‡	24 AC/DC	40	200	175	100	700	5.85
301R1-150§	150 AC/DC#	2	500	500	35	100	5.85
DOUBLE POLE							
301R2-6‡	6 AC/DC	40	400	400	200	500	$9.25
301R2-12‡	12 AC/DC	19	500	400	100	300	9.25
301R2-24‡	24 AC/DC	40	200	175	100	700	9.25
301R2-150§	150 AC/DC#	2	500	400	35	100	9.25
FOUR POLE							
301R4-6‡	6 AC/DC	80	650	175	200	500	$11.95
301R4-12‡	12 AC/DC	38	1000	175	100	300	11.95
301R4-24‡	24 AC/DC	40	500	75	100	500	11.95

*Add 47K external resistor to limit current. #Add 33K external resistor to limit current. †LED. ‡Incandescent. §Neon.

HYBRID RELAYS
SERIES 221—4 AND 10 AMP, 120 AND 240 VAC



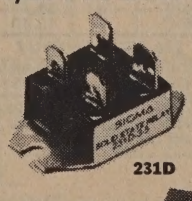
For use in vending machines, process controls, machine tools. Isolates power input from low level control circuits. Utilizes an optical coupler or reed relay to control an AC semiconductor. Can be operated from either AC or DC sources. Operate time, 60 Hz, 150 msec. Release time, 60 Hz, 400 msec. Dielectric strength, V rms, between all insulated points, 1500 VAC rms. U.L. recognized. **Size:** 2.64" lg. x 1.52" w. x 1.44" h.

Sigma No.	Output Amps	Output VAC	Input VDC	Input Imped., Ohms	Net Each, Disc. Sch. 4*
221A-1-5D	4	120	5	525	$14.60
221A-1-6D	4	120	6	100	13.80
221A-1-12D	4	120	12	420	13.80
221A-1-24D	4	120	24	2150	13.80
221A-2-5D	4	240	5	525	15.40
221A-2-6D	4	240	6	100	14.60
221A-2-12D	4	240	12	420	14.60
221A-2-24D	4	240	24	2150	14.60
221A-3-5D	10	120	5	525	16.65
221A-3-6D	10	120	6	100	15.85
221A-3-12D	10	120	12	420	15.85
221A-3-24D	10	120	24	2150	15.85
221A-4-5D	10	240	5	525	17.45
221A-4-6D	10	240	6	100	16.65
221A-4-12D	10	240	12	420	16.65
221A-4-24D	10	240	24	2150	16.65

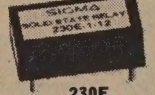
Sigma No.	Output Amps	Output Volts	Input VDC/VAC	Input mA	Net Each, Disc. Sch. 4*
223A-1-5D*	4	120	5	10	$15.40
223A-3-5D*	10	120	5	10	16.65
223A-1-6†	4	120	6	40	13.80
223A-3-6†	10	120	6	40	15.85
223A-1-12†	4	120	12	19	13.80
223A-3-12†	10	120	12	19	15.85
223A-1-24†	4	120	24	19	13.80
223A-3-24†	10	120	24	19	15.85
223A-1-120‡	4	120	120	13	13.80
223A-3-120‡	10	120	120	13	15.85

*LED. †Incandescent. ‡Neon.

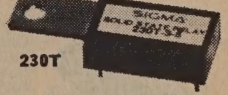
SERIES 230/231 SOLID STATE RELAYS



231D



230E



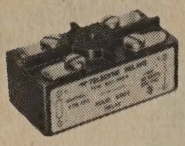
230T

The Series 230/231 are optically coupled solid state relays offering high efficiency and reliability with **Zero Angle Firing.** Unlike other ZAF types which have high leakage (1 to 5 mA), the 230/231 feature leakage less than 100 μA. Units handle 1 cycle surges of 50 amps and 2 minute overloads of 100%. **Isolation Input/Output:** 4000 VAC. **Operating Temperature Range:** 0° C to +115° C. UL and CSA pending.

Sigma Number	Input Volts	Output Amps	Output VAC	Output Blocking VDC ±	Net Ea., Disc. Sch. 1*
230E1-5	5	1.5	120	400	$ 9.60
230E1-12	12	1.5	120	400	9.60
230E2-5	5	1.5	240	500	10.60
230E2-12	12	1.5	240	500	10.60
230T3-5	5	5.0	120	400	10.60
230T3-12	12	5.0	120	400	10.60
230T4-5	5	5.0	240	500	11.55
230T4-12	12	5.0	240	500	11.55
231D3-5	5	5.0	120	400	10.60
231D3-12	12	5.0	120	400	10.60
231D4-5	5	5.0	240	500	11.55
231D4-12	12	5.0	240	500	11.55

★SEE ANOTHER SIGMA PAGE FOR QUANTITY DISCOUNTS

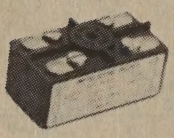
SERIES 601-1400 OPTICALLY ISOLATED SOLID STATE AC RELAYS



SPST, normally open solid state relays featuring optical isolation and synchronous/zero voltage turn-on. Input choice of logic compatible 3–28 VDC or 3–32 VDC. The package design provides standard screw terminals or a choice of quick disconnect terminals for chassis or panel mounting, or solder pins for direct PC board applications. Add suffix **P** for printed circuit mounting terminals; add suffix **Q** for quick disconnect terminals. Package size is 1″ (25.4 mm) x 2″ (50.8 mm) x .9″ (22.9 mm).

Teledyne No. 601-	Output VAC RMS	Output VAC Peak	Output Current Amps	Net Each, Lots of 1-24	25-49	50-99	100-249
3–28 VDC INPUT (CONTROL) VOLTAGE							
1401	140	200	5	$28.50	$25.70	$23.10	$20.80
1402	140	200	10	30.10	27.10	24.30	22.00
1403	250	400	5	30.30	27.30	24.55	22.10
1403H	250	600	5	35.90	33.00	30.40	27.95
1404	250	400	10	32.95	29.70	26.70	24.00
1404H	250	600	10	38.80	35.70	32.80	30.25
3–32 VDC INPUT (CONTROL) VOLTAGE							
1	250	500	5	$25.90	$23.35	$21.00	$18.90
1H	250	650	5	27.50	24.80	22.30	20.10
2	250	500	10	30.10	27.10	24.30	22.00
2H	250	650	10	32.95	29.70	26.70	24.00

SERIES 603 OPTICALLY ISOLATED SOLID STATE DC RELAYS



SPST solid state DC relays featuring LED optical isolation. Available in 2 and 5 amp steady state current ratings at up to 250 VDC. Control inputs are available in high or low logic level ranges from 3-32 VDC or 90-250 VAC. Controlled rise and fall time is offered on some models to limit in-rush currents for lamp loads and switching transients for inductive loads. Terminals are either screw, quick-disconnects for chassis or panel mounting, or solder pins for PC board mounting.

Teledyne No.*	Input (Control) Voltage Range	Output Cur., Amps	Net Each, Lots of 1-24	25-49	50-99	100-249
50 VDC OUTPUT						
603-1	3–32 VDC	2	$29.90	$26.95	$24.20	$21.80
603-2	3–32 VDC	5	35.40	31.90	28.70	25.85
603-11	90–250 VAC	2	34.45	31.00	27.95	25.10
603-12	90–250 VAC	5	39.95	35.95	32.35	29.15
603-21#	3–32 VDC	2	35.65	32.00	28.80	25.95
603-22#	3–32 VDC	5	43.35	39.05	35.10	31.55
250 VDC OUTPUT						
603-3	4–10 VDC	5	$48.95	$44.00	$39.60	$35.65
603-4	10–32 VDC	5	48.95	44.00	39.60	35.65

*Supplied with screw terminals. Add suffix **P** for printed circuit mounting pins only; add suffix **Q** for quick disconnect terminals. #Has controlled rise and fall time.

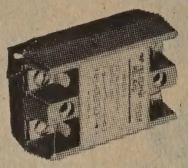
SERENDIP® SPST SOLID STATE DIP RELAYS

Completely solid state SPST relay in dual inline package. Replacement for DIP reed relays, etc. No moving parts. Input drive compatible with 5 volt logic. Features fast response time (up to 100,000 operations per second for Model 640-1). No bounce; flip-flop IC's can be driven directly. No inductive coil kick-back; therefore, suppression diodes are not required. Total isolation (10^9 ohm min.) between input and output. No derating required for lamp loads. Standard low profile 14-pin dual inline TO-116 package; two input and two output terminals.

Teledyne No.	Output Current	Output Voltage	Net Each, Lots of 1-24	25-49	50-99	100-249
640-1	±80 mA	±50 VAC/DC	$14.35	$13.15	$12.05	11.15
641-1	1.0 amp*	140 VAC rms	17.10	15.75	14.45	13.35
641-2	1.0 amp*	250 VAC rms	18.25	16.80	15.35	14.25
643-1	400 mADC	60 VDC	14.35	13.15	12.05	11.15
643-2	100 mADC	250 VDC	17.90	16.45	15.15	13.95

*Rated with 640HS heat sink installed. #10 V input; for 5 V inputs derate currents 50%, except for numbers 641-1, 2.

SERIES 611 OPTICALLY ISOLATED 10-40 AMP SOLID STATE AC RELAYS



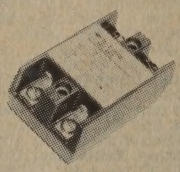
SPST solid state AC relay features optical isolation and synchronous/zero voltage switching to virtually eliminate RFI for any type of load, resistive or reactive. Load ratings of 10, 15, 25 or 40 amps, 140 or 250 VAC. Ultra-sensitive control input is TTL compatible. Electrical connections are combination .250″ quick disconnect and screw terminals.

Teledyne No.	Input (Control) Voltage Range	Output Cur., Amps	Net Each, Lots of 1-24	25-49	50-99	100-249
140 VAC OUTPUT RATING						
611-7	3–28 VDC	10	$27.65	$24.85	$22.30	$20.15
611-3		15	31.35	28.00	25.20	22.65
611-1		25	33.15	29.85	26.85	24.40
611-5		40	43.00	38.70	34.85	31.35
611-17	90–250 VAC	10	30.60	27.45	24.70	22.25
611-13		15	36.10	32.40	29.15	26.25
611-11		25	36.85	33.10	29.80	26.80
611-15		40	45.70	41.10	37.00	33.30
250 VAC OUTPUT RATING						
611-8	3–28 VDC	10	$26.95	$24.20	$21.80	$19.60
611-8H*		10	28.30	25.50	22.90	20.55
611-4		15	32.15	28.95	26.00	23.45
611-4H*		15	33.20	29.90	26.90	24.20
611-2		25	34.80	31.35	28.20	25.40
611-2H*		25	38.80	34.90	31.40	28.30
611-6		40	47.50	42.80	38.50	34.65
611-6H*		40	52.30	47.00	42.30	38.10
611-18	90–250 VAC	10	30.60	27.45	24.70	22.25
611-18H*		10	31.20	28.00	25.20	22.65
611-14		15	37.00	33.20	29.90	26.90
611-14H*		15	43.10	38.65	34.80	31.30
611-12		25	38.25	34.35	30.95	27.85
611-12H*		25	46.40	41.65	37.50	33.75
611-16		40	49.80	44.80	40.30	36.30
611-16H*		40	58.90	53.00	47.70	42.90

*Teledyne suffix **H**; withstands 600 volts transient peaks.

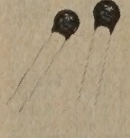
SERIES 613 20 AMP/50 VOLT DC SOLID STATE RELAY

Low and high logic level input relays. Normally open SPST, with transformer isolation for low off-state leakage.



Teledyne No.	Input Voltage	Net Each, Lots of 1-24	25-49	50-99	100-249
613-1	4–10 VDC	$38.10	$34.30	$30.90	$27.80
613-2	10–32 VDC	38.10	34.30	30.90	27.80

SERIES 970 METAL OXIDE VARISTORS FOR PROTECTION OF SSR's

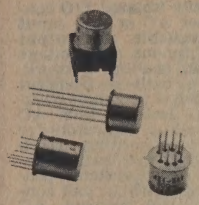


Teledyne 970 series MOX's are characterized for protection of AC solid state relays against high voltage transients that are prevalent on AC lines. Model 970-1 has peak clamping voltage rating of 400 volts for up to 140 VRMS continuous line voltage. Model 970-2 has peak clamping voltage rating of 600 volts for up to 250 VRMS continuous line voltage.

Teledyne No.	Peak Volts	Net Each, Lots of 1-24	25-49	50-99	100-249
970-1	400	$3.15	$2.80	$2.55	$2.05
970-2	600	3.15	2.80	2.55	2.05

PRICES LISTED ARE FOR GUIDANCE ONLY

SERIES 400 MILITARY TO-5 RELAYS



All welded construction, hermetic sealing, and high force/mass ratios withstand environmental extremes. Gold plated precious metal contacts for 1 amp 28 VDC resistive load. Low capacitance allows RF switching to 500 MHz. Qualified to MIL-R-39016 or MIL-R-28776, levels L and M. **Insulation Resistance:** 10,000 megohms min. between mutually insulated terminals. **Contact Resistance:** .2 ohm maximum. **Series D** have internal diodes for arc suppression. **Series DD** have internal diodes for arc suppression and polarity protection-steering. **Series T** have internal transistor driver and suppression diode.

SERIES 411: CONTACTS SPDT/SERIES 412: CONTACTS DPDT

Teledyne No. 411- No. 412-	Coil Nom. VDC	Coil DC Ohms 411	Coil DC Ohms 412	Series	Net Each, Lots of 1-24	25-49	50-99	100-249
5	5	63	50	411	$30.30	$27.35	$24.55	$22.00
6	6	125	98	411D	34.85	31.50	28.30	25.35
9	9	280	220	411DD	44.35	40.05	35.95	32.25
12	12	500	390	411T	45.55	41.15	36.95	33.10
18	18	1130	880	412	30.30	27.35	24.55	22.00
26	26.5	2000	1560	412D	34.85	31.50	28.30	25.35
				412DD	44.35	40.05	35.95	32.25
				412T	45.55	41.15	36.95	33.10

SERIES 420 : CONTACTS DPDT
SERIES 421: CONTACTS SPDT
MAGNETIC LATCHING RELAYS

Teledyne No. 420- No. 421- No. 422-	Coil Nom. VDC	Coil DC Ohms	Series	Net Each, Lots of 1-24	25-49	50-99	100-249
5	5	61	421	$32.05	$30.50	$29.00	$27.50
6	6	120	421D	35.75	33.95	32.30	30.65
9	9	280	421DD	38.00	36.05	34.30	32.55
12	12	500	420	39.80	37.80	35.90	34.10
18	18	1130	420D	43.25	41.05	39.00	37.05
26	26.5	2000	420DD	45.55	43.25	41.10	39.05

SERIES 431: CONTACTS SPDT/SERIES 432: CONTACTS DPDT
SENSITIVE RELAYS

Teledyne No. 431- No. 432-	Coil Nom. VDC	Coil DC Ohms	Series	Net Each, Lots of 1-24	25-49	50-99	100-249
5	5	125	431	$34.45	$31.10	$27.95	$25.05
6	6	255	431D	38.15	34.45	30.95	27.75
9	9	630	431DD	48.30	43.60	39.15	35.10
12	12	1025	431T	49.70	44.90	40.30	36.10
18	18	2300	432	34.45	31.10	27.95	25.50
26	26.5	4000	432D	38.15	34.45	30.95	27.75
32†	32	6500	432DD	48.30	43.60	39.15	35.10
36‡	36	6500	432T	49.70	44.90	40.30	36.10
40†	40	11,000					
48‡	48	11,000					

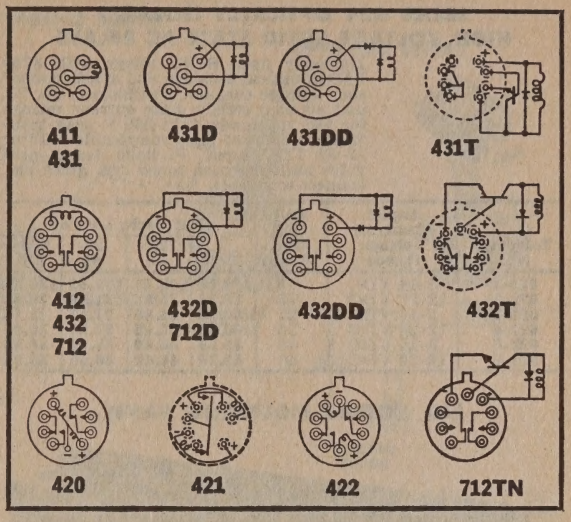
*Add **$2.10** for 32 or 36 volt coils and **$3.75** for 40 or 48 volt coils.

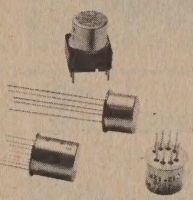
†Series 431 only. ‡Series 432 only.

OUR STOCK IS COMPLETE AND UP TO DATE.

WRITE FOR ADDITIONAL INFORMATION ON

ANY NEW OR UNLISTED ITEMS





SERIES 712/720/722/732 COMMERCIAL/INDUSTRIAL TO-5 RELAYS

Hermetic sealed all welded construction with gold plated precious metal contacts. Contact geometry and low intercontact capacitance for good RF switching. **Contact Resistance:** .2 ohm life max. **Life:** 100,000 operations at max. load. **Max. Load:** 1 amp at 28 VDC. **Temperature Range:** −55° C to +71° C. **RF Switching:** to 500 MHz. **Series D** have internal suppression diode. **Series TN** have internal driver transistor and suppression diode.

Teledyne No. 712-	Coil Nom. VDC	Coil DC Ohms	Series	Net Each, Lots of 1-49	50-99	100-249	250-499
5	5	50	712	$16.60	$15.50	$14.35	$13.30
6	6	100	712D	18.60	17.35	16.10	14.85
9	9	220	712TN	21.70	20.25	18.75	17.30
12	12	390					
18	18	880					
26	26.5	1560					

SENSITIVE RELAY

Teledyne No. 732-	Coil Nom. VDC	Coil DC Ohms	Series	Net Each, Lots of 1-49	50-99	100-249	250-499
5	5	100	732	$17.70	$16.55	$15.35	$14.15
6	6	200	732D	19.65	18.15	16.95	15.55
9	9	400	732TN	22.55	20.95	19.55	17.85
12	12	850	732-1000	★			
18	18	1600	732D-1000	★			
26	26.5	3300					
1000	12	940					

★Prices available on request.

MAGNETIC LATCHING RELAY

Teledyne No. 720- No. 722-	Coil Nom. VDC	Coil DC Ohms	Series	Net Each, Lots of 1-49	50-99	100-249
5	5	61	720	$25.60	$23.30	$21.70
6	6	120	720D	28.00	25.40	23.80
9	9	280	722	27.50	24.70	23.10
12	12	500	722D	29.50	26.80	25.20
18	18	1130				
26	26.5	2000				

TO-5 SPREADER PADS

Model 192-10

Preforms leads to .200″ x .300″ grid at .100″ spacing. Simplifies insertion of leads into PC boards. Reduces stress on leads; serves as board spacer. Aids visual inspection of solder flow. Fits all TO-5 relays except 411 and 431 series.

Teledyne Model 192-10 Spreader Pad—Net Each, 1-499.. **$0.50**

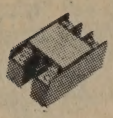
Model 192-59

Same as Model 192-10, except spreads lead to .300″ grid at .100″ spacing. Designed for use with DIP boards. Fits series 412, 421, 432, 712, 732, 411T and 431T.

Teledyne Model 192-59 Spreader Pad—Net Each, 1-499.. **$0.50**

NOTE: All TO-5 relays that will accept spreader pads can be ordered with pads cemented in place. For 192-10 pad, add **M** to Teledyne No.; ex., **412M-6.** For 192-59 pad, add **M2** to Teledyne No.; ex., **412M2-5.** Prices available on request.

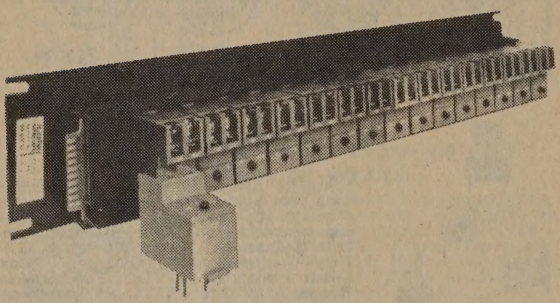
SERIES 621 OPTICALLY ISOLATED HIGH VOLTAGE SOLID STATE AC RELAYS



Normally open SPST relays with 3750 VRMS optical isolation and synchronous/zero voltage turn-on. Available in 15, 25, and 40 amp steady state current ratings for 480 volt loads, with 800 V peak transients. Choice of logic compitable 3–14 or 12–32 VDC input. Package design provides multi-purpose screw and quick-disconnect terminals.

Teledyne No.	Input (Control) Voltage Range	Output Cur., Amps	Net Each, Lots of 1-24	25-49	50-99	100-249
621-1	3–14 VDC	15	$38.95	$35.05	$31.50	$28.40
621-2	12–32 VDC	15	38.95	35.05	31.50	28.40
621-3	3–14 VDC	25	40.95	36.85	33.15	29.85
621-4	12–32 VDC	25	40.95	36.85	33.15	29.85
621-5	3–14 VDC	40	49.35	44.40	40.00	35.95
621-6	12–32 VDC	40	49.35	44.40	40.00	35.95

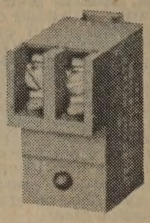
I/O MODULE MOUNTING PANEL



Custom designed mounting panel for 673 Series solid-state, I/O converter modules. Fits standard 19″ rack; accepts up to 16 modules. Panel contains integral interconnect wiring to 20-pin edge connector (.156″ centers) for logic circuitry. Also available unmounted, without backplate, or with 2 rows (for 32 modules) mounted on 5.25″ backplate.

Teledyne No.	Description	Net Each, Lots of 1-24	25-49
673P-1E0	Unmounted	$ 56.90	$ 51.24
673P-1E1	One row (3.5″ backplate)	63.75	57.35
673P-1E2	Two row (5.25″ backplate)	123.60	111.30

SERIES 673 I/O CONVERTER MODULES



All solid state; optically isolated I/O converter modules. Either AC or DC, input or output models available. AC output models feature synchronous zero-voltage switching and built-in snubber network. Output models have built-in transient voltage suppression. Logic terminals physically and electrically isolated from AC line terminals. LED status indicators for monitoring and troubleshooting. High noise immunity. Typical applications include microprocessor control systems, programmable controllers, machine tool controls and process control systems. AC models are color-coded red; DC models, blue.

Teledyne No.	Description	Net Each, Lots of 1-24	25-49	50-99	100-249
673-1	AC input converter, 95–132 VAC input, 12 VDC max. output.	$19.80	$18.10	$16.70	$15.40
673-11	AC input converter, 187–250 VAC input, 12 VDC max. output.	19.80	18.10	16.70	15.40
673-21	DC input converter, 10–55 VDC input, 12 VDC max. output.	19.80	18.10	16.70	15.40
673-22	DC output converter, 4–10 VDC input, 55 VDC max. output.	26.30	24.25	22.35	20.55
673-23	DC output converter, 10–32 VDC input, 55 VDC max. output.	26.30	24.25	22.35	20.55

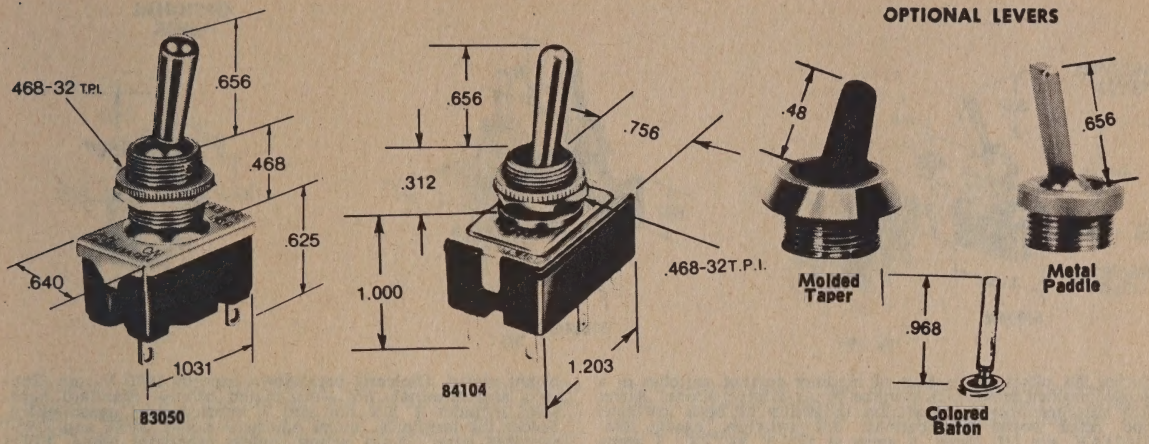
WRITE US FOR INFORMATION AND PRICING ON ALL NEW OR

UNLISTED ITEMS. NO SPECIAL ORDER NUMBERS NECESSARY,

JUST USE THE MANUFACTURER'S MODEL NUMBERS.

Toggle Switches

SERIES 050 AND 104—3 AMPS

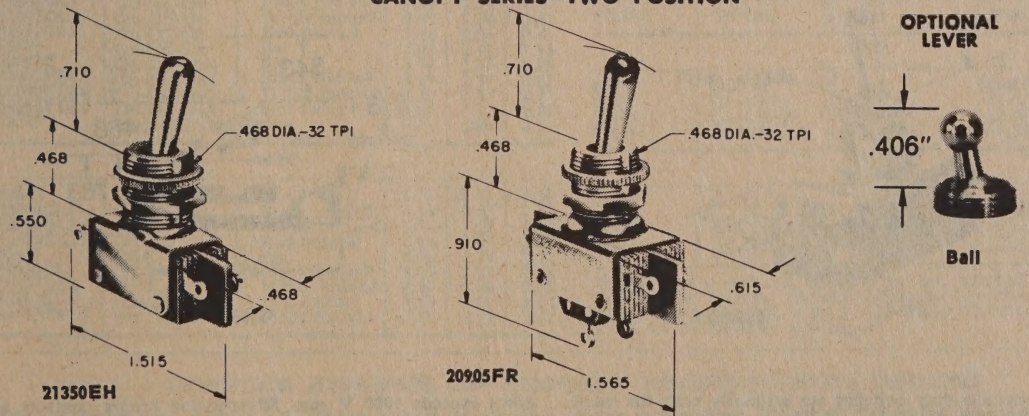


Designer's choice for low-level switching. Small, space-saving switches have "quick make/break" wiping action. Knife-type contact mechanism meets rigid reliability standards required by data processing, communications and instrumentation industries. Standard models feature silver-plated bronze contacts and terminals. Series 050 switches have solder lug terminals; Series 104 have combination solder lug-quick connect terminals. Exposed metal parts are bright nickel. Dielectric breakdown exceeds 1000 V rms. UL listed, 3 amps at 125 V AC/DC; 1 amp at 250 V AC/DC. Standard hardware includes 1 hex nut and 1 knurled nut, unassembled. Available in two or three positions. Series 050 slotted bushing length, 15/32"; Series 104, 5/16". Series 050 SPSTand DPST switches have Off-On action; SPDT and DPDT have ON-On action. Both Series 104 switches have On-Off-On action.

Arrow Hart No.	Circuit	Lever Type	Net Each, Lots of 1-24	25-49	50-99
SERIES 050—TWO POSITION					
83050	SPST	Bat	$3.04	$2.37	$1.92
83050CL1	SPST	Black baton♦	3.24	2.53	2.04
83050CL2	SPST	White baton♦	3.24	2.53	2.04
83050CL3	SPST	Red baton♦	3.24	2.53	2.04
83050SB	SPST	Molded taper*	4.52	3.53	2.85
83052	SPDT	Bat	3.62	2.82	2.28
83052CG	SPDT	Metal paddle*	5.03	3.92	3.17
83052SG	SPDT	Molded taper	4.41	3.44	2.78
83053	DPST	Bat	4.96	3.87	3.12
83053CL1	DPST	Black baton♦	5.16	4.02	3.25
83053CL2	DPST	White baton♦	5.16	4.02	3.25
83053CL3	DPST	Red baton♦	5.16	4.02	3.25
83053CG	DPST	Metal paddle*	6.37	4.97	4.01
83053SG	DPST	Molded taper*	5.62	4.38	3.54
SERIES 050 (CONT'D.)					
83054	DPDT	Bat	$5.67	$4.42	$3.57
83054CL1	DPDT	Black baton♦	5.87	4.58	3.70
83054CL2	DPDT	White baton♦	5.87	4.58	3.70
83054CL3	DPDT	Red baton♦	5.87	4.58	3.70
83054CG	DPDT	Metal paddle*	6.33	4.94	3.99
83054SG	DPDT	Molded taper*	6.33	4.94	3.99
SERIES 104—THREE POSITIONS					
84105	SPDT	Bat	$7.38	$5.76	$4.65
84104	DPDT	Bat	8.81	6.87	5.55

*1 hex nut and 1 dress nut supplied, unassembled. ♦Black, white and red baton levers are stocked; other colors available on request.

CANOPY SERIES—TWO POSITION



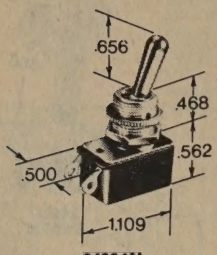
Unique, quick make/break design offers a full selection of circuits on a small base. Dependable roller-action mechanism provides long life. Ideally suited for small motors. UL listed. 3 amps at 125 V AC/DC; 1 amp at 250 V AC/DC. Exposed metal parts are bright nickel. Dielectric breakdown exceeds 1000 V rms. Contacts and terminals are silver-plated bronze. Solder lug terminals. Standard hardware includes 1 hex nut and 1 knurled nut, unassembled, SPDT and DPDT switches have On-On action, unless otherwise noted. DPST switches have Off-On action. Slotted bushing length, 15/32" unless otherwise noted.

Arrow Hart No.	Circuit	Lever Type	Net Each, Lots of 1-24	25-49	50-99
21350BF	SPDT	Ball	$5.06	$3.95	$3.19
21350EH	SPDT	Bat	5.06	3.95	3.19
21661BE♦	SPDT	Bat	6.13	4.78	3.86
21827GA*	SPDT	Bat	6.78	5.29	4.27
20902N	DPST	Ball	6.61	5.16	4.16
20902CX	DPST	Bat	6.61	5.16	4.16
20905BX	DPDT	Ball	$7.59	$5.92	$4.78
20905FR	DPDT	Bat	7.59	5.92	4.78
20905C♦	DPDT	Ball	9.05	7.06	5.70
20905KA♦	DPDT	Bat	9.05	7.06	5.70
21858X*	DPDT	Bat	9.76	7.61	6.15

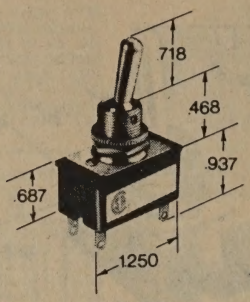
♦Bushing length, 1". *On-momentary On action.

Toggle Switches

SERIES 591 AND 015—6 AMPS

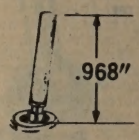


86994N



81024GB

OPTIONAL LEVER



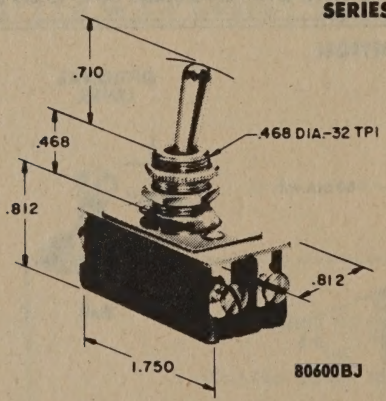
591 and 015 Series

Series 591 offers a selection of medium current switches in a small, molded base. Quick make/break wiping action. Series 015 switches provide maximum reliability in both low-level and rated power applications. All switches, except No. 81021AV, are UL listed, 6 amps at 125 V AC/DC; 3 amps at 250 V AC/DC; No. 81021AV is UL listed, 6 amps at 125 V AC/DC; 1 amp at 250 V AC/DC. Exposed metal parts are bright nickel. Dielecric breakdown exceeds 1000 V rms. Contacts and terminals are silver-plated bronze. Standard hardware includes 1 hex nut and 1 knurled nut, unassembled. Solder lug terminals, unless otherwise noted. SPST and DPST switches have Off-On action, unless otherwise noted. SPDT and DPDT switches have On-On action unless otherwise noted. Bushing dia., 15/32"-32TPI.

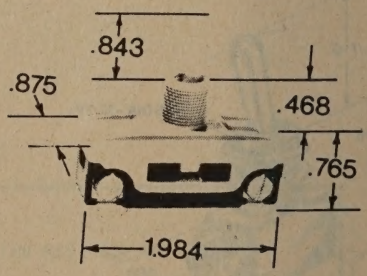
Arrow Hart No.	Circuit	Lever Type	Net Each, Lots of 1-24	25-49	50-99
SERIES 591—TWO POSITION					
86599QE*	SPST	Bat	$3.40	$2.65	$2.14
86964E§	SPST	Bat	3.50	2.73	2.21
86994CL1	SPST	Black baton♦	3.15	2.46	1.98
86994CL2	SPST	White baton♦	3.15	2.46	1.98
86994CL3	SPST	Red baton♦	3.15	2.46	1.98
86994N	SPST	Bat	2.68	2.09	1.69
SERIES 015—TWO POSITION					
81015AW	SPST	Bat	$2.81	$2.19	$1.77
81015CL1	SPST	Black baton♦	3.01	2.35	1.90
81015CL2	SPST	White baton♦	3.01	2.35	1.90
81015CL3	SPST	Red baton♦	3.01	2.35	1.90
81045FB§§	SPST	Bat	4.98	3.88	3.14
81021AV	SPDT	Bat	3.45	2.69	2.17
81021CL1	SPDT	Black baton♦	3.65	2.85	2.30
81021CL2	SPDT	White baton♦	3.65	2.85	2.30
81021CL3	SPDT	Red baton♦	3.65	2.85	2.30
SERIES 015 (CONT'D.)					
81051G†	SPDT	Bat	$6.11	$4.77	$3.85
81024GB	DPST	Bat	4.95	3.86	3.12
81024GBCL1	DPST	Black baton♦	5.14	4.01	3.24
81024GBCL2	DPST	White baton♦	5.14	4.01	3.24
81024GBCL3	DPST	Red baton♦	5.14	4.01	3.24
81024KB††	DPST	Bat	4.95	3.86	3.12
81027CB	DPDT	Bat	5.69	4.44	3.58
81027CE	DPDT	Bat	5.69	4.44	3.58
81027CL1	DPDT	Black baton♦	5.89	4.59	3.71
81027CL2	DPDT	White baton♦	5.89	4.59	3.71
81027CL3	DPDT	Red baton♦	5.89	4.59	3.71
81057N†	DPDT	Bat	7.60	5.93	4.79

*Wire leads. §Screw terminals. §§Off-momentary On action. †On-momentary On action. ††End-conneced solder lugs. ♦Black, white and red batons levers are stocked; other colors available on request.

SERIES 600 AND 800—16 AMPS



80600BJ



83800

Series 600 medium-duty switches are primarily built for small motor applications, AC or DC. Series 800 medium-duty switch features all-molded construction for applications where double insulation is required. Both series feature screw terminals, Off-On action and 15/32" bushing length, unless otherwise noted. Exposed metal parts are bright nickel. Dielectric breakdown exceeds 1000 V rms. Silver-plated bronze contacts and terminals. Both series UL listed. Series 600 SPST and SPDT switches rated 12 amps at 125 V AC/DC; 6 amps at 250 V AC/DC. Series 600 DPST switches and Series 800 switch are rated 16 amps, 1 hp at 125 V AC/DC; 8 amps, 1 hp at 250 V AC/DC.

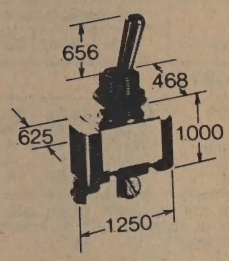
Arrow Hart No.	Circuit	Lever Type	Net Each, Lots of 1-24	25-49	50-99
SERIES 600					
80600*	DPST	Ball	$5.25	$4.10	$3.31
80600B	DPST	Ball	4.44	3.46	2.80
80600BJ	DPST	Bat	4.44	3.46	2.80
80600CL1	DPST	Black baton♦	4.64	3.62	2.92
80600CL2	DPST	White baton♦	4.64	3.62	2.92
80600CL3	DPST	Red baton♦	4.64	3.62	2.92
80607BJ	SPST	Bat	4.88	3.81	3.07
SERIES 600 (CONT'D.)					
80618K	SPDT	Bat	$5.04	3.93	$3.18
SERIES 800					
83800	DPST	Molded bat	$4.27	$3.33	$2.69

♦Black, white and red baton levers are stocked; other colors available on request. *5/16" bushing length.

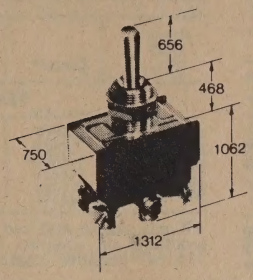
PRICES LISTED ARE FOR GUIDANCE ONLY

TOGGLE SWITCHES & MOUNTING HARDWARE

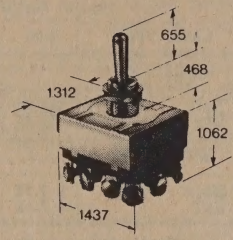
SERIES 608—15 AMPS AC ONLY



SP

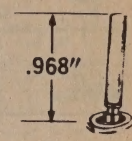


DP



3P/ 4P

OPTIONAL LEVER



Colored Baton

Designed to provide high capacity (AC only) on a small size phenolic base. Butt-type contacts and ball joint lever construction ensures long life. Available in 2- or 3-position and momentary contact at one side or both sides of center position. Exposed metal parts of bright nickel. Dielectric breakdown exceeds 1000 V rms. Silver cadmium oxide contact buttons. UL listed, 15 amps, 3/4 hp at 125 VAC; 10 amps, 3/4 hp at 250 VAC. Screw terminals, unless otherwise noted. 15/32" bushing length.

Arrow Hart No.	Action	Lever Type	Net Each, Lots of 1-24	25-49	50-99
SPST					
82600	Off-On	Bat	$2.81	$2.19	$1.77
82600CL1	Off-On	Black baton♦	2.37	1.85	1.49
82600CL2	Off-On	White baton♦	2.37	1.85	1.49
82600CL3	Off-On	Red baton♦	2.37	1.85	1.49
82601	Off-On†	Bat	2.46	1.92	1.55
82601CL1	Off-On†	Black baton♦	2.83	2.21	1.78
82601CL2	Off-On†	White baton♦	2.83	2.21	1.78
82601CL3	Off-On†	Red baton♦	2.83	2.21	1.78
82601P	Off-On‡	Bat	2.46	1.92	1.55
82601PCL1	Off-On‡	Black baton♦	2.37	1.85	1.49
82601PCL2	Off-On‡	White baton♦	2.37	1.85	1.49
82601PCL3	Off-On‡	Red baton♦	2.37	1.85	1.49
82779SA*	Off-On	Bat	5.84	4.56	3.68
SPDT					
82604	On-On	Bat	$3.62	$2.82	$2.28
82604CL1	On-On	Black baton♦	3.82	2.98	2.41
82604CL2	On-On	White baton♦	3.82	2.98	2.41
82604CL3	On-On	Red baton♦	3.82	2.98	2.41
82605	On-On†	Bat	3.09	2.41	1.95
82605P	On-On‡	Bat	3.09	2.41	1.95
82602	On-Off-On	Bat	3.62	2.82	2.28
82602CL1	On-Off-On	Black baton♦	3.82	2.98	2.41
82602CL2	On-Off-On	White baton♦	3.82	2.98	2.41
82602CL3	On-Off-On	Red baton♦	3.82	2.98	2.41
82603	On-Off-On†	Bat	3.09	2.41	1.95
82603P	On-Off-On‡	Bat	3.09	2.41	1.95
82603PCL1	On-Off-On‡	Black baton♦	3.29	2.57	2.07
82603PCL2	On-Off-On‡	White baton♦	3.29	2.57	2.07
82603PCL3	On-Off-On‡	Red baton♦	3.29	2.57	2.07
82726	(On)-Off-(On)	Bat	4.95	3.86	3.12
DPST					
82606	Off-On	Bat	$4.76	$3.71	$3.00
82606CL1	Off-On	Black baton♦	4.96	3.87	3.12
82606CL2	Off-On	White baton♦	4.96	3.87	3.12
82606CL3	Off-On	Red baton♦	4.96	3.87	3.12
82607	Off-On†	Bat	4.00	3.12	2.52
82607CL1	Off-On†	Black baton♦	4.20	3.28	2.65
82607CL2	Off-On†	White baton♦	4.20	3.28	2.65
82607CL3	Off-On†	Red baton♦	4.20	3.28	2.65
82607PCL1	Off-On‡	Black baton♦	4.39	3.42	2.77
82607PCL2	Off-On‡	White baton♦	4.39	3.42	2.77
82607PCL3	Off-On‡	Red baton♦	4.39	3.42	2.77
DPDT					
82610	On-On	Bat	$5.84	$4.56	$3.68
82610CL1	On-On	Black baton♦	6.04	4.71	3.81
82610CL2	On-On	White baton♦	6.04	4.71	3.81
82610CL3	On-On	Red baton♦	6.04	4.71	3.81
82611	On-On†	Bat	4.76	3.71	3.00
82608	On-Off-On	Bat	5.85	4.56	3.69
82608CL1	On-Off-On	Black baton♦	6.05	4.72	3.81
82608CL2	On-Off-On	White baton♦	6.05	4.72	3.81
82608CL3	On-Off-On	Red baton♦	6.05	4.72	3.81
82609	On-Off-On†	Bat	4.76	3.71	3.00
82609P	On-Off-On‡	Bat	4.76	3.71	3.00
82609CL1	On-Off-On†	Black baton♦	4.96	3.87	3.12
82609CL2	On-Off-On†	White baton♦	4.96	3.87	3.12
82609CL3	On-Off-On†	Red baton♦	4.96	3.87	3.12
82736	(On)-Off-(On)	Bat	9.34	7.29	5.88
3PST					
82612	Off-On	Bat	$9.84	$7.68	$6.20
3PDT					
82616	On-On	Bat	$14.24	$11.11	$8.97
82617	On-On†	Bat	11.87	9.26	7.48
82614	On-Off-On	Bat	12.46	9.72	7.85
82615	On-Off-On†	Bat	10.38	8.10	6.54
4PDT					
82635	On-On	Bat	$15.56	$12.14	$9.80
82636	On-On†	Bat	13.72	10.70	8.64
82633	On-Off-On	Bat	15.56	12.14	9.80
82634	On-Off-On†	Bat	13.72	10.70	8.64

♦Black, white and red baton levers are stocked; other colors available on request. †Solder terminals. ‡Quick-connect terminals. *Rated 20 amps, 1 hp at 125 VAC; 10 amps, 1 hp at 250 VAC. () Momentary action.

MOUNTING HARDWARE FOR STANDARD BUSHING-MOUNTED SWITCHES

All bushing-mounted switches are furnished with two mounting nuts. One goes behind the panel to prevent the bushing or sleeve from being distorted by overtightening the front-panel nut. Arrow Hart accepts no responsibility for damage to switches that are mounted without the back-up nuts.

Arrow Hart No.	Description	Thread or I.D.	Material	Finish	Net Each, Lots of 1-24	25-49	50-99
8947-151AS	Standard hex	15/32"-32	Brass	Tin dip	$0.10	$0.08	$0.06
8947-232AH	Standard hex	15/32"-32	Steel	Chromate	.10	.08	.06
8991-3AS	Standard knurled	15/32"-32	Brass	Tin dip	.10	.08	.06
8991-35AZ	Dress knurled	15/32"-32	Brass	Nickel	.22	.17	.14
1561-238AZ	Top nut	15/32"-32	Brass	Nickel	.52	.41	.33
8991-1378AS	Standard lockwasher	15/32"	Bronze	Tin dip	.10	.08	.06
20590-174AS	Standard locating ring	15/32"	Brass	Tin dip	.11	.09	.07
20590-1AS	On-Off dial	15/32"	Brass	Tin dip	.17	.13	.11
21172-2AS	Hi-Lo dial	15/32"	Brass	Tin dip	.16	.12	.10

Toggle Switches

SERIES 421 AND 602—20 AMPS

Series 421 quick make/break, AC/DC switches are designed to handle rugged applications up to 20 amps, 2 hp at 250 V. Widely used in industrial power tools and floor cleaning and polishing equipment. Series 602 heavy-duty switches are designed for higher power applicaions than Series 600. Both series feature wiping action contacts, screw terminals, Off-On action and 15/32" bushing length, unless otherwise noted.

Arrow Hart No.	Circuit	Lever Type	Net Each, Lots of 1-24	25-49	50-99
SERIES 421					
80421†	DPST	Ball	$10.96	$8.55	$6.90
80421U‡	DPST	Bat	10.29	8.03	6.48
SERIES 602					
80601BD	SPST	Bat	$ 7.78	$6.07	$4.90
80609CA	SPDT	Bat	7.46	5.82	4.70
SERIES 602 (CONT'D.)					
80602C	DPST	Ball	$7.46	$5.82	$4.70
80602CA	DPST	Bat	7.46	5.82	4.70
80602CL1	DPST	Black baton♦	7.66	5.97	4.83
80602CL2	DPST	White baton♦	7.66	5.97	4.83
80602CL3	DPST	Red baton♦	7.66	5.97	4.83

♦Black, white and red baton levers are stocked; other colors available on request. †11/32" bushing length; 1/2" diameter. ‡35/64" bushing length; 15/32" diameter.

SERIES 638 HEAVY DUTY—10-30 AMPS

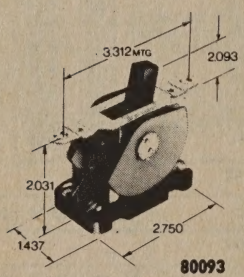
The 3-position, positive center-off feature assures that the lever cannot be moved from either side through the center without stopping; can be supplied without center stop on request. Unique feature makes switches ideal for motor reversing applications. Bushing and flush-mount models available. Screw terminals. Bushing-mount models have 3/4" dia., 32 TPI, keyed bushing; 13/32" long, and ball levers. Flush-mount models have two mounting holes and square lever. All switches have On-Off-On action, unless otherwise noted. UL listed at rated power.

Arroww Hart No.	Circuit	Rated Amps, AC/DC @ 125 V	@ 250 V	Net Each, Lots of 1-24	25-49	50-99
80638D	DPDT	10	5	$16.92	$13.20	$10.66
80983	3PDT	10	5	21.79	17.00	13.73
80985	4PDT	10	5	29.07	22.67	18.31
80634	DPDT	20	10♦	10.68	9.61	9.61
80975*	DPDT	20	10♦	10.68	9.61	9.61
80988	DPDT	30	20	18.62	16.76	16.76

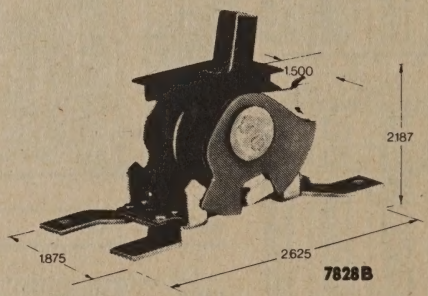
Arrow Hart No.	Circuit	Rated Amps, AC/DC @ 125 V	@ 250 V	Net Each, Lots of 1-24	25-49	50-99
80898	3PDT	30	20	$22.45	$20.21	$20.21
80899	4PDT	30	20	25.63	23.07	23.07
82347	3-Ckt.	30	20	12.91	11.62	11.62

†Rated 1/2 hp at 125-230 V. ♦Rated 1 1/2 hp at 250 VAC; 2 hp 230 VAC. *2-position switch.

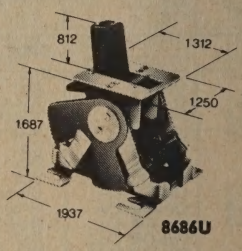
EXTRA HEAVY DUTY TOGGLE SWITCHES
UL FILE E1148 GUIDE WOYR



80093



7828B



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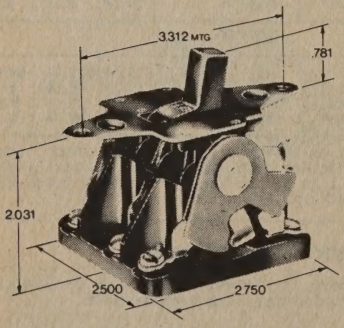

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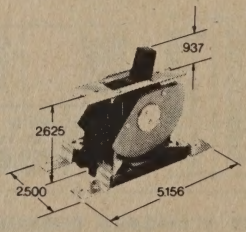
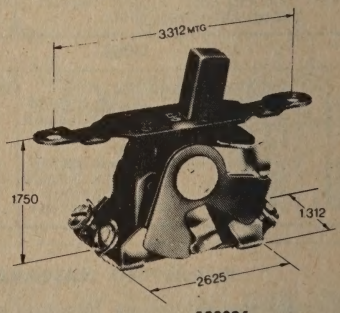


80770K



100006

Arrow Hart No.	Circuit	Rated Amps @ 250 V	@ 600 V	Net Each, Lots of 1-24	25-49	50-99
7828B	DPST	60 AC/DC	25 AC	$11.95	$10.76	$10.76
8686U	DPST	30 AC/DC	....	5.80	5.22	5.22
80093	DPST	30 AC/DC	20 AC	7.14	6.43	6.43

Arrow Hart No.	Rated Amps @ 250 V	@ 600 V	Net Each, Lots of 1-24	25-49	50-99
80404§	30 AC/DC	20 AC	$18.30	$16.47	$16.47
80770K	60 (125V-250V AC/DC)	60 (575 VAC)	22.51	20.26	20.26
100006	30 AC/DC	....	6.77	6.09	6.09

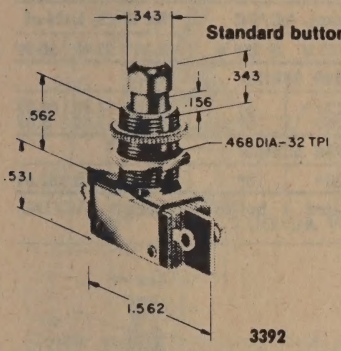
§Circuit 3PST; all others DPST.

PRICES LISTED ARE FOR GUIDANCE ONLY

GENERAL PURPOSE PUSHBUTTON SWITCHES

GENERAL PURPOSE PUSHBUTTON SWITCHES

A variety of general purpose pushbutton switches to suit most any requirement. Exposed metal parts are bright nickel; aluminum for Series 511. Dielectric breakdown exceeds 1000 V rms. **Contact Material:** Silver-plated bronze. **Terminal Material:** Silver-plated bronze. Standard hardware includes 1 hex nut and 1 knurled nut (unassembled). Snap-on buttons (red or black) available separately for grooved switches.



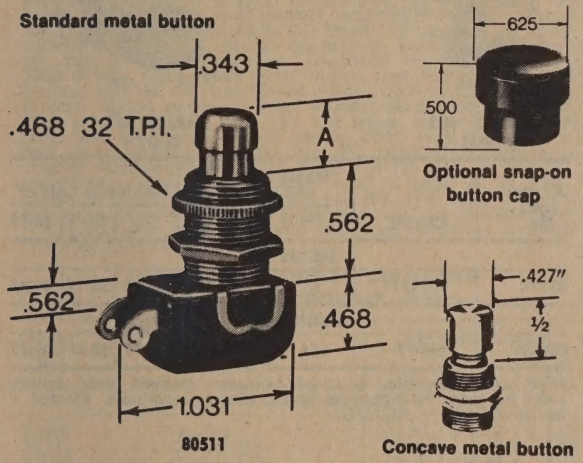
3392

CANOPY SERIES—LOW OPERATING FORCE (1 AMP AC ONLY)

AC only, butt-type contact switches feature low operating force. Available with standard button, snap-on red or black plastic button, or a grooved shaft which accepts a snap-on button; snap-on button must be ordered separately for grooved switches (see table elsewhere on these Arrow Hart pages). Solder lug terminals. Slotted bushing, 15/32" dia., 9/16" long. UL listed, 1 amp at 125 VAC. Z circuit.

Arrow Hart No.	Action	Button Style	Net Each, Lots of 1-24	25-49	50-99
3392	1 N.O.-1 N.C.	Standard	$4.85	$3.78	$3.06
3392AE	1 N.O.-1 N.C.	Black	6.00	4.68	3.78
3392AER	1 N.O.-1 N.C.	Red	6.00	4.68	3.78
3392AEB	1 N.O.-1 N.C.	Grooved*	4.85	3.78	3.06

*For user-assembled snap-on buttons, "grooved" switch style must be used.



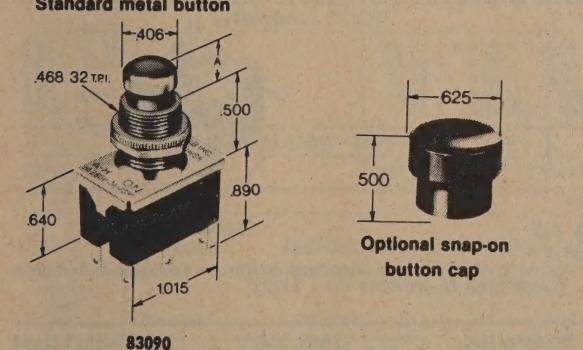
80511

SERIES 511—LOW OPERATING FORCE (3 AMPS AC ONLY)

AC only, butt-type contact switches are similar to the Canopy Series, except they have molded bakelite base. Low operating force. Available with standard metal button, snap-on red or black plastic button, concave metal button, or grooved shaft which accepts snap-on button. Concave button is brass with bright nickel finish. Snap-on buttons must be ordered separately for grooved switches; see table elsewhere on these Arrow Hart pages. Solder lug terminals. Slotted bushing, 15/32" dia., 9/16" long. UL listed, 3 amps at 125 VAC; 1 amp at 250 VAC. SPST circuit.

Arrow Hart No.	Action	Button Style	Net Each, Lots of 1-24	25-49	50-99
80511	On-(Off)	Standard	$2.94	$2.29	$1.85
80541	On-(Off)	Black	3.26	2.54	2.05
80541R	On-(Off)	Red	3.26	2.54	2.05
80541L	On-(Off)	Grooved*	2.94	2.29	1.85
80511C	On-(Off)	Concaved	3.49	2.72	2.20
80511E	Off-(On)	Standard	2.94	2.29	1.85
80541E	Off-(On)	Black	3.26	2.54	2.05
80541ER	Off-(On)	Red	3.26	2.54	2.05
80541EL	Off-(On)	Grooved*	2.94	2.29	1.85
80511CE	Off-(On)	Concaved	3.49	2.72	2.20

()Momentary action. *For user-assembled snap-on buttons, grooved switch style must be used.



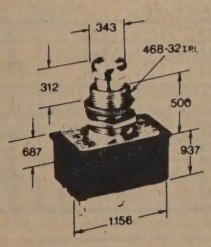
83090

SERIES 094—WIPING ACTION CONTACTS (3 AMPS AC/DC)

Space-saving switches with quick-make, quick-break wiping action contacts. Ideal for low-level AC/DC switching. Silver-plated bronze contacts. Solder lug terminals. Slotted bushing, 15/32" dia., 1/2" long. Available with standard metal button or grooved shaft which accepts snap-on button; snap-on button must be ordered separately. UL listed, 3 amps at 125 V AC/DC; 1 amp at 250 V AC/DC. Suffix C in Arrow Hart No. indicates "grooved" switch; no suffix indicates standard metal button.

Arrow Hart No.	Circuit	Action	Net Each, Lots of 1-24	25-49	50-99
83090	SPST	Off-(On)	$5.19	$4.05	$3.27
83090C*	SPST	Off-(On)	5.19	4.05	3.27
83093C*	DPST	Off-(On)	7.10	5.54	4.47
83094C*	DPDT	On-(On)	7.73	6.03	4.87

()Momentary action. *For user-assembled snap-on buttons, grooved style must be used.



81087J

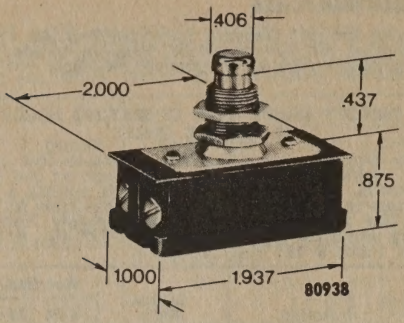
CLASSIC SERIES 087—WIPING ACTION CONTACTS (6 AMPS AC/DC)

Equivalent to Series 015 toggle switches. Maximum reliability in both power and low-level circuits. Solder lug terminals. Slotted bushing, 15/32" dia., .500 long. Standard metal button. UL listed, 6 amps at 125 V AC/DC; 3 amps at 250 V AC/DC, except as noted.

Arrow Hart No.	Circuit	Action	Net Each, Lots of 1-24	25-49	50-99
81081G*	SPDT	On-(On)	$6.39	$4.98	$4.03
81084G	DPST	Off-(On)	7.59	5.92	4.78
81087J	DPDT	On-(On)	9.28	7.24	5.85

()Momentary action. *UL listed at 6A, 125 V AC/DC; 1A, 250 V AC/DC.

Pushbutton & Rotary Switches



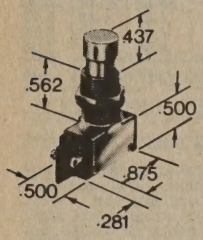
SERIES 630 MEDIUM-DUTY AND 938 HEAVY-DUTY 16-20 AMPS AC/DC

Medium and heavy duty, general purpose switches with wiping action contacts. Slotted bushing, 15/32" dia., 7/16" long. Screw terminals. Standard metal button. Off-(On) action.

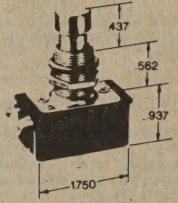
Arrow Hart No.	Circuit	Amps, AC/DC @ 125 V	Amps, AC/DC @ 250 V	Net Each, Lots of 1-24	Net Each, Lots of 25-49	Net Each, Lots of 50-99
630 SERIES						
80631	SPST	12†	6†	$9.64	$7.52	$6.07
80630	DPST	16†	8†	9.64	7.52	6.07
938 SERIES						
80938	DPST	20*	10*	$12.08	$9.42	$7.61

( )Momentary action. †Rated 1 hp at 125-250 V AC/DC. *Rated 1 1/2 at 125-250 V AC/DC.

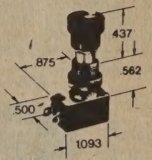
DOUBLE-ACTION PUSH-PUSH SWITCHES



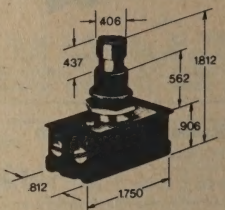
80711



SERIES 117
81117



SERIES 403
82403-C



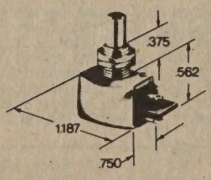
SERIES 863
80863

Arrow Hart No.	Circuit	Rated Amps AC/DC @125V	Rated Amps AC/DC @250V	Net Each, Lots of 1-24	Net Each, Lots of 25-49	Net Each, Lots of 50-99
CANOPY SERIES						
80711	SPDT	3	1	$8.09	$6.31	$5.10
80714	DPDT	3	1	10.05	7.84	6.33
SERIES 403						
82403	SPST	6	3	$4.18	$3.26	$2.63
82403C	SPST	6	3	4.96	3.87	3.12
82403CL‡	SPST	6	3	4.18	3.26	2.63
82404*	SPST	6	3	4.76	3.71	3.00
82405†	SPST	6	3	4.76	3.71	3.00
82405CL†‡	SPST	6	3	4.76	3.71	3.00

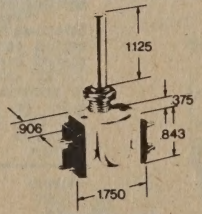
Arrow Hart No.	Circuit	Rated Amps, AC/DC @ 125 V	Rated Amps, AC/DC @ 250 V	Net Each, Lots of 1-24	Net Each, Lots of 25-49	Net Each, Lots of 50-99
SERIES 117						
81117	DPDT	6	3	$7.88	$6.15	$4.96
SERIES 863						
80863†	DPST	16♦	8♦	$10.91	$8.51	$6.87

‡For user assembled snap-on buttons, grooved style switch must be used. *6-inch wire leads. †Screw terminals. ♦Rated 1 hp at 125-250 V AC/DC.

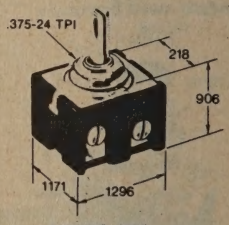
ROTARY SWITCHES



CANOPY SERIES
1561B



SERIES 715
81721J



SERIES 702
70302A

Time-proven, 2-position, rotary switches, suitable for a wide variety of applications, from low level up to 2 hp at 240 volts. Exposed metal parts are bright nickel. Dielectric breakdown exceeds 1000 V rms. Standard hardware includes 2 hex nuts (unassembled). Bushing dia., 11/32".

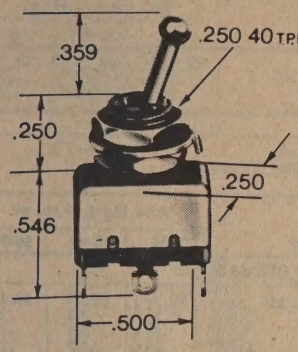
Arrow Hart No.	Circuit	Action	Amps, AC/DC @ 125 V	Amps, AC/DC @ 250 V	Bushing, Ins. Dia.	Bushing, Ins. Length	Shaft, Ins. Dia.	Shaft, Ins. Length	Net Each, Lots of 1-24	Net Each, Lots of 25-49	Net Each, Lots of 50-99
CANOPY SERIES											
1561B	SPST	Off-On	3	1	11/32	3/8	1/4	3/8	$5.23	$4.08	$3.29
1561BS	SPST	Off-On	3	1	11/32	3/8	1/4	1 1/8	5.23	4.08	3.29
1575VA	DPDT	On-On	3	1	11/32	1	1/4	1/2	10.93	8.53	6.89
SERIES 715											
81715	SPST	Off-On	6	1	11/32	3/8	1/4	3/8	$6.32	$4.93	$3.98
81715J	SPST	Off-On	6	1	11/32	3/8	1/4	1 1/8	6.32	4.93	3.98
81721J	SPDT	On-On	6	1	11/32	3/8	1/4	1 1/8	7.10	5.54	4.47
81727	DPDT	On-On	6	1	11/32	3/8	1/4	3/8	9.21	7.18	5.80
81727J	DPDT	On-On	6	1	11/32	3/8	1/4	1 1/8	9.21	7.18	5.80
SERIES 702											
70302A‡	DPST	Off-On	20*	20†	15/32	7/32	1/4	11/16	$9.46	$7.38	$5.96

*Rated 1 hp at 120 V AC/DC. †Rated 2 hp at 240 VAC only. ‡Screw terminal, all others are solder.

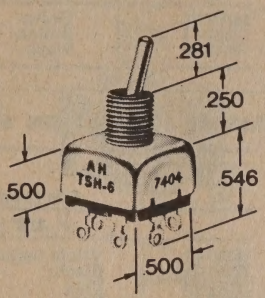
PRICES LISTED ARE FOR GUIDANCE ONLY

SUBMINIATURE SWITCHES & MOUNTING HARDWARE

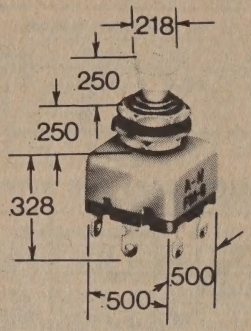
SUBMINIATURE TOGGLE AND PUSHBUTTON SWITCHES



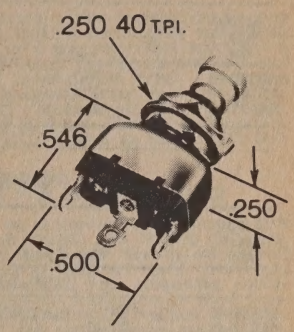
TSH3



TSH6



PM6
PM7
PM8



PM3

Quality grade subminiature toggle and momentary-action pushbutton switches are ideally suited for applications requiring highest standards of quality. Gold-plated contacts permit dependable use in low-level circuits, especially where long shelf life is critical. Not currently UL listed; information on applications requiring UL listings on request. Exposed metal parts are gold-anodized aluminum. Dielectric breakdown exceeds 1000 V rms. Gold-plated silver button type contacts. Movable contact arm of rhodium-plated silver. Gold-plated terminals. Molded diallyl phthalate base. **Contact Mechanism:** TS type, knee action; TC, TE, TG and TM types, rocker action; PM type, leaf blade with wiping action; PMQ type, snap action, butt type. **Terminals:** Solder lug; PC terminals available on request. **Ratings:** Toggle types, 5 amps at 125 VAC or 29 VDC; pushbutton types, 1 amp at 115 VAC; 2 amps at 29 VDC, except as noted. 1/4" dia. slotted bushing, 1/4" long. Standard hardware includes 2 gold-anodized hex nuts, 1 lockwasher and 2 locating rings (unassembled); additional hardware available (see listing below).

SERIES SMT TOGGLE SWITCHES (SINGLE AND DOUBLE POLE)

Arrow Hart No.	Action	Net Each, Lots of 1-24	25-49	50-99
SPDT STRAIGHT LEVER				
TSH3	On-On	$12.54	$ 9.78	$ 7.90
TCH3	On-Off-On	12.54	9.78	7.90
TEH3	(On)-Off-On	13.38	10.44	8.43
TGH3	(On)-Off-(On)	12.38	9.66	7.80
TMH3	(On)-On	12.38	9.66	7.80
SPDT—BALL LEVER				
TS3	On-On	$12.54	$ 9.78	$ 7.90
TC3	On-Off-On	12.54	9.78	7.90
TE3	(On)-Off-On	12.38	9.66	7.80
TG3	(On)-Off-(On)	12.38	9.66	7.80
TM3	(On)-On	12.38	9.66	7.80
DPST—STRAIGHT LEVER				
TSH2	Off-On	$14.22	$11.09	$ 8.96
DPST—BALL LEVER				
TS2	Off-On	$13.71	$10.69	$ 8.64
DPDT—STRAIGHT LEVER				
TSH6	On-On	$16.31	$12.72	$10.28
TCH6	On-Off-On	16.31	12.72	10.28
TEH6	(On)-Off-On	20.92	16.32	13.18
TGH6	(On)-Off-(On)	20.92	16.32	13.18
TMH6	(On)-On	20.92	16.32	13.18
DPDT—BALL LEVER				
TS6	On-On	$16.31	$12.72	$10.28
TC6	On-Off-On	16.31	12.72	10.28
TE6	(On)-Off-On	20.92	16.32	13.18
TG6	(On)-Off-(On)	19.98	15.58	12.59
TM6	(On)-On	20.92	16.32	13.18

( )Momentary action.

SMP SERIES PUSHBUTTON SWITCHES (SINGLE, DOUBLE AND THREE POLE)

Colored pushbutton caps available; see listing elsewhere on these Arrow Hart pages. Standard cap color is white. Two cap sizes available; .215" dia. (standard) and 3/8" dia.

Arrow Hart No.	Circuit	Action	Net Each, Lots of 1-24	25-49	50-99
PM3	SPDT	On-(On)	$11.96	$ 9.33	$ 7.53
PM6	DPDT	On-(On)	14.67	11.44	9.24
PM7	3PST	Off-(On)	19.45	15.17	12.25
PM8	3PST	On-(Off)	19.45	15.17	12.25
PMQ3*	SPDT	On-(On)	13.59	10.60	8.56

( )Momentary action. *Rated 7A at 125 VAC; 5A at 250 VAC; 5A at 29 VDC.

MOUNTING HARDWARE FOR SUBMINIATURE SWITCHES

Arrow Hart No.	Material	Finish	Net Each, Lots of 1-24	25-49	50-99
STANDARD HEX NUT					
81019-1AZ	Brass	.....	$0.13	$0.10	$0.08
81099-1BF	Aluminum	Gold anodized	.13	.10	.08
81099-1BE	Aluminum	Clear anodized	.13	.10	.08
STANDARD KNURLED NUT					
18569-1BF	Aluminum	Gold anodized	$0.28	$0.22	$0.18
18569-1BE	Aluminum	Clear anodized	.28	.22	.18
DRESS NUT					
18569-1	Steel	Stainless	$0.28	$0.22	$0.18
18569-2BF	Aluminum	Gold anodized	.28	.22	.18
18569-2BE	Aluminum	Clear anodized	.28	.22	.18

Arrow Hart No.	Material	Finish	Net Each, Lots of 1-24	25-49	50-99
LOCKWASHER—INTERNAL TOOTH					
95091-111	Steel	Zinc	$0.11	$0.09	$0.07
LOCKING RING—LONG TAB					
18533-4	Steel	Zinc	$0.14	$0.11	$0.09

SUBMINIATURE SWITCH ACCESSORIES & MILITARY SWITCHES

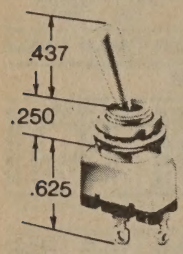
LEVER ADAPTERS FOR SUBMINIATURE TOGGLE SWITCHES

Arrow Hart No.	Color	Net Each, Lots of 1-24	25-49	50-99
18500-11	White	$0.33	$0.26	$0.21
18500-14	Blue	.33	.26	.21
18500-13	Red	.33	.26	.21
18500-16	Green	$0.36	$0.28	$0.23
18500-17	Brown	.33	.26	.21
18500-18	Black	.36	.28	.23

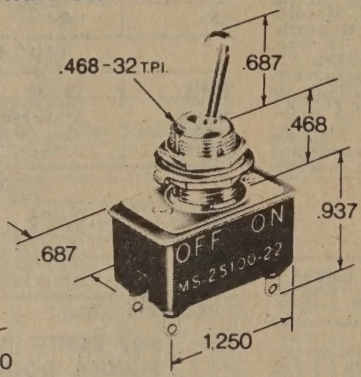
PUSHBUTTON CAPS FOR SUBMINIATURE PUSHBUTTON SWITCHES

Arrow Hart No.	Cap Color	Net Each, Lots of 1-24	25-49	50-99
	.215" DIAMETER			
18567-61	White (natural)	$0.36	$0.28	$0.23
18567-62	Black	.36	.28	.23
18567-63	Blue	.36	.28	.23
18567-64	Red	.36	.28	.23
18567-65	Yellow	.36	.28	.23
18567-66	Green	.36	.28	.23
18567-67	Brown	.36	.28	.23
	3/8" DIAMETER			
18567-71	White (natural)	$0.36	$0.28	$0.23
18567-72	Black	.36	.28	.23
18567-73	Blue	.36	.28	.23
18567-74	Red	.36	.28	.23
18567-75	Yellow	.36	.28	.23
18567-76	Green	.36	.28	.23
18567-77	Brown	.36	.28	.23

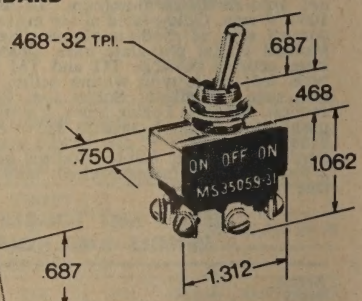
MILITARY SWITCHES—SUBMINIATURE AND STANDARD



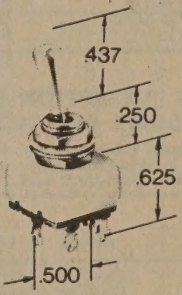
SUMBMINIATURE SINGLE POLE TS3M



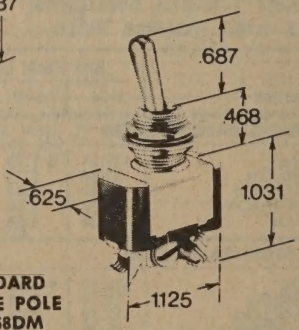
STANDARD SINGLE POLE 25098AM 25100AM



STANDARD DOUBLE POLE 35059HM



SUBMINIATURE DOUBLE POLE TS6M



STANDARD SINGLE POLE 35058DM

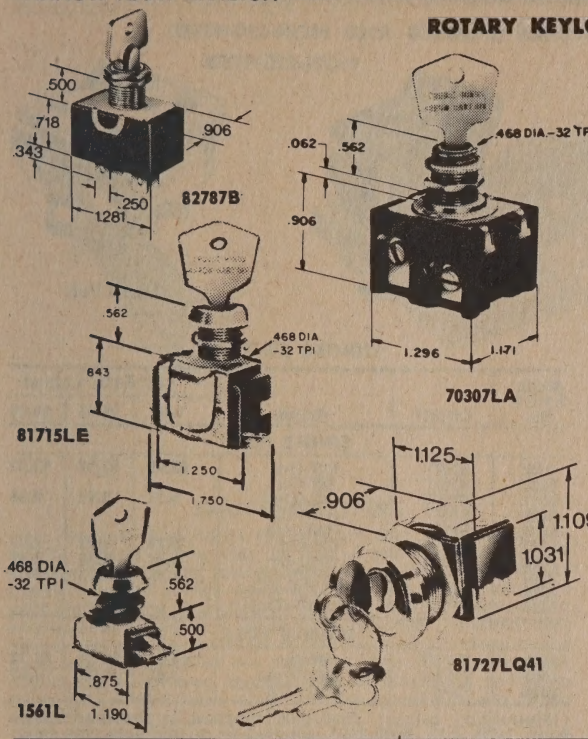
Manufactured to meet requirements of military specification MIL-S-83731. Supplied with two hex nuts, one locating ring and one shake-proof lockwasher (assembled). Solder lug terminals, unless otherwise noted.

Arrow Hart No.	Military Number MS-	Action	Net Each, Lots of 1-24	25-49	50-99
	SUMBMINIATURE—SINGLE POLE				
TS1M	75028-22	On-none-On	$10.66	$8.78	$6.27
TC3M	75028-21	On-Off-On	11.79	9.71	6.94
TE3M	75028-31	(On)-Off-On	11.65	9.60	6.86
TG3M	75028-27	(On)-Off-(On)	11.65	9.60	6.86
TM3M	75028-26	(On)-none-On	11.65	9.60	6.86
TS3M	75028-23	On-none-On	11.37	9.37	6.69
	SUBMINIATURE—DOUBLE POLE				
TS2M	75029-22	On-none-On	$12.37	$10.19	$7.28
TC6M	75029-21	On-Off-On	14.99	12.34	8.82
TE6M	75029-31	(On)-Off-On	19.16	15.78	11.27
TG6M	75029-27	(On)-Off-(On)	18.11	14.92	10.66
TM6M	75029-26	(On)-none-On	18.91	15.58	11.13
TS6M	75029-23	On-none-On	14.99	12.34	8.82
	STANDARD—SINGLE POLE				
35058EM†	35058-21	On-Off-On	$8.12	$6.69	$4.78
35058WM†	35058-22	On-none-Off	7.82	6.44	4.60
35058DM†	35058-23	On-none-On	7.82	6.44	4.60
35058AM†	35058-24	On-Off-none	$7.61	$6.27	$4.48
35058CM†	35058-25	On-(Off)-none	7.86	6.48	4.63
35058FM†	35058-26	On-none-(On)	8.20	6.76	4.83
35058GM†	35058-27	(On)-Off-(On)	8.20	6.76	4.83
35058BM†	35058-28	none-Off-(On)	7.91	6.51	4.65
35058XM†	35058-29	On-none-(Off)	8.08	6.65	4.75
35058YM†	35058-30	Off-none-(On)	8.25	6.79	4.85
35058HM†	35058-31	On-Off-(On)	9.61	7.91	5.65
	STANDARD—DOUBLE POLE				
35059EM†	35059-21	On-Off-On	$9.48	$7.81	$5.58
35059WM†	35059-22	On-none-Off	8.71	7.18	5.13
35059DM†	35059-23	On-none-On	9.39	7.74	5.53
35059AM†	35059-24	On-Off-none	6.67	5.50	3.93
35059CM†	35059-25	On-(Off)-none	6.80	5.60	4.00
35059FM†	35059-26	On-none-(On)	9.10	7.49	5.35
35059GM†	35059-27	(On)-Off-(On)	9.31	7.67	5.48
35059BM†	35059-28	none-Off-(On)	6.80	5.60	4.00
35059XM†	35059-29	On-none-(Off)	6.97	5.74	4.10
35059YM†	35059-30	Off-none-(On)	6.93	5.71	4.08
35059HM†	35059-31	On-Off-(On)	9.31	7.67	5.48

†Screw terminals, assembled. ( )Momentary action.

PRICES LISTED ARE FOR GUIDANCE ONLY

Rotary Keylock Switches



ROTARY KEYLOCK SWITCHES

CANOPY SERIES (3 AMPS AC/DC)

Power switches offer all the features of the non-locking Canopy Series plus the addition of a locking mechanism for circuit security applications. Can be used for controlled access of a wide variety of electrical equipment. Stationary contacts and movable (roller) contacts are silver-plated brass. Laminated bakelite base construction. Tin-dipped brass, slotted bushing, 9/16" dia., 15/32" long. Zinc chromate-plated steel frame. Supplied with one nickel-plated steel key. Solder lug terminals. Rated 3 amps at 125 V AC/DC; 1 amp at 250 V AC/DC. Standard-security level.

INTERMEDIATE SERIES 715L (6 AMPS AC/DC)

This series of power switch is an extension of the Canopy line and features higher ratings (6 amps) and wiping contacts. Available in standard-security level and high-security level versions. Standard-security level versions are used to prevent unauthorized actuation of computers, data processing equipment and electronic instrumentation. High-security level tumbler lock switches are widely used in hospital, business machine, banking, stationary power tool and alarm system applications. Both series ideally suited for applications requiring a locking switch capable of handling either power or low-energy loads. Wiping blade contact mechanism. Silver-plated brass stationary contacts. Silver-plated bronze movable contacts. Bakelite base construction. Tin-dipped brass slotted bushing. Nickel-plated brass dress nut (supplied). Zinc chromate-plated steel frame. One nickel-plated steel key supplied with standard-security versions; two brass keys with high-security versions. Solder lug terminals.

HEAVY DUTY SERIES 702L (20 AMPS AT 120-240 VAC)

Heavy-duty series combines high-reliability switching, heavy-duty circuit protection and maximum economy. Typical applications include gasoline pumps, heating and cooling systems, etc. Slow make and break contacts. Butt-type silver contacts. Choice of 2 or 4 positions. Rated 20 amps, 1 1/2 hp at 125 VAC; 20 amps, 2 hp at 240 VAC. Bakelite base. Tin-dipped brass bushing, 15/32" dia. Available with quick-connect terminals (No. 82787B) or screw terminals (No. 70307LA). Standard-security level. DPST circuit. Key removable position, Off.

Arrow Hart No.	Security Level	Circuit	Action	Bushing, Ins. Dia.	Bushing, Ins. Length	Key Removable Position	Key Style Fig.	Net Each, Lots of 1-24	25-49	50-99
CANOPY SERIES—2 POSITION										
1561L	Standard	SPST	Off-On	15/32	15/32	Off	A	$9.10	$7.10	$5.73
1561LE	Standard	SPST	Off-On	15/32	15/32	Both	B	9.10	7.10	5.73
1565L	Standard	SPDT	On-On	15/32	15/32	Both	B	9.31	7.26	5.87
1572L	Standard	DPST	Off-On	15/32	15/32	Off	A	11.55	9.01	7.28
1575L	Standard	DPDT	On-On	15/32	15/32	Both	B	11.55	9.01	7.28
INTERMEDIATE SERIES—2 POSITION										
81715L	Standard	SPST	Off-On	15/32	15/32	Off	A	$8.15	$6.36	$5.13
81715LE	Standard	SPST	Off-On	15/32	15/32	Both	B	8.15	6.36	5.13
81715LQ61	High	SPST	Off-On	7/8	45/64	Off	D	32.08	25.02	20.21
81715LQ41	High	SPST	Off-On	7/8	45/64	Both	C	32.08	25.02	20.21
81721L	Standard	SPDT	On-On	15/32	15/32	Both	A	8.29	6.47	5.22
81721LQ61	High	SPDT	On-On	7/8	45/64	C.C. On	D	33.06	25.79	20.83
81721LQ41	High	SPDT	On-On	7/8	45/64	Both	C	33.06	25.79	20.83
81724L	Standard	DPST	Off-On	15/32	15/32	Off	A	10.81	8.43	6.81
81724LC	Standard	DPST	Off-On	15/32	15/32	Both	B	10.81	8.43	6.81
81724LQ61	High	DPST	Off-On	7/8	45/64	Off	D	35.26	27.50	22.21
81724LQ41	High	DPST	Off-On	7/8	45/64	Both	C	35.26	27.50	22.21
81727L	Standard	DPDT	On-On	15/32	15/32	Both	A	10.97	8.56	6.91
81727LQ61	High	DPDT	On-On	7/8	45/64	C.C. On	D	36.72	28.64	23.13
81727LQ41	High	DPDT	On-On	7/8	45/64	Both	C	36.72	28.64	23.13
HEAVY DUTY SERIES										
82787B†	Standard	DPST	Off-On-Off-On	15/32	1/2	Off	E	$8.90	$6.94	$5.61
70307LA*	Standard	DPST	Off-On	15/32	9/16	Off	A	9.46	7.38	5.96

†4-position; Q.C terminals. *2-position; screw terminals.

LOCKING BRACKETS FOR TOGGLE SWITCHES

Locking brackets provide flexible way to convert toggle switches to rotary switches. **Standard-Security Level:** Tin-dipped steel construction; 15/32" bushing dia., 32 TPI thread; supplied with two hex nuts and one nickel-plated key (No. 80600-686). **High-Security Level:** Tin-dipped brass bushing, 7/8" dia., 24 TPI; supplied with nickel-plated brass dress nut and hex nut and two keys (No. 82787-55).

Arrow Hart No.	Key Removable Position	Net Each Lots of 1-24	25-49	50-99
STANDARD SECURITY				
80600-1027†	All positions	$5.25	$4.10	$3.31
80600-1037*	Vertical	5.25	4.10	3.31
HIGH SECURITY				
8947-400	C.C.W.	$16.64	$12.98	$10.48
HIGH SECURITY (CONT'D.)				
8947-401	Center	$16.64	$12.98	$10.48
8947-404	C.W.	16.64	12.98	10.48
8947-405	Either extreme	15.13	11.80	9.53
8947-406	C.C.W.♦	16.64	12.98	10.48

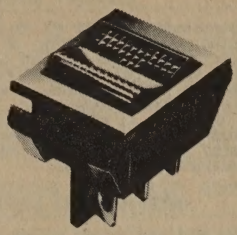
†Key way not slotted. *Key way slotted opposite yoke. ♦When using AC only, momentary, single-throw toggle switch.

Snap-In Switches

SNAP-IN ROCKER AND PADDLE SWITCHES (LIGHTED AND NON-LIGHTED)

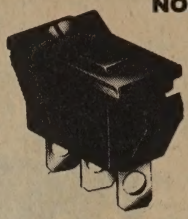
LIGHTED

Single Pole

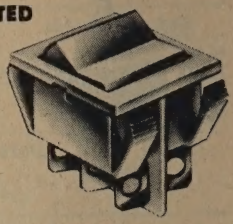


Double Pole

NON-LIGHTED



Single Pole



Double Pole

The 1600/2600 series switches have worldwide approvals featuring a combination of UL, CSA, VDE, BSI, SF, DEMKO, NEMKO, and SEMKO listings at up to 16 A, 250 VAC. One switch can be used for both domestic and foreign markets. Ideal applications include electronic instrumentation, data processing, communications, medical and office equipment, appliances, and many more. A wide circuit variety is offered in a choice of standard and custom colors for lighted and non-lighted versions. Custom legends are available on the switch lever and bezel.

SPECIFICATIONS

Rating: Resistive—16 A, 125 and 250 VAC; 6 A, 125 and 250 VAC for No.'s 1606, 1607, 2606, and 2607. Inductive—4 A, 125 and 250 VAC except for No.'s 1606, 1607, 2606, and 2607. Maximum Inrush—24 A for 10,000 cycles. **Circuits:** 1PST, 1PDT, DPST, DPDT. Action: Slow-make, slow-break. **Function:** Maintained and momentary. **Mode:** Two and three position. **Contact Type:** Butt. **Contact Material:** Silver inlay over copper. **Contact Resistance:** 50 milliohms. **Electrical-Mechanical Life:** 50,000 cycles minimum at rated load. **Insulation Resistance:** 50 megohms. **Dielectric Breakdown:** 750 Vrms (BSI) across contact gap; 1000 Vrms (UL, CSA); 2000 Vrms (VDE). **Operating Temperature Range:** −40° C to +85° C. **Lever Type:** Non-lighted, rocker or paddle; Lighted, rocker. **Lever Material:** Non-lighted, high-grade Nylon 66; Lighted, Lexan. **Lever Angular Movement:** Two position, 36°; Three position, 18° each side of center. **Termination Type:** Standard, quick connect/solder lug; Optional, solder lug. **Termination Material:** Common (center), fine silver plated copper; End, copper; Lamp, brass. **Other Materials:** Base, high-grade Nylon 66; Bezel adapter, Cycolac ABS. **Mounting Method:** Snap-in, rectangular cutout; 1600 Type Base, .480-.486" w. × 1.070-1.075" lg.; 2600 Type Base, .872-.880" w. × 1.071-1.079" lg.; **Minimum Panel Thickness:** .029"; **Maximum Panel Thickness:** .118". **Lamp Life:** 5000 hrs. min. **Lamp Wattage:** 6 V — .9 W; 12 V — .48 W; 24 V — .96 W.

NON-LIGHTED SWITCHES

Basic Switch No.†				Net Each, Lots of		
Rocker	Paddle	Circuit	Action	1-24	25-49	50-99
SINGLE POLE						
1600	P1600	SPST	Off-On	$1.47	$1.15	$0.93
1601	P1601	SPST	Off-(On)	1.64	1.28	1.03
1605	P1605	SPST	(Off)-On	1.64	1.28	1.03
1602	P1602	SPDT	On-On	1.86	1.45	1.17
1603	P1603	SPDT	(On)-On	2.14	1.67	1.35
1604	P1604	SPDT	On-Off-On	1.94	1.51	1.22
1606	P1606	SPDT	(On)-Off-(On)	2.44	1.90	1.54
1607	P1607	SPDT	On-Off-(On)	2.44	1.90	1.54
DOUBLE POLE						
2600	P2600	DPST	Off-On	$2.27	$1.77	$1.43
2601	P2601	DPST	Off-(On)	2.72	2.12	1.71
2605	P2605	DPST	(Off)-On	2.72	2.12	1.71
2602	P2602	DPDT	On-On	3.07	2.39	1.93
2603	P2603	DPDT	(On)-On	3.65	2.85	2.30
2604	P2604	DPDT	On-Off-On	3.22	2.51	2.03
2606	P2606	DPDT	(On)-Off-(On)	3.88	3.03	2.44
2607	P2607	DPDT	On-Off-(On)	3.88	3.03	2.44

()Momentary contact. 1600-1609 supplied in single-pole type base. 2600-2607 supplied in double-pole type base.

HOW TO ORDER

1602 2 3 E

Ⓐ Ⓑ Ⓒ Ⓓ

Ⓐ **Basic Switch No.:**
See table above.

Ⓑ **Base Color:**
1—Black
2—White
3—Red
4—Green
5—Gray

Ⓒ **Lever Color:**
1—Black
2—White
3—Red
4—Green
5—Gray

Ⓓ **Termination:**
E—0.250" QC
B—Solder Lug

LIGHTED SWITCHES

Basic Switch No.	Circuit	Action	Net Each, Lots of 1-24	25-49	50-99
SINGLE POLE					
1600	SPST	Off-On	$3.29	$2.57	$2.07
1620	SPST	Off-On			
1601	SPST	Off-(On)	3.73	2.91	2.35
1621	SPST	Off-(On)			
1625	SPST	(Off)-On			
1622	SPDT	On-On	3.76	2.93	2.37
1623	SPDT	(On)-On	4.27	3.33	2.69
1624	SPDT	On-Off-On	3.89	3.03	2.45
1626	SPDT	(On)-Off-(On)			
1627	SPDT	On-Off-(On)			
DOUBLE POLE					
2600	DPST	Off-On	$4.34	$3.39	$2.73
2601	DPST	Off-(On)	5.61	4.38	3.53
2605	DPST	(Off)-On			

()Momentary contact. 1600-1609 supplied in single-pole type base. 1620-1627, 2600-2605 supplied in double-pole type base.

HOW TO ORDER

2600 R 4 2 E

Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

Ⓐ **Basic Switch No.:**
See table above.

Translucent Lens/Rocker Color:
A—Amber
G—Green
R—Red
W—White (Clear)

Ⓒ **Lamp Voltage:**
0—No Lamp
1—110 V Neon
2—240 V Neon
4—6 V Filament
5—12 V Filament
6—24 V Filament

Ⓓ **Base Color:**
1—Black
2—White
3—Red
4—Green
5—Gray

Ⓔ **Termination:**
E—0.250" QC
B—Solder Lug

1609A11E

LIGHTED INDICATOR

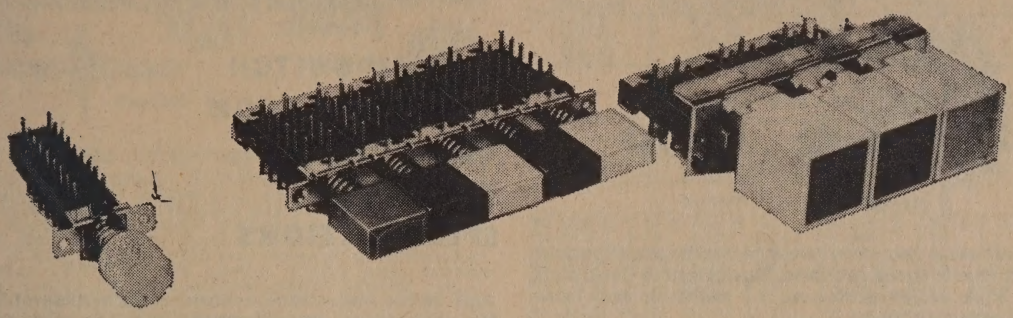
Available with amber (A) or red (R) translucent lens, 110 V neon lamp, black base and .250" QC terminals.

Arrow Hart No.	Lens Color	Net Each, Lots of 1-24	25-49	50-99
1609A11E	Amber	$2.00	$1.56	$1.26
1609R11E	Red	2.00	1.56	1.26

PRICES LISTED ARE FOR GUIDANCE ONLY

CENTRALAB, INC.
A NORTH AMERICAN PHILIPS COMPANY

Custom Pushbutton Switches



UNLIGHTED TYPES

New, low-cost pushbutton switches are easy to wire, easy to mount; available in a wide variety of configurations, **custom designed** to meet your specific needs. Centralab's field assembly program insures prompt delivery of the switch that will meet your requirements. Exceptional versatility: Switching action may be momentary, push-pull, interlocking, interlocking with lockout, push-push, or a combination of these actions anywhere in the same row. Each station can have two, four, six or eight pole, double-throw functions; modules may be coupled to permit up to 16-pole, double-throw action. A line switch can also be included in the switch assembly.

Switches are compact in size, with three centerline spacing options 10mm, 15mm or 20mm. Up to 19 stations per assembly are available. Designed for PC board or panel mounting; may be wired from top, bottom or both sides. Sixteen standard button styles are available, each in eight colors: Red, gray, black, cream, white, blue, green or yellow.

Current and Voltage Ratings: 0.45 amp at 115 VAC; 1 amp at 28 VDC. **Contact Resistance:** 4 milliohms initial; 10 milliohms after 25,000 cycles. **Dielectric Strength:** 1500 VAC rms, bracket to pins, 1500 VAC rms, pins to pins. **Stator Block:** Phenolic UL94HB or diallyl phthalate U94V-O. **Actuator:** Thermoplastic acetal resin UL94HB. **Fixed Contacts:** Silver or gold plated copper wire. **Moving Contacts:** Nickel-silver alloy with silver overlay or gold plated with nickel underlay. **Lubrication:** Permanent, applied during assembly. **Available Spacing Options:** PB10 Series, 10mm, 2 to 19 stations; PB15 Series, 15mm, 2 to 13 stations; PB20 Series, 20mm, 2 to 10 stations. Single station switches also available.

TYPICAL COST PER STATION*

2 Pole	4 Pole	6 Pole	8 Pole
$1.73	$2.15	$2.71	$3.19

*Prices depend on actual functions and quantities. Examples shown are phenolic module, silver contact system, and include button.

LIGHTED TYPES

Available in two centerline spacings, the PB15 Series (15 mm) and the PB20 Series (20 mm); offer custom designed switch versatility in application. The PB15 Series is available in from one to 13 stations and the PB20 in from one to 10 stations. Each station can have a 2, 4, 6 or 8 pole double-throw non-shorting switch function. Switching action can be momentary, push-push, interlocking or a combination of these actions. Optional lockout feature is available for each type of switching action.

White and black buttons are available with interchangeable lenses in four styles, flat, recessed, semi-recessed and concave. Lenses are available in 8 colors: white, clear, green, light blue, medium blue, medium red, orange and yellow. Filters are also available in 3 colors: white, red and green, providing maximum color utility and esthetic appeal. Switches utilize a T1¾ wedge base or T-2 slide base lamp available in a wide range of voltage ratings. Snap-in lens feature allows lamps to be removed conveniently from the front of the panel. Write for complete information on legend capabilities.

Current and Voltage Ratings: 0.45 amp at 115 VAC; 1 amp at 28 VDC. **Contact Resistance:** 4 milliohms initial; 10 milliohms after 25,000 cycles. **Dielectric Strength:** 1500 VAC rms, bracket to pins; 1500 VAC rms, pins to pins. **Stator Block:** Phenolic UL94HB or diallyl phthalate U94V-O. **Actuator:** Thermoplastic acetal resin UL94HB. **Fixed Contacts:** Silver or gold plated copper wire. **Moving Contacts:** Nickel-silver alloy with silver overlay or gold plated with nickel underlay. **Lubrication:** Permanent, applied during assembly.

TYPICAL COST PER STATION*

2 Pole	4 Pole	6 Pole	8 Pole
$3.90	$4.32	$4.88	$5.36

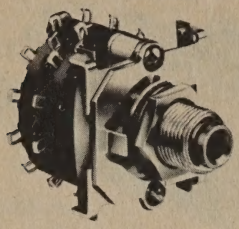
*Prices depend on actual functions and quantities. Examples shown are phenolic module, silver contact system, and include T-1¾ lamp.

AS YOUR LOCAL CENTRALAB FIELD ASSEMBLY CENTER, WE ARE PREPARED TO MEET YOUR DESIGN REQUIREMENTS FOR A COMPETITIVELY PRICED PUSHBUTTON SWITCH, LIGHTED OR UNLIGHTED, IN PROTOTYPE QUANTITIES OR YOUR PRODUCTION RUNS. OUR FACTORY TRAINED CENTRALAB PUSHBUTTON SWITCH ASSEMBLY SPECIALISTS ARE PREPARED TO SATISFY YOUR MOST STRINGENT DELIVERY REQUIREMENTS. CALL OR WRITE FOR COMPLETE ORDER ASSISTANCE AND INFORMATION.

CENTRALAB, INC.
A NORTH AMERICAN PHILIPS COMPANY

Custom Rotary Switches

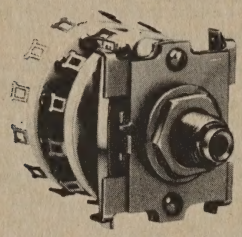
SWITCHES SERIES SA-200



1 INCH DIAMETER

Diallyl phthalate sections. Silver plated brass clips and contacts. One to three sections. Equivalent to Centralab PS and PSA series switches. 14 shorting and non-shorting type switches.

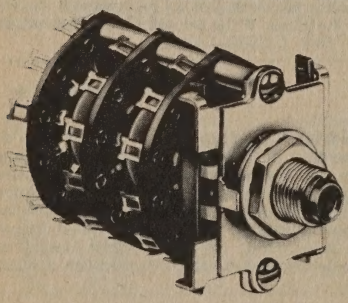
SERIES SA-6000



1.325 INCH DIAMETER

Ceramic sections. Gold plated coin silver alloy clips. Coin silver alloy contacts. One to two sections. 100 hour salt spray finish per MIL-S-3786. Equivalent to Centralab PA-6000 series switches. 7 shorting and non-shorting type switches.

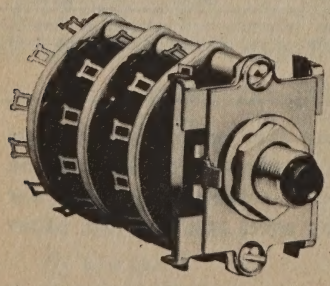
SERIES SA-1000



1.500 INCH DIAMETER

Phenolic sections. Silver plated brass clips and contacts. Equivalent to Centralab PA-1000 series switches. 13 shorting and non-shorting type switches.

SERIES SA-2000



1.500 INCH DIAMETER

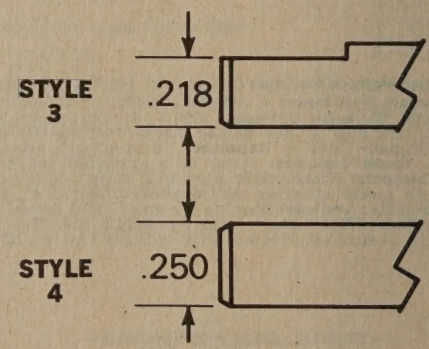
Ceramic sections. Silver plated brass clips and contacts. One to three sections. Equivalent to Centralab PA-2000 series switches. 17 shorting and non-shorting type switches.

SELECTASHAFT® ROTARY SWITCHES

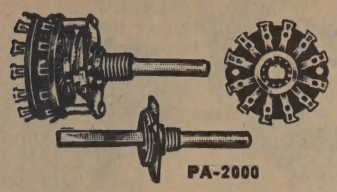
CUSTOM SWITCH ASSEMBLED FROM OUR STOCK TO YOUR SPECIFICATIONS

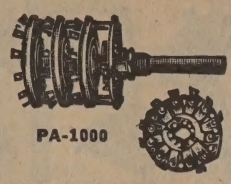
Just order the exact custom switch assembly that fits your design requirements. It takes just days to deliver. No factory delays. No set-up charges. No costly modifications required. With Centralab Selectashaft® switches, you can choose the exact length shaft with the exact shaft end detail and the exact shaft flat angle to meet your requirements. Your order is custom assembled by our switch specialists, and the resulting product is indistinguishable in quality, performance and appearance from a factory assembled unit. All Selectashaft® switches feature a new dual-ball, side-thrust mechanism for top index performance and exceptionally good torque and feel. Adjustable stops allow you to easily change number of positions. No disassembly or removal of stops tabs is required. Get all the Selectashaft® facts from us. Write or call for Centralab Selectashaft rotary switch catalog. It is completely detailed with illustrations, specifications, circuit-diagrams, standard switch equivalent tables and easy-to-read, how-to-order information.

SHAFTS



Two shaft styles: .218″ flat and .250″ diameter plain round. Seven shaft lengths: .687″ to 1.062″ long from the mounting surface. 24 shaft flat angles in 15° increments.


PA-2000


PA-1000

SERIES PA-2000 MINIATURE CERAMIC SWITCHES

Insulation material ceramic, MIL-I-10A, Grade L-422 Steatite, only 1½" diam. (⅜" smaller than standard switches). Same ratings as larger switches. Features maximum voltage flashover; high Q, low-loss steatite body; minimum intercircuit capacity; insulated front-back clips. Durable construction. **Ratings:** 1.5 amps at 28 VDC; .23 amp at 115 VAC; make-break resistive load. **Breakdown:** 1500 VAC rms between critical parts. **Current Capacity:** 9 amps. One-piece shaft for accurate indexing. Adjustable stop or continuous rotation; mounts in single hole with locating lug. **Bushing:** ⅜"-32 thread, ⅜" long. **Shaft:** Full round ¼" diam. x 2¼" long from mounting surface. Supplied with mounting nut and lockwasher. **Shipping Weight:** 3 ozs. per section.

SERIES PA-1000 MINIATURE PHENOLIC SWITCHES

Insulation material phenolic, standard NEMAXXXP, MIL-P-3115P, Type BPEP. Same size as PA-2000 ceramic switches. **Ratings:** 1.5 amps at 28 VDC; .23 amp at 115 VAC. **Breakdown:** 1500 VAC. **Current Capacity:** 9 amps. **Positive, adjustable stop or continuous rotation:** 30° or 60° detents available. **Shipping Weight:** 3 ozs. per section.

MINIATURE ROTARY SWITCHES

No. Sect.	Total No. Poles	PA-2000 Ceramic CRL No. PA- Shtg.	PA-2000 Ceramic CRL No. PA- Non-Shtg.	PA-2000 Ceramic Total Pos.	PA-1000 Phenolic CRL No. PA- Shtg.	PA-1000 Phenolic CRL No. PA- Non-Shtg.	PA-1000 Phenolic Total Pos.
1	1	2000	2001	2–12	1000	1001	2–11
1	2	2002	2003	2–6	1002	1003	2–5
2	2	2004	2005	2–12	1004	1005	2–11
1	3	2006	2007	2–5	1006	1007	2–3
3	3	2008	2009	2–12	1008	1009	2–11
1	4	.....	.....	.....	1010	1011	2
2	4	2010	2011	2–6	1012	1013	2–5
4	4	2012	2013	2–12	1014	1015	2–11
1	5	2014	2015	2–3	.....	.....	.....
5	5	2016	2017	2–12	1016	1017	2–11
1	6	2018	2019	2	.....	.....	.....
2	6	2020	2021	2–5	1018	1019	2–3
3	6	2022	2023	2–6	1020	1021	2–5
6	6	2024	2025	2–12	1022	1023	2–11
2	8	.....	.....	.....	1024	1025	2
4	8	2026	2027	2–6	1026	1027	2–5
3	9	2028	2029	2–5	.....	.....	.....
3	12	.....	.....	.....	1028	1029	2
2	10	2030	2031	2–3	.....	.....	.....
5	10	2032	2033	2–6	1030	1031	2–5
2	12	2034	2035	2	.....	.....	.....
6	12	2036	2037	2–6	1032	1033	2–5
3	15	2038	2039	2–3	.....	.....	.....
3	18	2040	2041	2	.....	.....	.....

SPECIAL CIRCUIT AND 60° INDEXING SWITCHES

1	1	2052*	.....	2–10	1034*	.....	2–10
1	1	2042†	.....	2–10	1040†	.....	2–10
1	1	.....	2043#	2–6	.....	1035#	2–6
2	2	.....	2045#	2–6	.....	1037#	2–6

*All shorted to common in full CCW, progressively opened and dropped with CW rotation. †All open in full CCW, progressively picked up and shorted to common with CW rotation. #60° Indexing; 1½" spacing between sections.

SEPARATE SECTIONS

For use with 30° index assemblies No. PA-300, PA-301 and PA-302, except Nos. PA-17, PA-20 and PA-45, for use with 60° index assemblies PA-304 and PA-305.

Ask for Section Pricing.

No. Poles	Indexing	PA-2000 Ceramic CRL No. PA- Shtg.	PA-2000 Ceramic CRL No. PA- Non-Shtg.	PA-2000 Ceramic Total Pos.	PA-1000 Phenolic CRL No. PA- Shtg.	PA-1000 Phenolic CRL No. PA- Non-Shtg.	PA-1000 Phenolic Total Pos.
1	30°	0	1	2–12	30	31	2–11
2	30°	2	3	2–6	32	33	2–5
3	30°	4	5	2–5	34	35	2–3
4	30°	.....	.....	.....	36	37	2
5	30°	6	7	2–3	.....	.....	.....
6	30°	8	9	2	.....	.....	.....
1	30°	10*	19*	2–5	38*	39*	2–5
2	30°	11†	18†	2–11	40†	41†	2–11
1	30°	12‡	.....	2–10	43‡	.....	2–10
1	30°	13‡	.....	2–10	49§	.....	2–10
1	60°	20	17	2–6	.....	45	2–6

*Unused contacts one side of common connected and shorted out. †All unused contacts connected and shorted out. ‡Active contacts shorted to common in full CCW, progressively opened and dropped with CW rotation. §All active contacts open in full CCW, progressively picked up and shorted to common with CW rotation.

SILVER CLIPS AND CONTACTS (CERAMIC)

Ask for Section Pricing.

CRL Number Shorting	CRL Number Non-Shorting	Index	No. of Poles	No. of Positions
PA-16	PA-21	30°	1	2–12
PA-14	PA-23	30°	2	2–6
PA-15	PA-24	30°	4	2

INDUSTRIAL NET PRICES

CRL No. (Shorting)	Net Each, Lots of 1-24	25-49	50-99	CRL No. (Non-Shorting)	Net Each, Lots of 1-24	25-49	50-99
SERIES PA-2000 CERAMIC							
PA-2000	$ 7.70	$ 7.05	$ 6.59	PA-2001	$ 7.58	$ 6.95	$ 6.49
PA-2002	7.75	7.10	6.64	PA-2003	7.75	7.10	6.64
PA-2004	12.07	11.06	10.34	PA-2005	12.07	11.06	10.34
PA-2006	8.05	7.37	6.89	PA-2007	8.10	7.42	6.94
PA-2008	16.68	15.28	14.29	PA-2009	16.68	15.28	14.29
PA-2010	12.49	11.44	10.70	PA-2011	12.49	11.44	10.70
PA-2012	20.88	19.13	17.88	PA-2013	21.29	19.51	18.23
PA-2014	8.33	7.63	7.14	PA-2015	8.47	7.76	7.25
PA-2016	25.90	23.73	22.18	PA-2017	25.90	23.73	22.18
PA-2018	8.22	7.53	7.04	PA-2019	8.22	7.53	7.04
PA-2020	12.91	11.83	11.05	PA-2021	12.91	11.83	11.05
PA-2022	17.10	15.67	14.64	PA-2023	17.10	15.67	14.64
PA-2024	30.09	27.57	25.77	PA-2025	30.09	27.57	25.77
PA-2026	21.29	19.51	18.23	PA-2027	21.29	19.51	18.23
PA-2028	17.94	16.43	15.36	PA-2029	17.94	16.43	15.36
PA-2030	13.74	12.59	11.77	PA-2031	13.74	12.59	11.77
PA-2032	26.74	24.50	22.89	PA-2033	26.74	24.50	22.89
PA-2034	13.74	12.59	11.77	PA-2035	13.74	12.59	11.77
PA-2036	31.36	28.73	26.86	PA-2037	31.36	28.73	26.86
PA-2038	19.19	17.58	16.43	PA-2039	19.19	17.58	16.43
PA-2040	19.19	17.58	16.43	PA-2041	18.77	17.20	16.07
PA-2042	7.63	6.99	6.54	PA-2043	7.11	6.52	6.09
PA-2052	7.50	6.87	6.42	PA-2045	11.66	10.68	9.98
SERIES PA-1000 PHENOLIC							
PA-1000	$ 4.63	$ 4.24	$ 3.96	PA-1001	$ 4.63	$ 4.24	$ 3.96
PA-1002	4.68	4.28	4.00	PA-1003	4.68	4.28	4.00
PA-1004	6.13	5.62	5.25	PA-1005	6.13	5.62	5.25
PA-1006	4.63	4.24	3.96	PA-1007	4.63	5.62	5.25
PA-1008	7.65	7.01	6.55	PA-1009	7.65	7.01	6.55
PA-1010	4.56	4.18	3.90	PA-1011	4.56	4.18	3.90
PA-1012	6.16	5.65	5.28	PA-1013	6.16	5.65	5.28
PA-1014	9.10	8.34	7.79	PA-1015	9.10	8.34	7.79
PA-1016	12.54	11.49	10.74	PA-1017	12.54	11.49	10.74
PA-1018	6.16	5.65	5.28	PA-1019	6.16	5.65	5.28
PA-1020	7.70	7.05	6.59	PA-1021	7.70	7.05	6.59
PA-1022	10.99	10.07	9.41	PA-1023	12.19	11.17	10.44
PA-1024	5.43	4.97	4.65	PA-1025	6.16	5.65	5.28
PA-1026	9.15	8.38	7.84	PA-1027	9.15	8.38	7.84
PA-1028	6.78	6.21	5.81	PA-1029	7.70	7.05	6.59
PA-1030	10.74	9.84	9.19	PA-1031	10.74	9.84	9.19
PA-1032	11.46	10.50	9.81	PA-1033	12.32	11.29	10.55
PA-1034	4.12	3.78	3.53	PA-1035	4.38	4.01	3.75
PA-1040	4.68	4.28	4.00	PA-1037	5.79	5.31	4.96

SEPARATE INDEX ASSEMBLIES

Index assemblies for series PA-1000 and PA-2000 interchangeable.

CRL No. PA-3000 Assembly—Contains PA-300 (30°) index, adjustable stop plate, two ⅛" spacers, two 9/32" spacers, four 7/16" spacers, 2½" tie bolts, nuts, lockwashers and fiber spacer washers. Rear shaft length 2". Use with 1 to 3 sections.

CRL No. PA-301 Assembly—Contains PA-301 index (30°), adjustable stop plate, two ⅛" spacers, two 9/32" spacers, ten 7/16" spacers, four 15/16" spacers, 5" tie bolts and hardware. Rear shaft length 4". Use with 4 to 6 sections.

CRL No. PA-302 Assembly—Contains PA-302 (30°) index, adjustable stop plate, four 3/16" spacers, two 9/32" spacers, sixteen 7/16" spacers, eight 15/16" spacers, 7" tie bolts, and hardware. Rear shaft length 6". Use with 7 to 9 sections.

CRL No. PA-304 Assembly—Contains PA-304 (60°) index and hardware same as PA-300. Rear shaft length 2". Use with 1 to 3.

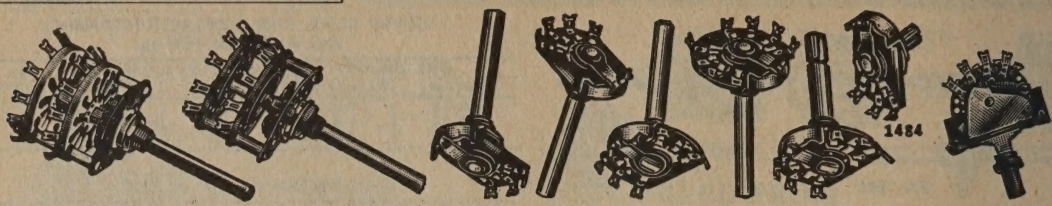
CRL No. PA-305 Assembly—Contains PA-305 (60°) index and hardware same as PA-301. Rear shaft length 4". 4 to 6 sections.

CRL No.	Indexing	Net Each 1-24	25-49	50-99
PA-300	30°	$2.92	$2.68	$2.50
PA-301	30°	4.28	3.92	3.66
PA-302	30°	6.01	5.51	5.15
PA-304	60°	2.92	2.68	2.50
PA-305	60°	4.28	3.92	3.66

PACKAGED SWITCH HARDWARE
FOR PA-1000 & PA-2000 SERIES MINIATURE SWITCHES

CRL No.	Description	Pkg. 100	CRL No.	Description	Pkg. 100
P-319	Min. stop plate	11.00	P-362	1" screw	$17.00
P-325	1/16" steatite spacer	6.00	P-370	2" screw	17.00
P-326	5/16" steatite spacer	6.00	P-374	2½" screw	24.00
P-328	¼" steatite spacer	6.00	P-382	4" screw	25.00
P-329	9/32" steatite spacer	6.00	P-384	5" screw	32.00
P-330	5/16" steatite spacer	6.00	P-388	7" screw	39.00
P-334	7/16" steatite spacer	6.00	P-390	Nut	3.00
P-350	15/16" steatite spacer	12.00	P-392	Lockwasher	3.00
			P-394	Phen. spacer washer	3.00

ROTARY AND LEVER SWITCHES



2500 Series | 1400 Series | 1460 | 1461 | 1462 | 1472-3 | 1486 | 1452

SERIES 2500 CERAMIC ROTARY SWITCHES

Highest quality (Grade L-422 or better) steatite insulation. Meet critical requirements of RF circuit applications. Bushing ⅜"-32 thread ⅜" long. Shaft 2¼" long, ¼" full round. Sections 1⅞" dia. Positive index 30° with adjustable stop. Index assemblies and hardware are identical and interchangeable with those of the 1400 Series. Rated: 2.75 amps, 15 VDC; 350 mA, 115 VAC. Breakdown, 1500 VAC between critical parts. Shipping Weight, 5 oz. per section.

SERIES 1400 PHENOLIC ROTARY SWITCHES

Extremely compact design. Mounting bushings ⅜"-32 thread, ⅜" long. Shafts 2¼" from mtg. surface; ¼" full round. Sections 1⅞" dia. Positive 30° index with adjustable stop. With mounting nut and lockwasher. Index assemblies and hardware are identical and interchangeable with those of 2500 series. Rated: 2.75 amps at 15 VDC; 350 mA at 115 VAC. Breakdown, 1000 VAC rms. Shipping Weight, 4 oz. per section.

ROTARY SELECTOR SWITCHES

Ceramic Types CRL Number		No. Sections	Total No. Poles	No. Positions	Phenolic Types CRL Number	
Shorting	Non-Short.				Shorting	Non-Short.
2500	2501	1	1	2-6	1400	1401
2502	2503	1	1	2-11	1402	1403
2504	2505	1	2	2-5	1404	1405
2510	2511	2	2	2-6	1410	1411
2512	2513	2	2	2-11	1412	1413
2506	2507	1	3	2-3	1406	1407
2520	2521	3	3	2-6	1420	1421
2522	2523	3	3	2-11	1422	1423
.....	.....	1	4	2	1408	1409
2514	2515	2	4	2-5	1414	1415
.....	.....	4	4	2-6	1426	1427
.....	.....	4	4	2-11	1428	1429
2516	2517	2	6	2-3	1416	1417
2524	2525	3	6	2-5	1424	1425
.....	.....	2	8	2	1418	1419
.....	.....	4	8	2-5	1430	1431

SEPARATE SECTIONS

Deluxe Types: .187" rotor slot, use P-270, P-271, P-272 indexes.

Ceramic Types CRL Number		No. Poles	No. Positions	Phenolic Types CRL Number	
Shorting	Non-Short.			Shorting	Non-Short.
TD	XD	1	2-6	AD	HD
UD	YD	1	2-11	BD	JD
RD	RRD	2	2-5	CD	KD
SD	SSD	3	2-3	DD	LD
VD	ZD	4	2	ED	MD
.....	.....	4	2-3	EED	BBD
GGD*	FFD*	1	2-11	GD*	CCD*
PISD‡	.....	1	2-10	PID‡	.....

*All unused contacts connected and shorted out. ‡9 contacts, open in full CW, progressively picked up and shorted to common with CWW rotation.

SEPARATE INDEX ASSEMBLIES

Deluxe Type: 1-piece shaft .187" thick flat; use deluxe 1400 or 2500 Series sections. Complete assembly has index and hardware. **No. P-270:** For 1–3 sections; 2" rear shaft. **No. P-271:** 3–5 sects.; 4" rear shaft. **No. P-272:** 5–10 sects.; 8" rear shaft.

INDUSTRIAL NET PRICES
CERAMIC SWITCHES, SECTIONS

CRL NO.	Net Each, Lots of			CRL No.	Net Each, Lots of		
	1-24	25-49	50-99		1-24	25-49	50-99
2500	$ 7.62	$ 6.98	$ 6.52	2501	$ 7.58	$ 6.95	$ 6.49
2502	7.98	7.31	6.84	2503	7.98	7.31	6.84
2504	8.27	7.57	7.08	2505	8.20	7.51	7.02
2506	8.10	7.42	6.94	2507	8.38	7.68	7.18
2510	12.09	11.08	10.35	2511	11.67	10.69	10.00
2512	12.49	11.44	10.70	2513	12.89	11.81	11.04
2514	12.89	11.44	11.04	2515	12.89	11.81	11.04
2516	10.77	9.87	9.22	2517	13.31	12.19	11.40
2520	16.55	15.16	14.17	2521	16.15	14.80	13.83
2522	14.60	13.37	12.50	2523	17.77	16.28	15.22
2524	15.05	13.79	12.88	2525	18.17	16.65	15.56

INDEX ASSEMBLIES

CRL Number	Net Each, Lots of		
	1-24	25-49	50-99
P-270	$3.57	$3.27	$3.06
P-271	4.19	3.84	3.59
P-272	6.35	5.81	5.43

CRL No.	Net Each, Lots of			CRL No.	Net Each, Lots of		
	1-24	25-49	50-99		1-24	25-49	50-99
1400	$ 4.78	$ 4.38	$ 4.09	1401	$ 4.78	$ 4.38	$ 4.09
1402	5.23	4.79	4.48	1403	5.23	4.79	4.48
1404	5.38	4.93	4.60	1405	5.38	4.93	4.60
1406	4.88	4.47	4.18	1407	5.51	5.05	4.72
1408	5.63	5.16	4.82	1409	5.63	5.16	4.82
1410	6.38	5.84	5.46	1411	6.38	5.84	5.46
1412	6.93	6.35	5.93	1413	6.93	6.35	5.93
1414	7.16	6.56	6.13	1415	7.16	6.56	6.13
1416	6.60	6.04	5.65	1417	7.48	6.85	6.41
1418	7.58	6.95	6.49	1419	7.58	6.95	6.49
1420	7.77	7.11	6.65	1421	7.77	7.11	6.65
1422	8.83	8.09	7.56	1423	8.83	8.09	7.56
1424	10.67	9.78	9.14	1425	10.67	9.78	9.14
1426	9.37	8.58	8.02	1427	9.47	8.68	8.11
1428	11.31	10.36	9.68	1429	11.31	10.36	9.68
1430	9.89	9.06	8.47	1431	9.89	9.06	8.47
AD	1.49	1.36	1.27	HD	1.64	1.50	1.40
BD	2.19	2.00	1.87	JD	2.19	2.00	1.87
BBD	3.87	3.55	3.32	EED	3.87	3.55	3.32
CD	2.17	1.99	1.86	KD	2.39	2.19	2.04
CCD	2.71	2.48	2.32	GD	2.71	2.48	2.32
DD	2.40	2.20	2.06	LD	2.64	2.42	2.26
ED	2.67	2.45	2.29	MD	2.94	2.69	2.52
PID	1.79	1.64	1.53				

SPRING-RETURN ROTARY SWITCHES

Laminated phenolic insulation. Rated: 1.5 amps, 28 VDC; 230 mA, 115 VAC. Breakdown, 1500 VAC rms. Bushing ⅜"-32 thread, ⅜" long. Shaft ¼" dia., 2¼" long. Shipping Weight, 3 oz.

CRL No.	No. Poles	No. Pos.	Net Each			100/Pkg.
			1-24	25-49	50-99	100-Up
1451*†	4	2	$5.76	$5.28	$4.93	$3.87
1488*†	6	3	7.48	6.85	6.41	5.04
1489*‡	6	3	7.48	6.85	6.41	5.04

*Non-shorting. †Spring return. ‡Combination positive and spring return index.

GENERAL PURPOSE ROTARY SWITCHES

Laminated phenolic insulation. Rated: 1.5 amps, 28 VDC; 230 mA, 115 VAC. Breakdown, 1000 VAC rms. Bushing ⅜"-32 thread, ⅜" long except 1484, ¼". Positive index unless otherwise noted.

CRL No.	No. Poles	No. Pos.	Net Each			100/Pkg.
			1-24	25-49	50-99	100-Up
1460	1	2	$2.96	$2.71	$2.53	$1.98
1461	1	3	3.21	2.94	2.75	2.16
1462	2	2	3.44	3.15	2.95	2.32
1472*	2	3	3.64	3.34	3.12	2.45
1473	2	3	3.64	3.34	3.12	2.45
1484♯	1	3	3.16	2.89	2.70	2.12
1486•	2	3	3.62	3.32	3.10	2.44

*Non-shorting; all others shorting. ♯Remote auto radio spkr. switch. •Remote stereo spkr. switch.

LEVER ACTION SWITCHES

Mounted singly or in groups on special plates; adaptable to intercoms, PA, test instruments, broadcast, industrial applications. Positive and/or spring return index design with shtg. or non-shtg. contacts. Laminated phenolic insulation; clips and contacts, silver-plated brass. Rated 1.5 A at 28 VDC, 230 mA at 115 VAC. Two-hole mtg. bkt. supplied with 6-32 tapped holes. Single switch ⅛" w. x 1⅜" h. x 1½" d. behind panel. With mtg. hdwe. Shpg. Wt., 4 oz.

CRL No.									100/
					Net Each				Pkg.
Shorting	Non-Shorting	No. Poles	No. Pos.	Index	1-24	25-49	50-99		100-Up
1452	.....	2	3	Pos.	$4.02	$3.69	$3.45		$2.71
.....	1454	2	3	Pos.	3.94	3.61	3.37		2.65
1453	.....	2	3	Sp.	3.92	3.60	3.36		2.64
.....	1455	2	3	Sp.	3.96	3.63	3.39		2.67
1466	.....	2	3	Pos.,	4.07	3.73	3.49		2.73
.....	1467	2	3	Pos.,	3.96	3.63	3.39		2.67
1456	.....	4	2	Sp.	4.49	4.12	3.85		3.02
.....	1457	4	2	Sp.	4.56	4.18	3.98		3.07
1459	1458	4	2	Pos.	4.38	4.01	3.75		2.95

PRICES LISTED ARE FOR GUIDANCE ONLY

PACKAGED SWITCH HARDWARE
FOR 1400 AND 2500 SERIES SWITCHES

CRL No.	Description	Pkg. 100	CRL No.	Description	Pkg. 100
P-124	¼" metal spacer	$3.00	P-149	4¼" screw	$26.00
P-125	⅜" metal spacer	3.00	P-143	5" screw	54.00
P-126	½" metal spacer	3.00	P-145	7" screw	56.00
P-127	¾" metal spacer	3.00	P-146	9" screw	59.00
P-128	1" metal spacer	3.00	P-147	Nut	3.00
P-136	1" screw	20.00	P-148	Lockwasher	3.00
P-137	1½" screw	20.00	P-177	Phenol. spacer wshr.	5.00
P-138	2" screw	20.00	P-187	¼" steatite spacer	11.00
P-139	2½" screw	20.00	P-189	½" steatite spacer	11.00
			P-192	1" steatite spacer	17.00

FOR PA-6000 SERIES MILITARY SWITCHES

P-395	Min. MIL screw	24.00	P-397	Min. MIL lockwasher	$3.00
P-396	Min. MIL nut	3.00	P-398	MIL spacer washer	3.00

FOR PS-100 SERIES SUBMINIATURE SWITCHES

P-515	1⅛" screw	18.00	P-521	3/32" steatite spacer	$5.00
P-516	Nut	3.00	P-522	1/16" steatite spacer	5.00
P-519	Spacer washer	3.00	P-523	3/16" steatite spacer	5.00
P-520	⅛" steatite spacer	5.00	P-527	Lockwasher	3.00

MIL-S-3786 STYLE SR03
MINIATURE CERAMIC SWITCHES

Designed to meet MIL-S-3786. Insulated with Grade L-422, or better, steatite, Dow Corning 200 Silicone treated against surface moisture. Breakdown, 1000 VAC rms between critical parts. Coin silver clips and contacts; hot tin-dipped terminals. Adjustable stops or continuous rotation on 30° index. Ceramic sections 1⅜" dia. x .125" th. Single hole mounting with locating lug at 11/16" radius. Bushing, ⅜"-32NEF-2A threaded, ⅜" lg. from mtg. surface. Shaft ¼" dia. full round, 2¼" lg. from mtg. surface. With nut and lockwasher. Rating: 450 mA at 115 VAC; 8 amps, 6 VDC; 5.5 amps, 12 VDC (make-break resistive load).

SERIES PA-6000 SWITCHES

CRL Number		Poles to Section	No. Sections	No. Poles	No. Positions
Shorting	Non-Short				
PA-6000	PA-6001	1	1	1	2–11
PA-6002	PA-6003	2	1	2	2–5
PA-6004	PA-6005	1	2	2	2–11
PA-6006	PA-6007	3	1	3	2–3
PA-6010*	PA-6011*	4	1	4	2
PA-6012	PA-6013	2	2	4	2–5
PA-6018	PA-6019	3	2	6	2–3
PA-6024*	PA-6025*	4	2	8	2

*Fixed, 2-position stop.

SEPARATE INDEX ASSEMBLY

CRL No. PA-600—Used with PA-60, or PA-80 separate sections to assemble special units of 1 to 4 sections; 30° indexing. Rear shaft 2" long.

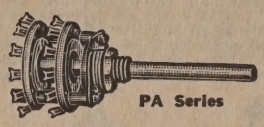
SEPARATE SECTIONS, 30° INDEXING

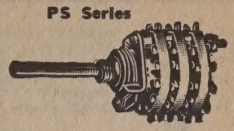
Used with PA-600 index assembly. Hot solder-dipped terminals. Coin silver clips and contacts. Switch sections are 1⅜" dia. and rated 1000 VAC rms breakdown between critical parts. Phenolic units .062" thick; others .125" thick.

Total Poles	No. Pos.	Phenolic Secs. Shorting	Phenolic Secs. Non-Short.	Ceramic Secs. Shorting	Ceramic Secs. Non-Short.
1	2–11	PA-60	PA-61	PA-80	PA-81
2	2–5	PA-62	PA-63	PA-82	PA-83
3	2–3	PA-64	PA-65	PA-84	PA-85
4	2	PA-66	PA-67	PA-86	PA-87

INDUSTRIAL NET PRICES

CRL No.	Net Each, Lots of 1-24	25-49	50-99	CRL No.	Net Each, Lots of 1-24	25-49	50-99
PA-6000	$13.46	$12.36	$11.61	PA-6001	$13.46	$12.36	$11.61
PA-6002	13.46	12.36	11.61	PA-6003	13.46	12.36	11.61
PA-6004	22.48	20.65	19.39	PA-6005	22.48	20.65	19.39
PA-6006	13.86	12.73	11.95	PA-6007	13.86	12.73	11.95
PA-6010	13.86	12.73	11.95	PA-6011	13.86	12.73	11.95
PA-6012	22.90	21.04	19.75	PA-6013	22.90	21.04	19.75
PA-6018	23.71	21.79	20.45	PA-6019	23.71	21.79	20.45
PA-6024	24.13	22.17	20.81	PA-6025	24.13	22.17	20.81
PA-600	4.14	3.79	3.55	.....	.....	.....	.....
PA-60	4.34	3.98	3.74	PA-61	4.34	3.98	3.74
PA-62	3.64	3.34	3.12	PA-63	4.46	4.10	3.85
PA-64	3.74	3.43	3.20	PA-65	4.59	4.22	3.96
PA-66	3.91	3.58	3.35	PA-67	3.91	3.58	3.35
PA-80	7.82	7.19	6.75	PA-81	7.82	7.19	6.75
PA-82	6.98	6.40	5.98	PA-83	8.16	7.50	7.04
PA-84	8.46	7.78	7.30	PA-85	8.46	7.78	7.30
PA-86	7.45	6.82	6.38	PA-87	8.70	8.00	7.51


PA Series


PS Series

MULTIPLE POSITION SWITCHES

Laminated phenolic insulation, type PBE per MIL-P-3115. Voltage breakdown between critical parts 1000 VAC, rms. Bushing ⅜" thd., ⅜" lg. Shaft ¼" dia., 2¼" lg. from mtg. surface. **PA-3000 Series**—18 position. Rated 2.25 amps, 28 VDC; 350 mA, 115 VAC (make-break resistive load). Provides accurate, crisp indexing in both single and multiple-section versions through use of hill-and-dale index. Sections 2 11/64" w. x 2 5/16" h. x 1/16" thick. Positive 20° indexing. **PA-4000 Series**—24 position. Rated 2.75 amps, 28 VDC; 230 mA, 115 VAC. Sections 1¾" w. x 2 5/16" h. x 1/16" thick. Shpg. Wt., 4 oz. per section.

CRL No. PA- Short.	Non-Short.	*	No. Pos.	Net Each 1-24	25-49	50-99	100/Pkg. 100-Up
3000	3001	1	2–17	$ 7.20	$ 6.59	$ 6.16	$ 4.74
3002	3003	2	2–17	11.42	10.47	9.78	7.53
3004	3005	3	2–17	15.41	14.12	13.20	10.16
3006	3007	4	2–17	17.40	15.94	14.90	11.47
4000	4001	1	2–23	7.13	6.53	6.11	4.69
4002	4003	2	2–23	10.35	9.49	8.87	6.82
4004	4005	3	2–23	12.68	11.61	10.85	8.35
4006	4007	4	2–23	15.53	14.23	13.30	10.24

*Number of poles and number of sections.

SERIES PS SUBMINIATURE ROTARY SWITCHES

Deluxe, ceramic insulated rotary switches that are ultra-small. Weigh less than 1 oz. each, yet have the same electrical ratings as switches much heavier and larger. Ideally suited for band switching, transistor circuits, aircraft instruments, etc. Insulation is Dow Corning 200 Silicone treated Grade L-422, or better, steatite; breakdown, 750 VAC rms between critical parts. **Size:** ⅛" thick ceramic sections and ceramic spacers; spacing between front plate and first section, 5/16". All hardware except clips, contacts, and index spring are of cadmium plated steel. **Mounting:** Single hole with optional locating lug on ⅜" radius. Bushing ¼"-32 thread, ¼" long. Shaft ⅛" dia. x 1¼" long. **Rated:** Make and break, resistance load .550 amp at 28 volts DC, 170 milliamps at 115 VAC. **Index:** Positive 30°; fixed stop.

CRL Number *	†	Total Poles	No. Pos.	‡	No. Sec.	CRL Number *	†	Total Poles	No. Pos.	‡	No. Sec.
PS-100	PS-101	1	11	1	1	PS-112	PS-113	4	2	4	1
PS-102	PS-103	2	11	1	2	PS-114	PS-115	6	5	2	3
PS-104	PS-105	2	5	2	1	PS-116	PS-117	6	3	3	2
PS-106	PS-107	3	11	1	3	PS-118	PS-119	8	2	4	2
PS-108	PS-109	3	3	3	1	PS-120	PS-121	9	3	3	3
PS-110	PS-111	4	5	2	2	PS-122	PS-123	12	2	4	3

*Shorting. †Non-shorting. ‡Poles per section.

SERIES PS SEPARATE SECTIONS (CONTINUED)

Ceramic* CRL No. Short.	Non-Short.	Phenolic* CRL No. Short.	Non-Short.	Total Poles	No. Pos.	Fixed Stop Indexing
PS-20	PS-21	PS-40	PS-41	1	11	
PS-22	PS-23	PS-42	PS-43	2	5	Use P-501
PS-24	PS-25	PS-44	PS-45	3	3	thru P-511
PS-26	PS-27	PS-46	PS-47	4	2	

*Breakdown voltage, 750 VAC rms.

SEPARATE INDEX ASSEMBLIES

Designed for maximum of three sections. Includes: Index and shaft assembly; hardware and instructions.

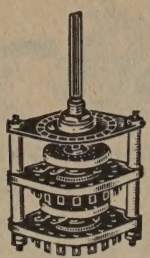
CRL No.	No. of Pos.	CRL No.	No. of Pos.	CRL No.	No. of Pos.	CRL No.	No. of Pos.
P-501	2	P-504	5	P-507	8	P-510	11
P-502	3	P-505	6	P-508	9	P-511	Continuous Rotation
P-503	4	P-506	7	P-509	10		

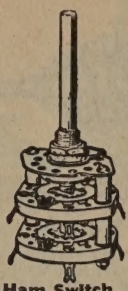
INDUSTRIAL NET PRICES

CRL No.	Shorting Net Each, Lots of 1-24	25-49	50-99	CRL No.	Non-Shorting Net Each, Lots of 1-24	25-49	50-99
PS-100	$ 9.13	$ 8.37	$ 7.82	PS-101	$ 9.13	$ 8.37	$ 7.82
PS-102	14.04	12.87	12.03	PS-103	14.04	12.87	12.03
PS-104	9.80	8.98	8.39	PS-105	9.80	8.98	8.39
PS-106	18.57	17.01	15.90	PS-107	18.57	17.01	15.90
PS-108	10.02	9.18	8.58	PS-109	10.02	9.18	8.58
PS-110	14.85	13.60	12.71	PS-111	14.85	13.60	12.71
PS-112	10.67	9.78	9.14	PS-113	10.67	9.78	9.14
PS-114	19.46	17.82	16.66	PS-115	19.46	17.82	16.66
PS-116	15.36	14.08	13.16	PS-117	15.36	14.08	13.16
PS-118	14.35	13.14	12.28	PS-119	16.50	15.12	14.13
PS-120	18.37	16.83	15.73	PS-121	21.13	19.35	18.09
PS-122	22.70	20.79	19.43	PS-123	22.70	20.79	19.43
PS-20	4.23	3.87	3.62	PS-21	4.23	3.87	3.62
PS-22	4.69	4.30	4.02	PS-23	4.69	4.30	4.02
PS-24	4.91	4.50	4.20	PS-25	4.91	4.50	4.20
PS-26	5.28	4.83	4.52	PS-27	5.28	4.83	4.52
PS-40	2.69	2.46	2.30	PS-41	2.69	2.46	2.30
PS-42	2.96	2.71	2.53	PS-43	2.96	2.71	2.53
PS-44	3.41	3.12	2.92	PS-45	3.41	3.12	2.92
P-501 through P-508					4.53	4.15	3.88

Rotary Switches

PSA Series


Series JV-9000


Ham Switch

SERIES PSA SUBMINIATURE ROTARY SWITCHES

Features an index mechanism with adjustable stops. Rugged, 2-ball-starwheel lateral thrust construction for excellent torque control. For use in band-switching, ultra small electronic equipment, transistor circuits, aircraft instruments, etc. Stator and rotor have diallyl phthalate insulation; resistance, 900,000 megs. **Size:** Furnished with diallyl phthalate sections .203″ ±.005″ thick across strut holes, .080″ thick across clip surface-to-surface. Spaced 3/32″ between front plate and clip surface of first section and 5/32″ spacing between sections. **Mounting:** Bushing, 3/8″-32 NEF thread x 3/8″ long; locating lug on 3/8″ radius. Shaft, 1/4″ dia. x 1 3/8″ long from mtg. surface. All hardware plated to resist corrosion; index spring, strut screws and lockwashers stainless steel; clips and rotor contacts, silver-plated brass. **Rated:** Make and break resistive load .550 A at 28 VDC, 170 mA at 115 VAC. **Index:** Positive 30° with adjustable stops.

CRL Number		Total	No. of	Poles	No. of
Shorting	Non-Shorting	Poles	Positions	per Sec.	Sections
PSA-200	PSA-201	1	2–12	1	1
PSA-202	PSA-203	2	2–6	2	1
PSA-204	PSA-205	2	2–12	1	2
PSA-206	PSA-207	3	2–5	3	1
PSA-208	PSA-209	3	2–12	1	3
PSA-210	PSA-211	4	2–6	2	2
PSA-214	PSA-215	5	2–3	5	1
PSA-220	PSA-221	6	2–5	3	2
PSA-222	PSA-223	6	2–6	2	3
PSA-228	PSA-229	9	2–5	3	3
PSA-230	PSA-231	10	2–3	5	2
PSA-238	PSA-239	15	2–3	5	3

DIALLYL PHTHALATE SEPARATE SECTIONS

CRL Number		Total	No.	CRL Number		Total	No.
Shtg.	Non-Shtg.	Poles	Pos.	Shtg.	Non-Shtg.	Poles	Pos.
PS-50	PS-51	1	2–12	PS-54	PS-55	3	2–5
PS-52	PS-53	2	2–6	PS-56	PS-57	5	2–3

INDEX ASSEMBLIES

Includes index, hardware and instructions; PS-20 and PS-40 sections can also be used.

CRL No.	No. Pos.	No. Sec.	CRL No.	No. Pos.	No. Sec.
PSA-512	2–12	1–2	PSA-513	2–12	3–5

INDUSTRIAL NET PRICES

CRL	Shorting Net Each, Lots of			CRL	Non-Shorting Net Each, Lots of		
No.	1-24	25-49	50-99	No.	1-24	25-49	50-99
PSA-200	$ 8.13	$ 7.45	$ 6.96	PSA-201	$ 8.13	$ 7.45	$ 6.96
PSA-202	8.78	8.05	7.52	PSA-203	8.78	8.05	7.52
PSA-204	11.71	10.73	10.02	PSA-205	11.71	10.73	10.02
PSA-206	9.75	8.94	8.35	PSA-207	9.75	8.94	8.35
PSA-208	16.98	15.56	14.54	PSA-209	16.98	15.56	14.54
PSA-210	12.49	11.44	10.70	PSA-211	12.49	11.44	10.70
PSA-214	10.14	9.29	8.68	PSA-215	11.36	10.40	9.72
PSA-220	14.13	12.94	12.10	PSA-221	14.13	12.94	12.10
PSA-222	17.47	16.00	14.96	PSA-223	17.47	16.00	14.96
PSA-228	19.14	17.53	16.39	PSA-229	19.14	17.53	16.39
PSA-230	14.93	13.68	12.78	PSA-231	16.72	15.32	14.31
PSA-238	21.48	19.68	18.39	PSA-239	24.05	22.03	20.59
PSA-512	4.91	4.50	4.20	PSA-513	7.24	6.64	6.21
PS-50	2.86	2.62	2.45	PS-51	2.86	2.62	2.45
PS-52	3.49	3.20	2.99	PS-53	3.49	3.20	2.99
PS-54	3.77	3.46	3.23	PS-55	4.23	3.87	3.62
PS-56	5.28	4.83	4.52	PS-57	5.91	5.42	5.06

SEPARATE INDEX ASSEMBLIES

Deluxe 60° Types: 2-piece shaft with phenolic rear, metal front; for high voltage operation; use ZZD section for 60°.

CRL No. 60°	Rear Shaft	Suggested No. Sections
P-273	2″	1 to 2
P-274	4 1/4″	3 to 4
P-275	7″	5 to 8

CRL Number	Net Each, Lots of		
	1-24	25-49	50-99
P-273	$6.15	$5.63	$5.26
P-750	7.50	6.87	6.42
P-275	9.35	8.57	8.01

SERIES JV-9000 HEAVY-DUTY POWER SWITCHES

Rotary power switch insulated with Grade L-422, or better, steatite. Rated: 9 amps, 110 VAC; 30 amps, 5 VDC; 15 mA, 2500 VAC. Breakdown, 3000 VAC rms between critical parts. Coin silver contacts; 20° indexing adjustable stop. Mtg. bushing 3/8″-32 thread, 3/8″ long. Sections 2 13/16″ dia. Shpg. Wt., 6 oz per section.

SERIES JV-9000 ROTARY SWITCHES

CRL Number		Poles to	No.	No.	No.
Shorting	Non-Shorting	Section	Sections	Poles	Positions
JV-9000	JV-9001	1	1	1	2–17
JV-9002	JV-9003	3	1	3	2–5
JV-9004	JV-9005	1	2	2	2–17
JV-9006	JV-9007	3	2	6	2–5
JV-9008	JV-9009	1	3	3	2–17
JV-9010	JV-9011	3	3	9	2–5
JV-9012	JV-9013	1	4	4	2–17
JV-9014	JV-9015	3	4	12	2–5
JV-9016	JV-9017	1	5	5	2–17
JV-9018	JV-9019	3	5	15	2–5
JV-9020	JV-9021	1	6	6	2–17
JV-9032	JV-9033	2	1	2	2–8
JV-9034	JV-9035	2	2	4	2–8
JV-9036	JV-9037	2	3	6	2–8
JV-9038	JV-9039	2	4	8	2–8

SERIES JV-9000 SEPARATE SECTIONS

CRL Number		Number	Number
Shorting	Non-Shorting	Poles	Positions
JV-8	JVN-8	1	2–17
JV-9	JVN-9	3	2–5
JV-10	JVN-10	2	2–8
JV-18*	JVN-18*	1	2–18

*Rotor has 17 fingers making contact with 17 contacts on stator, leaving one contact open. By cutting off unwanted fingers this section can be adapted to special circuits, e.g., one off, nine progressively shorting positions.

SERIES JV-9000 DIAL PLATES, INDEX ASSEMBLY

CRL Nos. P-230, P-231 or P-232—2 3/4″ dia., etched aluminum on black background; 20°; marked 1-5 for P-230, 1-8 for P-232, and 1-17 for P-231.

CRL No. JV-7 Index Assembly—Includes shaft, tie rods, spacers, nuts and lockwashers, and adjustable stop pin.

INDUSTRIAL NET PRICES

CRL No.	Net Each 1-24	25-49	50-99	100/Pkg. 100-Up
JV-9000 and JV-9001	$34.30	$31.52	$29.59	$23.58
JV-9002 and JV-9003	38.93	35.77	33.58	26.81
JV-9004 and JV-9005	58.80	54.02	50.72	40.56
JV-9006 and JV-9007	67.34	61.87	58.08	46.56
JV-9008 and JV-9009	82.00	75.34	70.73	56.68
JV-9010 and JV-9011	96.78	88.92	83.48	66.98
JV-9012 and JV-9013	108.08	99.30	93.22	74.74
JV-9014 and JV-9015	124.48	114.37	107.36	86.12
JV-9016 and JV-9017	134.35	123.44	115.88	92.92
JV-9018 and JV-9019	146.82	134.89	126.63	106.61
JV-9020 and JV-9021	155.39	142.77	134.03	107.59
JV-9032 and JV-9033	38.14	35.04	32.90	26.26
JV-9034 and JV-9035	65.82	60.48	56.77	45.50
JV-9036 and JV-9037	94.29	86.63	81.32	65.25
JV-9038 and JV-9039	122.50	112.54	105.65	84.84
JV-8	24.67	22.67	21.28	.....
JV-9	28.72	26.39	24.77	.....
JV-10	25.33	23.27	21.85	.....
JV-18	22.91	21.05	19.76	.....
JV-7 Index	11.42	10.47	9.78	.....
JVN-8	26.93	24.74	23.23	.....
JVN-9	31.26	28.72	26.97	.....
JVN-10	27.54	25.30	23.75	.....
JVN-18	25.17	23.12	21.71	.....
P-230 thru P-232	.32	.29	.28	.....

CERAMIC HAM-TYPE SWITCHES

Heavy-duty Grade L-422, or better, steatite insulation for ham applications. Available in 60° index only. All metal parts except clips and contacts are cadmium plated steel; all units have phenolic shaft through switch sections. Positive index with adjustable stop; 60° units have 2 to 6 active positions. Convenient single-hole mounting: 3/8″-32 thread bushing 3/8″ long. Shaft 1/4″ dia., 2 1/4″ long, full round. Rated: 350 milliamps at 115 VAC; 5 milliamps at 1500 VAC; 2.25 amps at 28 VDC, will handle 15 watts; for tubes operating at voltages up to 1 kV and inputs to 150 watts. Unit complete includes mounting nut and lockwasher. Shipping Weight, 4 oz. per section.

NON-SHORTING HAM SWITCHES

CRL No. 60°	No. Poles*	Net Each, Lots of 1-24	25-49	50-99	100/Pkg. 100-Up
2550	1	$ 9.90	$ 9.07	$ 8.48	$ 6.59
2551	2	13.69	12.55	11.73	9.10
2552	3	18.85	17.27	16.14	12.56
2553	4	21.53	19.72	18.43	14.34
2554	5	25.37	23.24	21.72	16.90
ZZD†	1	5.61	5.14	4.80	....

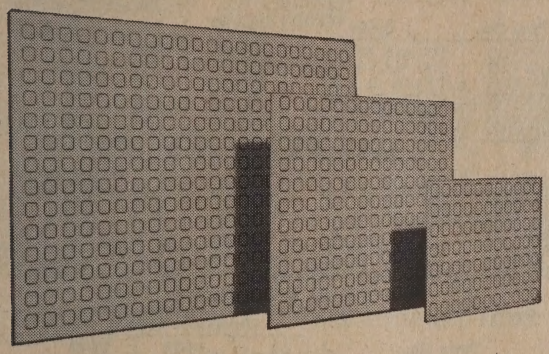
*One pole per section. †Separate section; use with "P" Series index assemblies.

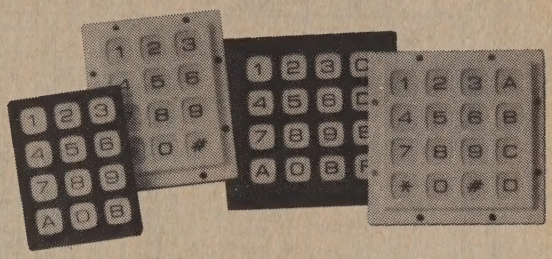
PRICES LISTED ARE FOR GUIDANCE ONLY

CENTRALAB, INC.
A NORTH AMERICAN PHILIPS COMPANY

Monopanel™ Touch Switches

Monopanel™ touch switches feature highly reliable touch-sensitive membrane technology. The switch assembly contains (A) a flexible polyester membrane, with or without graphics, and flexible conductors screened on the rear surface; (B) a thin spacer with holes for each switch provides a .007″ air gap; (C) a circuit board with switch circuits on the face joined by plated-through holes to interconnections on the back. The switch closure is momentary, normally open. Light touch pressure on the flexible front panel closes the contact; releasing pressure allows the front panel to return, opening the contact. **Operating Temperature:** −40° C to +85° C. **Contact Rating:** 50 mA at 30 VDC, resistive load. **Maximum Voltage:** 50 VDC. **Maximum Current:** 100 mA. **Maximum Power:** 1.5 watts. **Contact Resistance:** 2 ohms max. at 4 oz. pressure.





PROTOTYPING PANELS

Monopanel™ prototyping panels are ideal for mock-ups when testing touch switch technology for application. Panels are available in three sizes: 308, 154, and 77 switch matrixes. Three switch interconnections are offered: one side common, both sides out, and X-Y. Panels are blank and can be easily customized with commercially available graphics. Constructed from a rigid PC board .062″ thick with solder pad termination. Panels have a matte polyester finish overlay. A commercial shearing tool can be used to cut panels.

KEYBOARDS

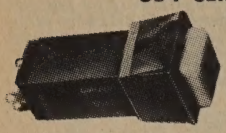
Monopanel™ keyboards are available assembled with standard graphics or unassembled blank with no graphics. Keyboards are 12 and 16 switch matrixes. Two switch interconnections are offered: one side common, and X-Y. Assembled keyboards are marked with black Microgramma 24 pt. lettering on a white background. A matte polyester overlay provides an easy-to-read, non glare finish. Boards mount with or without flange. Terminals are .025″ pin on .100″ centers (typical).

Centralab Model	No. of Switches	Bezel Color	Mtg. Fige.	Nomenclature	Switch Interconnection	Net Each, Lots of 1-24	25-49	50-99	100/Pkg. 100 Up
PROTOTYPING PANELS									
MRP077EA 1100	77	None	None	Blank	1 side common, both sides out, X-Y	$ 48.00	$ 39.00	.....	.....
MRP077EA 1200	77	None	None	Blank		48.00	39.00	.....	.....
MRP077EA 1300	77	None	None	Blank		48.00	39.00	.....	.....
MRP154EA 1100	154	None	None	Blank	1 side common, both sides out, X-Y	85.00	68.00	.....	.....
MRP154EA 1200	154	None	None	Blank		85.00	68.00	.....	.....
MRP154EA 1300	154	None	None	Blank		85.00	68.00	.....	.....
MRP308EA 1100	308	None	None	Blank	1 side common, both sides out, X-Y	150.00	120.00	.....	.....
MRP308EA 1200	308	None	None	Blank		150.00	120.00	.....	.....
MRP308EA 1300	308	None	None	Blank		150.00	120.00	.....	.....
KEYBOARDS									
MRK012 AB2100	12	Black	No	Alpha-Numeric	1 side common	$ 8.90	$ 8.40	$7.85	$6.55
MRK012 AD2100	12	Black	Yes			8.90	8.40	7.85	6.55
MRK012 AC2100	12	White	No			8.90	8.40	7.85	6.55
MRK012 AE2100	12	White	Yes			8.90	8.40	7.85	6.55
MRK012 BB2100	12	Black	No	Blank	1 side common	8.90	8.40	7.85	6.55
MRK012 BD2100	12	Black	Yes			8.90	8.40	7.85	6.55
MRK012 BC2100	12	White	No			8.90	8.40	7.85	6.55
MRK012 BE2100	12	White	Yes			8.90	8.40	7.85	6.55
MRK012 BB2300	12	Black	No	Blank	X-Y	8.90	8.40	7.85	6.55
MRK012 BD2300	12	Black	Yes			8.90	8.40	7.85	6.55
MRK012 BC2300	12	White	No			8.90	8.40	7.85	6.55
MRK012 BE2300	12	White	Yes			8.90	8.40	7.85	6.55
MRK012 CB2300	12	Black	No	Telephone Format	X-Y	8.90	8.40	7.85	6.55
MRK012 CD2300	12	Black	Yes			8.90	8.40	7.85	6.55
MRK012 CC2300	12	White	No			8.90	8.40	7.85	6.55
MRK012 CE2300	12	White	Yes			8.90	8.40	7.85	6.55
MRK016 AB2100	16	Black	No	Alpha-Numeric	1 side common	10.75	10.25	9.75	8.20
MRK016 AD2100	16	Black	Yes			10.75	10.25	9.75	8.20
MRK016 AC2100	16	White	No			10.75	10.25	9.75	8.20
MRK016 AE2100	16	White	Yes			10.75	10.25	9.75	8.20
MRK016 BB2100	16	Black	No	Blank	1 side common	10.75	10.25	9.75	8.20
MRK016 BD2100	16	Black	Yes			10.75	10.25	9.75	8.20
MRK016 BC2100	16	White	No			10.75	10.25	9.75	8.20
MRK016 BE2100	16	White	Yes			10.75	10.25	9.75	8.20
MRK016 BB2300	16	Black	No	Blank	X-Y	10.75	10.25	9.75	8.20
MRK016 BD2300	16	Black	Yes			10.75	10.25	9.75	8.20
MRK016 BC2300	16	White	No			10.75	10.25	9.75	8.20
MRK016 BE2300	16	White	Yes			10.75	10.25	9.75	8.20
MRK016 CB2300	16	Black	No	Telephone Format	X-Y	10.75	10.25	9.75	8.20
MRK016 CD2300	16	Black	Yes			10.75	10.25	9.75	8.20
MRK016 CC2300	16	White	No			10.75	10.25	9.75	8.20
MRK016 CE2300	16	White	Yes			10.75	10.25	9.75	8.20

LIGHTED PUSHBUTTON SWITCHES

DIALCO®

554 SERIES BEZEL MOUNT



Contact resistance, 50 milliohms. Insulation resistance, 1000 megohms at 500 VDC. Max. voltage, 30 VDC or 125 VAC. Solder blade quick connect terminations. Snap action. UL listed and CSA approved. Uses T-1 3/4 incandescent bulb with midget flanged base.

MOMENTARY ACTION SWITCHES

Type No.	Accepts Cap Size	Desc.	Net Each, Lots of 1-9	10-24	25-99	100-249
554-1121-111	1/2" sq.	SPDT 500 mA to 7 A	$4.64	$4.10	$3.36	$2.83
554-1121-211	5/8" sq.		5.20	4.59	3.76	3.19
554-1121-311	5/8" × 3/4"		5.20	4.59	3.76	3.19
554-1121-411	3/4" sq.		5.20	4.59	3.76	3.19
554-1121-511	3/4" × 1"		5.20	4.59	3.76	3.19
554-1221-111	1/2" sq.	DPDT 500 mA to 7 A	5.38	4.75	3.88	3.28
554-1221-211	5/8" sq.		6.03	5.32	4.35	3.70
554-1221-311	5/8" × 3/4"		6.03	5.32	4.35	3.70
554-1221-411	3/4" sq.		6.03	5.32	4.35	3.70
554-1221-511	3/4" × 1"		6.03	5.32	4.35	3.70
554-2121-111	1/2" sq.	SPDT 15 mA to 1 A	5.26	4.63	3.80	3.21
554-2121-211	5/8" sq.		5.89	5.19	4.26	3.62
554-2121-311	5/8" × 3/4"		5.89	5.19	4.26	3.62
554-2121-411	3/4" sq.		5.89	5.19	4.26	3.62
554-2121-511	3/4" × 1"		5.89	5.19	4.26	3.62
554-2221-111	1/2" sq.	DPDT 15 mA to 1 A	6.11	5.39	4.41	3.73
554-2221-211	5/8" sq.		6.84	6.04	4.94	4.20
554-2221-311	5/8" × 3/4"		6.84	6.04	4.94	4.20
554-2221-411	3/4" sq.		6.84	6.04	4.94	4.20
554-2221-511	3/4" × 1"		6.84	6.04	4.94	4.20
554-3121-111	1/2" sq.	SPDT 1 mA to 100 mA	4.64	4.10	3.36	2.83
554-3121-211	5/8" sq.		5.20	4.59	3.76	3.19
554-3121-311	5/8" × 3/4"		5.20	4.59	3.76	3.19
554-3121-411	3/4" sq.		5.20	4.59	3.76	3.19
554-3121-511	3/4" × 1"	*	5.20	4.59	3.76	3.19
554-3221-111	1/2" sq.	DPDT 1 mA to 100 mA	5.38	4.75	3.88	3.28
554-3221-211	5/8" sq.		6.03	5.32	4.35	3.70
554-3221-311	5/8" × 3/4"		6.03	5.32	4.35	3.70
554-3221-411	3/4" sq.		6.03	5.32	4.35	3.70
554-3221-511	3/4" × 1"	*	6.03	5.32	4.35	3.70

ALTERNATE ACTION SWITCHES

554-1131-211	5/8" sq.	SPDT 500 mA to 7 A	$5.89	$5.19	$4.26	$3.62
554-1131-311	5/8" × 3/4"		5.89	5.19	4.26	3.62
554-1131-411	3/4" sq.		5.89	5.19	4.26	3.62
554-1131-511	3/4" × 1"		5.89	5.19	4.26	3.62
554-1231-211	5/8" sq.	DPDT 500 mA to 7 A	6.84	6.04	4.94	4.20
554-1231-311	5/8" × 3/4"		6.84	6.04	4.94	4.20
554-1231-411	3/4" sq.		6.84	6.04	4.94	4.20
554-1231-511	3/4" × 1"		6.84	6.04	4.94	4.20
554-2131-211	5/8" sq.	SPDT 15 mA to 1 A	6.72	5.91	4.85	4.14
554-2131-311	5/8" × 3/4"		6.72	5.91	4.85	4.14
554-2131-411	3/4" sq.		6.72	5.91	4.85	4.14
554-2131-511	3/4" × 1"		6.72	5.91	4.85	4.14
554-2231-211	5/8" sq.	DPDT 15 mA to 1 A	7.81	6.90	5.64	4.80
554-2231-311	5/8" × 3/4"		7.81	6.90	5.64	4.80
554-2231-411	3/4" sq.		7.81	6.90	5.64	4.80
554-2231-511	3/4" × 1"		7.81	6.90	5.64	4.80
554-3131-211	5/8" sq.	SPDT 1 mA to 100 mA	5.89	5.19	4.26	3.62
554-3131-311	5/8" × 3/4"		5.89	5.19	4.26	3.62
554-3131-411	3/4" sq.		5.89	5.19	4.26	3.62
554-3131-511	3/4" × 1"	*	5.89	5.19	4.26	3.62
554-3231-211	5/8" sq.	DPDT 1 mA to 100 mA	6.84	6.04	4.94	4.20
554-3231-311	5/8" × 3/4"		6.84	6.04	4.94	4.20
554-3231-411	3/4" sq.		6.84	6.04	4.94	4.20
554-3231-511	3/4" × 1"	*	6.84	6.04	4.94	4.20

*Wiping Action

MATCHING INDICATORS

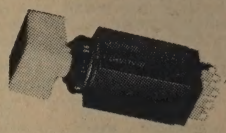
Type No.	Accepts Cap Size	Net Each, Lots of 1-9	10-24	25-99
554-0001-111	1/2" sq.	$2.82	$2.54	$2.09
554-0001-211	5/8" sq.	3.16	2.84	2.34
554-0001-311	5/8" × 3/4"	3.16	2.84	2.34
554-0001-411	3/4" sq.	3.16	2.84	2.34
554-0001-511	3/4" × 1"	3.16	2.84	2.34

LENS CAPS FOR BEZEL OR PANEL MOUNT SWITCHES

Type No.*	Cap Size	Color*	Net Each, Lots of 1-9	10-24	25-99
324-0071	1/2" sq.	Red	$0.71	$0.59	$0.51
325-0071	5/8" sq.	Red	.71	.59	.51
326-0071	5/8" × 3/4"	Red	.71	.59	.51
327-0071	3/4" sq.	Red	.71	.59	.51
328-0071	3/4" × 1"	Red	.71	.59	.51

*Change last digit of Part Number to indicate color desired: 1 red, 2 green, 3 amber, 4 white.

554 SERIES PANEL MOUNT



UL/CSA listed. Operating life, 250,000 operations momentary; 100,000 operations alternate action. Contact resistance, 50 milliohms, max. Dielectric withstanding, 1250 VAC. Current ratings listed below are at 30 VDC or 125 VAC, max. Uses T-1 3/4 bulb with midget flanged base, incandescent.

MOMENTARY ACTION SWITCHES

Type No.	Amps	Circuit	Net Each, Lots of 1-9	10-24	25-99
554-1121	500 mA to 7 A	SPDT	$4.51	$3.99	$3.27
554-1221	500 mA to 7 A	DPDT	5.34	4.70	3.85
554-2121	15 mA to 1 A	SPDT	5.20	4.59	3.76
554-2221	15 mA to 1 A	DPDT	6.15	5.44	4.45
554-3121	1 mA to 100 mA	SPDT	4.51	3.99	3.27
554-3221	1 mA to 100 mA	DPDT	5.34	4.70	3.85

ALTERNATE ACTION SWITCHES

554-1131	500 mA to 7 A	SPDT	$5.20	$4.59	$3.76
554-1231	500 mA to 7 A	DPDT	6.15	5.44	4.45
554-2131	15 mA to 1 A	SPDT	6.03	5.32	4.35
554-2231	15 mA to 1 A	DPDT	7.13	6.28	5.15
554-3131	1 mA to 100 mA	SPDT	5.20	4.59	3.76
554-3231	1 mA to 100 mA	DPDT	6.15	5.44	4.45

MATCHING INDICATOR BASE

Type No.	Net Each, Lots of 1-9	10-24	25-99
554-0001	$2.48	$2.24	$1.84

ILLUMINATED PUSHBUTTON SWITCHES

913 SERIES LED HIGH BRIGHTNESS SWITCHES

Operates from 5 VDC supply at 20 mA max. (For DC voltages other than 5 V, an external resistor is required). Momentary action. Rated 0.1 A at 125 VAC and 30 VDC, non-inductive. Gold plated contact parts. Mounts from back of panel in 3/8" hole for 1/8" panel thickness. UL listed.

Type No.*	Color	Action	Net Each, Lots of 1-9	10-24	25-99
913-1551-1631-525	Red	N.O.	$6.91	$5.87	$5.11
913-1552-1631-525	Red	N.C.	6.91	5.87	5.11
913-1553-1631-525	Red	T.C.	7.29	6.18	5.38
913-1601-1632-525	Green	N.O.	7.61	6.45	5.64
913-1602-1632-525	Green	N.C.	7.61	6.45	5.64
913-1603-1632-525	Green	T.C.	8.00	6.80	5.92
913-1604-1633-525	Yellow	N.O.	7.61	6.45	5.64
913-1605-1633-525	Yellow	N.C.	7.61	6.45	5.64
913-1606-1633-525	Yellow	T.C.	8.00	6.80	5.92

MATCHING INDICATOR BASE

Type No.	Net Each, Lots of 1-9	10-24	25-99	100-249
911-1112-525	$2.87	$2.40	$2.10	$1.79

CAPS FOR ABOVE BASE

Type No.	Color	Net Each, Lots of 1-9	10-24	25-99	100-249
911-1631	Red	$0.83	$0.67	$0.62	$0.53
911-1632	Green	.83	.67	.62	.53
911-1633	Amber	.83	.67	.62	.53
911-1635	White	.83	.67	.62	.53

922 SERIES SWITCHES

SPST momentary N.O. switches rated 0.1 A at 125 VAC and 30 VDC, non-inductive. Over 1,000,000 operations at rated values. Gold plated contact parts. Mounts from back of panel in 3/8" hole. Lens replaceable. Uses T-1 3/4 incandescent lamp. Less lamp. Complete unit: one base, one cap. UL listed.

BASES

Type No.	Contacts	Net Each, Lots of 1-9	10-24	25-99	100-249
922-1524-525	N.O.	$6.73	$5.50	$4.91	$4.28
922-1525-525	N.C.	6.73	5.50	4.91	4.28
922-1526-525	2-circuit	7.38	6.00	5.38	4.66

CAPS FOR ABOVE BASES

Type No.	Color	Net Each, Lots of 1-9	10-24	25-99	100-249
908-1631	Red	$1.58	$1.17	$0.99	$0.79
908-1632	Green	1.58	1.17	.99	.79
908-1633	Amber	1.58	1.17	.99	.79
908-1634	Blue	1.58	1.17	.99	.79
908-1635	White	1.58	1.17	.99	.79

PRICES LISTED ARE FOR GUIDANCE ONLY

DIALIGHT

LIGHTED PUSHBUTTON SWITCHES

DIALCO®

Switch with Round Lens

Indicator Light with Fixed Flange

Switch with Square Lens

Indicator Light with Knurled Ring

513 SERIES PANEL MOUNT SWITCHES

LOW LEVEL SWITCHES

Type No.	Contacts	Action	Contact Ratings (mA) 3-12 VDC Res.	Net Each, Lots of 1-9	10-24	25-99
513-0401-604	SPST N.O.	Mom. Non-snap	5-100	$8.97	$7.00	$6.15
513-0501-604	SPST N.C.	Mom. Non-snap	5-100	8.97	7.00	6.15
513-0601-604	2-Circuit	Mom. Non-snap	5-100	9.78	7.67	6.78

STANDARD SWITCHES

Type No.	Contacts	Action	Contact Ratings (Amps) 125 VAC Res.	125 VAC Ind.	30 VDC Res.	30 VDC Ind.	Net Each, Lots of 1-9	10-24	25-99
513-0101-604	SPST N.O.	Mom. Non-snap	3	...	3	...	$7.99	$6.20	$5.52
513-0201-604	SPST N.C.	Mom. Non-snap	3	...	3	...	7.99	6.20	5.52
513-0301-604	2-Circuit	Mom. Non-snap	3	...	3	...	8.81	6.87	6.04
513-1401-604	SPDT	Alternate	5	2	5	2	13.08	10.18	8.98
513-1501-604	2-Circuit	Alternate	5	2	5	2	13.08	10.18	8.98
513-1601-604	SPDT	Mom. Snap	5	2	5	2	10.12	7.92	7.00

UL listed. Designed for single hole (keyed) mounting in panels up to 3/16" thick. Breakdown voltage, 1250 VAC. Matching indicator lights use same caps. Accommodate T-1 3/4 bulb with midget, flanged base, incandescent.

MATCHING INDICATOR LIGHTS

Companion series designed to match pushbutton switches. With unique anti-rotation (locked) feature for secure locking of socket terminal assembly in the mounting bushing and of the center terminal to the insulating disc. Insulation, 1250 VAC breakdown. Base with fixed flange for front mounting in 15/32" hole. Accommodates T-1 3/4 bulb with midget, flanged base, incandescent.

Front Mtg. Fixed Flange 15/32" Hole	Front/Rear Mtg. Knurled Ring 1/2" Hole	Net Each, Lots of 1-9	10-24	25-99
183-9730-14-602	183-9830-14-604	$2.58	$2.07	$1.80

1/2" LENS CAP

Type Numbers Round Rotatable	Type Numbers Square Non-Rotatable	Color	Net Each, Lots of 1-9	10-24	25-99
183-1471	184-1871	Red	$1.18	$0.98	$0.84
183-1472	184-1872	Green	1.18	.98	.84
183-1473	184-1873	Amber	1.18	.98	.84
183-1475	184-1875	White	1.18	.98	.84

3/4" LENS CAP

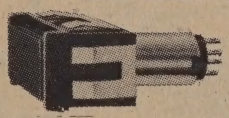
Type Numbers Round Non-Rotatable	Type Numbers Square Non-Rotatable	Color	Net Each, Lots of 1-9	10-24	25-99
188-1471	187-1871	Red	$1.65	$1.39	$1.21
188-1472	187-1872	Green	1.65	1.39	1.21
188-1473	187-1873	Amber	1.65	1.39	1.21
188-1475	187-1874	White	1.65	1.39	1.21

513 SERIES BEZEL MOUNT

Series 300

Series 301

Series 303



Series 513

UL listed. Insulation resistance, more than 1000 megohms at 500 VDC. Contact ratings listed below are at 125 VDC. Mounting bushing, aluminum with clear anodized finish. Coin silver, gold plated contacts. Heat resistant black plastic bezel. Stainless steel clip. Accommodates T-1 3/4 bulb with midget flanged base, incandescent.

Lens Cap Size	Type No.	Color	Net Each, Lots of 1-9	10-24	25-99
5/8" sq.	300-1871	Red	$1.65	$1.39	$1.21
5/8" sq.	300-1872	Green	1.65	1.39	1.21
5/8" sq.	300-1873	Amber	1.65	1.39	1.21
5/8" sq.	300-1875	White	1.65	1.39	1.21

SWITCHES FOR 300 SERIES CAPS

Type No.	Contacts	Rating, Amps Res.	Ind.	Net Each, Lots of 1-9	10-24	25-99
513-0106-001	SPST N.O.	3	...	$9.61	$7.47	$6.64
513-0206-001	SPST N.C.	3	...	9.61	7.47	6.64
513-0306-001	2-Circuit	3	...	10.45	8.11	7.19
513-1406-001	SPDT	5	2	14.78	11.46	10.10
513-1506-001	2-Circuit	5	2	14.78	11.46	10.10

KAP KOVER

Fits over Series 300 pushbutton caps. Is accommodated by square bezel for snap-in mounting. Clear, colorless, Size, .746" h. × .740" w. × .513" d. For both switches and matching indicators.

Type No.	Net Each, Lots of 1-9	10-24	25-99
515-0300	$0.81	$0.67	$0.57

SWITCHES FOR 300 SERIES CAPS WITH KAP KOVER

Type No.	Contacts	Rating, Amps Res.	Ind.	Net Each, Lots of 1-9	10-24	25-99
513-0111-001	SPST N.O.	3	...	$9.61	$7.47	$6.64
513-0211-001	SPST N.C.	3	...	9.61	7.47	6.64
513-0311-001	2-Circuit	3	...	10.45	8.11	7.19
513-1411-001	SPDT	5	2	14.78	11.46	10.10
513-1511-001	2-Circuit	5	2	14.78	11.46	10.10

Lens Cap Size	Type No.	Color	Net Each, Lots of 1-9	10-24	25-99
5/8" rd.	301-1471	Red	$1.65	$1.39	$1.21
5/8" rd.	301-1472	Green	1.65	1.39	1.21
5/8" rd.	301-1473	Amber	1.65	1.39	1.21
5/8" rd.	301-1475	White	1.65	1.39	1.21

SWITCHES FOR 301 SERIES CAPS

Type No.	Contacts	Rating, Amps Res.	Ind.	Net Each, Lots of 1-9	10-24	25-99
513-0107-001	SPST N.O.	3	...	$9.61	$7.47	$6.64
513-0207-001	SPST N.C.	3	...	9.61	7.47	6.64
513-0307-001	2-Circuit	3	...	10.45	8.11	7.19
513-1407-001	SPDT	5	2	14.78	11.46	10.10
513-1507-001	2-Circuit	5	2	14.78	11.46	10.10

Lens Cap Size	Type No.	Color	Net Each, Lots of 1-9	10-24	25-99
3/4" × 1"	303-3471	Red	$1.83	$1.53	$1.34
3/4" × 1"	303-3472	Green	1.83	1.53	1.34
3/4" × 1"	303-3473	Amber	1.83	1.53	1.34
3/4" × 1"	303-3475	White	1.83	1.53	1.34

SWITCHES FOR 303 SERIES CAPS

Type No.	Contacts	Rating, Amps Res.	Ind.	Net Each, Lots of 1-9	10-24	25-99
513-0309-001	2-Circuit	3	...	$10.45	$8.11	$7.19
513-1409-001	SPDT	5	2	14.78	11.46	10.10
513-1509-001	2-Circuit	5	2	14.78	11.46	10.10
513-0110-001*	SPST N.O.	3	...	9.61	7.47	6.64
513-0310-001*	2-Circuit	3	...	10.45	8.11	7.19
513-1410-001*	SPDT	5	2	14.78	11.46	10.10
513-1510-001*	2-Circuit	5	2	14.78	11.46	10.10

*With barrier.

MATCHING INDICATOR BASE ASSEMBLIES

Mounting bushing is aluminum with clear anodized finish. Bezel is black, heat resistant plastic. Terminals are brass. Length, 1.08".

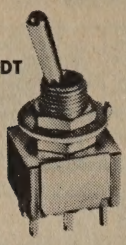
Type No.	Accepts Cap Size	Net Each, Lots of 1-9	10-24	25-99	100-249
533-0601	5/8" sq.	$3.86	$3.21	$2.77	$2.36
533-0701	5/8" rd.	3.86	3.21	2.77	2.36
533-0901	3/4" × 1"	3.86	3.21	2.77	2.36
533-1001*	3/4" × 1"	3.86	3.21	2.77	2.36

*With barrier.

MINIATURE TOGGLE SWITCHES

Current Rating: Rate A, 5 amps at 120 VAC or 2 amps at 250 VAC; Rate B, 0.4 VA at 20 VAC or VDC. High temperature case. UL listed. Toggle actuators are chrome plated brass with .350" long 1/4-40 NS bushing. Includes hardware.

DPDT



Solder Terminals

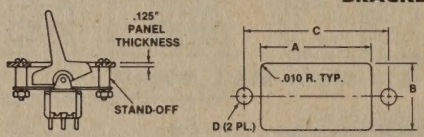
SPDT

P.C. Terminals

Type No.	No. of Poles	Switch Function§ Side-Center-Side	Cont. Rate	Terminal	Net Each, Lots of 1-24	25-99	100-499	500-999
571-1121-0101-011	1	On-None-On	A	Solder	$2.08	$1.71	$1.46	$1.29
571-1221-0101-011	1	On-Off-On	A	Solder	2.43	1.98	1.69	1.49
571-1321-0101-011	1	(On)-Off-(On)	A	Solder	2.43	1.98	1.69	1.49
571-1421-0101-011	1	On-Off-(On)	A	Solder	2.43	1.98	1.69	1.49
571-1521-0101-011	1	On-None-(On)	A	Solder	2.43	1.98	1.69	1.49
571-1621-0101-011	1	None-On-(On)	A	Solder	2.43	1.98	1.69	1.49
571-1122-0101-011	1	On-None-On	A	P.C.	2.20	1.83	1.58	1.41
571-1128-0101-011	1	On-None-On	A	Sold.*	2.20	1.83	1.58	1.41
571-1129-0101-011	1	On-None-On	A	PC.*	2.32	1.95	1.70	1.53
571-1222-0101-011	1	On-Off-On	A	P.C.	2.55	2.10	1.81	1.61
571-1228-0101-011	1	On-Off-On	A	Sold.*	2.55	2.10	1.81	1.61
571-1229-0101-011	1	On-Off-On	A	P.C.*	2.67	2.22	1.93	1.73
571-1111-0101-011	1	On-None-On	B	Solder	2.25	1.88	1.63	1.46
571-1112-0101-011	1	On-None-On	B	P.C.	2.31	1.94	1.69	1.52
571-1114-0101-011	1	On-None-On	B	W.W.*	2.37	2.00	1.75	1.58
571-1117-0101-011	1	On-None-On	B	W.W.*	2.37	2.00	1.75	1.58
571-1118-0101-011	1	On-None-On	B	Sold.*	2.37	2.00	1.75	1.58
571-1119-0101-011	1	On-None-On	B	P.C.*	2.43	2.06	1.81	1.64
571-1121-0501-014	1	On-None-On	A	Solder	2.66	2.29	2.04	1.87
571-1121-0601-014	1	On-None-On	A	Solder	2.66	2.29	2.04	1.87
571-2121-0101-011	2	On-None-On	A	Solder	2.79	2.32	1.92	1.76
571-2221-0101-011	2	On-Off-On	A	Solder	3.26	2.69	2.36	2.06
571-2721-0101-011	2	On-On-On	A	Solder	3.62	2.99	2.59	2.25
571-2128-0101-011	2	On-None-On	A	Sold.*	3.03	2.56	2.16	2.00
571-2228-0101-011	2	On-Off-On	A	Sold.*	3.50	2.93	2.60	2.30
571-3121-0101-011	3	On-None-On	A	Solder	4.81	3.99	3.46	3.03
571-3112-0101-011	3	On-None-On	B	P.C.	5.50	4.68	4.15	3.72
571-4121-0101-011	4	On-None-On	A	Solder	6.19	5.15	4.47	3.88
571-4721-0101-011	4	On-On-On	A	Solder	7.62	6.26	5.42	4.98

*Terminals epoxied in place. †Toggle 0.840" long, flatted; ‡toggle 0.450" long, flatted; all others 0.410" long, rounded. §( ) denotes momentary position.

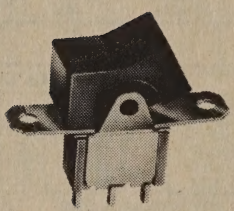
MINIATURE ROCKER AND LEVER SWITCHES FOR SUB-PANEL BRACKET MOUNTING



Dimen.	Actuator 01,05	02,06
A	.707"	1.095"
B	.418"	.648"
C	.937"	1.375"
D	.094"	.120"

Current Rating: 5 amps at 120 VAC; 2 amps at 250 VAC. High temperature case. UL listed. Actuators are black nylon. Mounting hardware is included. Solder terminals.

01 Rocker



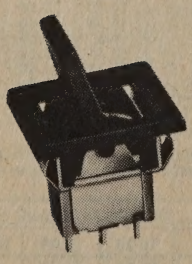
05 Lever

Type No.	No. of Poles	Switch Function§ Side-Center-Side	Actuator	Net Each, Lots of 1-24	25-99	100-499	500-999
572-1121-0104-013	1	On-None-On	Rocker 01, .365" × .648"	$2.48	$2.11	$1.86	$1.69
572-1221-0104-013	1	On-Off-On	Rocker 01, .365" × .648"	2.83	2.38	2.09	1.89
572-1321-0104-013	1	(On)-Off-(On)	Rocker 01, .365" × .648"	2.83	2.38	2.09	1.89
572-1421-0104-013	1	On-Off-(On)	Rocker 01, .365" × .648"	2.83	2.38	2.09	1.89
572-1521-0104-013	1	On-None-(On)	Rocker 01, .365" × .648"	2.83	2.38	2.09	1.89
572-1621-0104-013	1	None-On-(On)	Rocker 01, .365" × .648"	2.83	2.38	2.09	1.89
572-1121-0204-013	1	On-None-On	Rocker 02, .595" × 1.036"	2.48	2.11	1.86	1.69
572-1221-0204-013	1	On-Off-On	Rocker 02, .595" × 1.036"	2.83	2.38	2.09	1.89
572-1121-0504-013	1	On-None-On	Lever 05, .365" × .740"	2.48	2.11	1.86	1.69
572-1221-0504-013	1	On-Off-On	Lever 05, .365" × .740"	2.83	2.38	2.09	1.89
572-1121-0604-013	1	On-None-On	Lever 06, .595" × 1.174"	2.48	2.11	1.86	1.69
572-1221-0604-013	1	On-Off-On	Lever 06, .595" × 1.174"	2.83	2.38	2.09	1.89
572-2121-0104-013	2	On-None-On	Rocker 01, .365" × .648"	3.19	2.72	2.32	2.16
572-2221-0104-013	2	On-Off-On	Rocker 01, .365" × .648"	3.66	3.09	2.76	2.46
572-2121-0204-013	2	On-None-On	Rocker 02, .595" × 1.036"	3.19	2.72	2.32	2.16
572-2221-0204-013	2	On-Off-On	Rocker 02, .595" × 1.036"	3.66	3.09	2.76	2.46
572-2121-0504-013	2	On-None-On	Lever 05, .365" × .740"	3.19	2.72	2.32	2.16
572-2221-0504-013	2	On-Off-On	Lever 05, .365" × .740"	3.66	3.09	2.76	2.46
572-2121-0604-013	2	On-None-On	Lever 06, .595" × 1.174"	3.19	2.72	2.32	2.16
572-2221-0604-013	2	On-Off-On	Lever 06, .595" × 1.174"	3.66	3.09	2.76	2.46
572-3121-0104-013	3	On-None-On	Rocker 01, .365" × .648"	5.21	4.39	3.86	3.43
572-3121-0504-013	3	On-None-On	Lever 05, .365" × .740"	5.21	4.39	3.86	3.43
572-4121-0104-013	4	On-None-On	Rocker 01, .365" × .648"	6.59	5.55	4.87	4.28
572-4121-0204-013	4	On-None-On	Rocker 02, .595" × 1.036"	6.59	5.55	4.87	4.28

§( ) denotes momentary position.

MINIATURE LEVER SWITCHES FOR SNAP-IN MOUNTING WITH BEZEL

Current Rating: 5 amps at 120 VAC; 2 amps at 250 VAC. High temperature case. UL listed. Actuator and bezel are black nylon. Solder terminals. Lever measures .450" w. × .644" lg. Panel cutout measures .600" × .500".

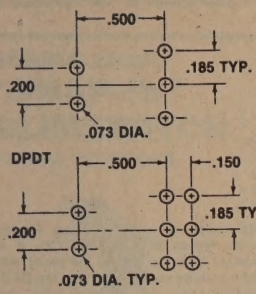


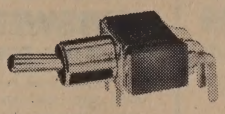
08 Lever

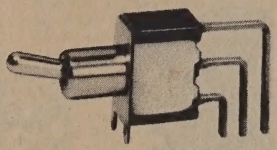
Type No.	No. of Poles	Switch Function§ Side-Center-Side	Net Each, Lots of 1-24	25-99	100-499	500-999
572-1121-0804-040	1	On-None-On	$2.94	$2.57	$2.32	$2.15
572-1221-0804-040	1	On-Off-On	3.29	2.84	2.55	2.35
572-1321-0804-040	1	(On)-Off-(On)	3.29	2.84	2.55	2.35
572-1421-0804-040	1	On-Off-(On)	3.29	2.84	2.55	2.35
572-1521-0804-040	1	On-None-(On)	3.29	2.84	2.55	2.35
572-1621-0804-040	1	None-On-(On)	3.29	2.84	2.55	2.35
572-2121-0804-040	2	On-None-On	3.65	3.18	2.78	2.62
572-2221-0804-040	2	On-Off-On	4.12	3.55	3.22	2.92
572-2321-0804-040	2	(On)-Off-(On)	4.12	3.55	3.22	2.92
572-2421-0804-040	2	On-Off-(On)	4.12	3.55	3.22	2.92
572-2521-0804-040	2	On-None-(On)	4.12	3.55	3.22	2.92
572-2621-0804-040	2	None-On-(On)	4.12	3.55	3.22	2.92
572-2721-0804-040	2	On-On-On	4.48	3.85	3.45	3.11
572-2821-0804-040	2	On-On-(On)	4.84	4.12	3.72	3.31
572-2921-0804-040	2	(On)-On-(On)	4.84	4.12	3.72	3.31

§( ) denotes momentary position.

PRICES LISTED ARE FOR GUIDANCE ONLY



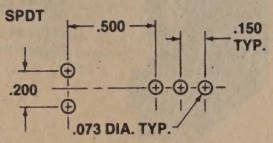

SPDT

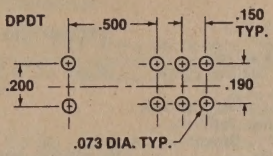


MINIATURE TOGGLE SWITCHES—HORIZONTAL MOUNT

Rated at 0.4 VA at 20 VAC or VDC. Terminals are bent at 90° for PC board mounting. Brass actuators travel horizontally. Non-threaded bushing is .280" long × .245" diam. High temperature case is UL approved, chrome plated.

Type No.	No. of Poles	Switch Function Side-Center-Side*	Terminals	Toggle Length, Ins.	Net Each, Lots of 1-24	25-99	100-499	500-999
573-1113-0101-100	1	On-None-On	P.C.	.480	$2.31	$1.94	$1.69	$1.52
573-1119-0101-100	1	On-None-On	P.C. epoxied	.480	2.43	2.06	1.81	1.64
573-1113-0301-100	1	On-None-On	P.C.	.270	2.31	1.94	1.69	1.52
573-1119-0301-100	1	On-None-On	P.C. epoxied	.270	2.43	2.06	1.81	1.64
573-1213-0301-100	1	On-Off-On	P.C.	.270	2.66	2.21	1.92	1.72
573-1313-0301-100	1	(On)-Off-(On)	P.C.	.270	2.66	2.21	1.92	1.72
573-2113-0301-100	2	On-None-On	P.C.	.270	3.25	2.78	2.38	2.22
573-2213-0301-100	2	On-Off-On	P.C.	.270	3.72	3.15	2.82	2.52

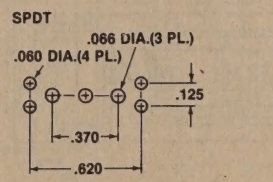




MINIATURE TOGGLE SWITCHES—VERTICAL MOUNT

Rated at 0.4 VA at 20 VAC or VDC. Terminals are bent at 90° for PC board mounting. Brass actuators travel vertically. Non-threaded bushing is .280" long × .245" diam. High temperature case is UL approved, chrome plated.

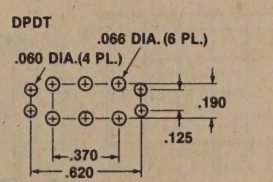
Type No.	No. of Poles	Switch Function Side-Center-Side*	Terminals	Toggle Length, Ins.	Net Each, Lots of 1-24	25-99	100-499	500-999
573-1112-0101-100	1	On-None-On	P.C.	.480	$2.31	$1.94	$1.69	$1.52
573-1118-0101-100	1	On-None-On	P.C. epoxied	.480	2.43	2.06	1.81	1.64
573-1112-0301-100	1	On-None-On	P.C.	.270	2.31	1.94	1.69	1.52
573-1118-0301-100	1	On-None-On	P.C. epoxied	.270	2.43	2.06	1.81	1.64
573-1212-0301-100	1	On-Off-On	P.C.	.270	2.66	2.21	1.92	1.72
573-2112-0301-100	2	On-None-On	P.C.	.270	3.25	2.78	2.38	2.22
573-2212-0301-100	2	On-Off-On	P.C.	.270	3.72	3.15	2.82	2.52



MINIATURE TOGGLE SWITCHES—WITH SUPPORT BRACKETS

Rated at 0.4 VA at 20 VAC or VDC. Bracket made of fused, tin-plated steel. High temperature case is UL approved, chrome plated. Non-threaded bushing is .280" long × .245" diam.

Type No.	No. of Poles	Switch Function Side-Center-Side*	Terminals	Toggle Length, Ins.	Net Each, Lots of 1-24	25-99	100-499	500-999
577-1111-0101-110	1	On-None-On	P.C.	.480	$2.45	$2.08	$1.83	$1.66
577-1112-0101-110	1	On-None-On	P.C. epoxied	.480	2.55	2.18	1.93	1.76
577-1111-0301-110	1	On-None-On	P.C.	.270	2.45	2.08	1.83	1.66
577-1112-0301-110	1	On-None-On	P.C. epoxied	.270	2.55	2.18	1.93	1.76
577-1211-0301-110	1	On-Off-On	P.C.	.270	2.80	2.35	2.06	1.86
577-1311-0301-110	1	(On)-Off-(On)	P.C.	.270	2.80	2.35	2.06	1.86
577-2112-0101-110	2	On-None-On	P.C. epoxied	.480	3.48	3.01	2.61	2.45
577-2111-0301-110	2	On-None-On	P.C.	.270	3.28	2.81	2.41	2.25
577-2112-0301-110	2	On-None-On	P.C. epoxied	.270	3.48	3.01	2.61	2.45
577-2211-0301-110	2	On-Off-On	P.C.	.270	3.75	3.18	2.85	2.55
577-2212-0301-110	2	On-Off-On	P.C. epoxied	.270	3.95	3.38	3.05	2.75



MINIATURE ROCKER AND LEVER SWITCHES—WITH SUPPORT BRACKETS

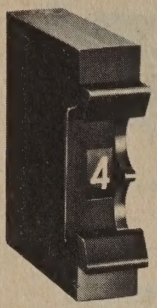
Rated at 0.4 VA at 20 VAC or VDC. Bracket made of fused, tin-plated steel. High temperature case is UL approved. Rocker and lever actuators are black nylon.

Type No.	No. of Poles	Switch Function Side-Center-Side*	Terminals	†Actuator	Net Each, Lots of 1-24	25-99	100-499	500-999
574-1111-0104-010	1	On-None-On	P.C.	R	$2.75	$2.38	$2.13	$1.96
574-1112-0104-010	1	On-None-On	P.C. epoxied	R	2.85	2.48	2.23	2.06
574-1111-0504-010	1	On-None-On	P.C.	L	2.75	2.38	2.13	1.96
574-1112-0504-010	1	On-None-On	P.C. epoxied	L	2.85	2.48	2.23	2.06
574-1211-0504-010	1	On-Off-On	P.C.	L	3.10	2.65	2.36	2.16
574-1311-0504-010	1	(On)-Off-(On)	P.C.	L	3.10	2.65	2.36	2.16
574-2111-0504-010	2	On-None-On	P.C.	L	3.58	3.11	2.71	2.55
574-2112-0504-010	2	On-None-On	P.C. epoxied	L	3.78	3.31	2.91	2.75
574-2211-0504-010	2	On-Off-On	P.C.	L	4.05	3.48	3.15	2.85
574-2212-0504-010	2	On-Off-On	P.C. epoxied	L	4.25	3.68	3.35	3.05

*() denoted momentary position. †R (rocker), .365" × .648"; L (lever), .365" × .740".

DIGITRAN® DIGITAL SWITCHES and DATA ENTRY DEVICES

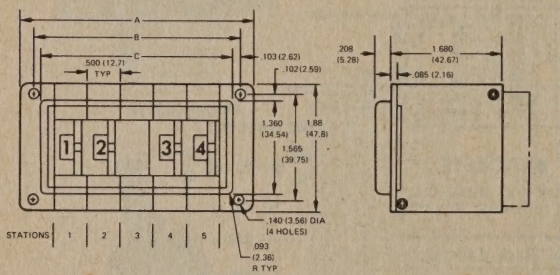
SERIES 300
DIGISWITCH®
8, 10, 12, 16 DIAL POSITIONS
QPL approved to MIL-S-22710/11

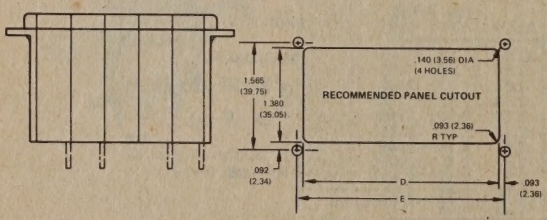


This one module shown is our standard, general purpose unit. When grouped together with end brackets, the assembly is installed through a cut-out from the rear of the panel. Simple mounting screws are required. Note that the DIGISWITCH, which is the largest of all our switches, can be supplied with up to 16 dial positions.

SPECIFICATIONS

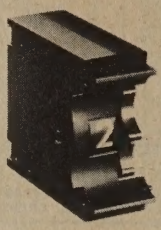
Operating Force	7 to 10 ounces
Rated Electrical Loads	28 volts A.C. or 28 volts D.C. at 125 milliamps. Non-switching load 3 amps max.
Initial Contact Resistance	0.1 ohms max.
Insulation Resistance	1000 megohms
Dielectric Strength	1000 volts RMS
Vibration	MIL-STD-202 method 204, test condition B 15G
Shock	MIL-STD-202, method 213, test condition 1 100G
Life	Over 1,000,000 detent operations
Operating Temperature	−65°C to +85°C
Weight	¾ ounce per module (approx.)
Standard Color	Glossy black case, end brackets, wheel and dial with white dial characters
Dial Character Height	0.235 (8-10 or 12 position)
QPL approved to	MIL-S-22710/11





Number of .5" (12.7) Stations	A	B	C	D	E
1	1.41(35.8)	1.08(27.3)	.87(22.1)	.89(22.6)	1.08(27.3)
2	1.91(48.5)	1.58(40.0)	1.37(34.8)	1.39(35.3)	1.58(40.0)
3	2.41(61.2)	2.08(52.7)	1.87(47.5)	1.89(48.0)	2.08(52.7)
4	2.91(73.9)	2.58(65.4)	2.37(60.2)	2.39(60.7)	2.58(65.4)
5	3.41(86.6)	3.08(78.1)	2.87(72.9)	2.89(73.4)	3.08(78.1)
6	3.91(99.3)	3.58(90.8)	3.37(85.6)	3.39(86.1)	3.58(90.8)
7	4.41(112.0)	4.08(103.5)	3.87(98.3)	3.89(98.8)	4.08(103.5)
8	4.91(124.7)	4.58(116.2)	4.37(111.0)	4.39(111.5)	4.58(116.2)
9	5.41(137.4)	5.08(128.9)	4.87(123.7)	4.89(124.2)	5.08(128.9)
10	5.91(150.1)	5.58(141.6)	5.37(136.4)	5.39(136.9)	5.58(141.6)

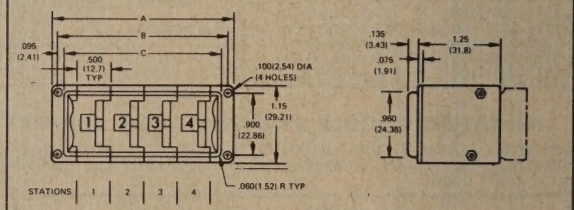
SERIES 8000
MINISWITCH®
8, 10, 16 DIAL POSITIONS

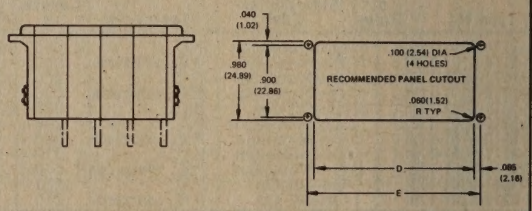


This switch is a miniaturized version of the Series 300 DIGISWITCH. It is mounted from the rear of the panel with four mounting screws and, like the DIGISWITCH, can be grouped with end mounting brackets into as many switching units in a row as desired. Like most of our thumbwheel switches, the MINISWITCH will give you over 1,000,000 reliable detent operations.

SPECIFICATIONS

Operating Force	6 to 11 ounces
Rated Electrical Loads	115 volts A.C. or 28 volts D.C. at 125 milliamps. Non-switching load 3 amps max.
Initial Contact Resistance	0.1 ohms max.
Insulation Resistance	1000 megohms
Dielectric Strength	750 volts RMS
Vibration	MIL-STD-202 method 204, test condition B 15G
Shock	MIL-STD-202, method 213, test condition 1 100G
Life	Over 1,000,000 detent operations
Operating Temperature	−65°C to +85°C
Weight	⅓ ounce per module (approx.)
Standard Color	Non-glare matte black case, end brackets, wheel and dial with white dial characters
Dial Character Height	0.200 (8 or 10 position)
Designed to meet	MIL-S-22710/19





Number of .5" (12.7) Stations	A	B	C	D	E
1	1.26(32.0)	1.09(27.7)	.90(22.9)	.92(23.4)	1.09(27.7)
2	1.76(44.7)	1.59(40.4)	1.40(35.6)	1.42(36.1)	1.59(40.4)
3	2.26(57.4)	2.09(53.1)	1.90(48.3)	1.92(48.8)	2.09(53.1)
4	2.76(70.1)	2.59(65.8)	2.40(61.0)	2.42(61.5)	2.59(65.8)
5	3.26(82.8)	3.09(78.5)	2.90(73.7)	2.92(74.2)	3.09(78.5)
6	3.76(95.5)	3.59(91.2)	3.40(86.4)	3.42(86.9)	3.59(91.2)
7	4.26(108.2)	4.09(103.9)	3.90(99.1)	3.92(99.6)	4.09(103.9)
8	4.76(120.9)	4.59(116.6)	4.40(111.8)	4.42(112.3)	4.59(116.6)
9	5.26(133.6)	5.09(129.3)	4.90(124.5)	4.92(125.0)	5.09(129.3)
10	5.76(146.3)	5.59(142.0)	5.40(137.2)	5.42(137.7)	5.59(142.0)

PRICES LISTED ARE FOR GUIDANCE ONLY

DIGITAL SWITCHES and DATA ENTRY DEVICES

DIGITRAN®

SERIES 23000
"SNAP-IN" SLIMSWITCH
10 DIAL POSITIONS

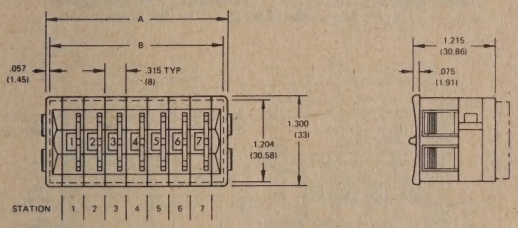
Our newest addition to the MINISWITCH line. Series 23000 is the economy leader of the digital switch industry. They cost less to buy, less to assemble, less to install. They conserve panel space, too. Using our unique assembly strap, switch assemblies are quickly and easily put together without using tools.

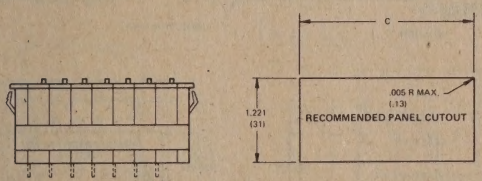
SNAP-IN panel mounting eliminates the need for installation hardware and tools and allows you to relax panel cut out tolerances. The molded-on bezels cover irregular panel cut outs, chipped paint and surface abrasions.

Switch module width is only .315" (8mm) so you can put more switches into a given space with better readability. That's why we call the Series 23000-the SLIMSWITCH.

SPECIFICATIONS

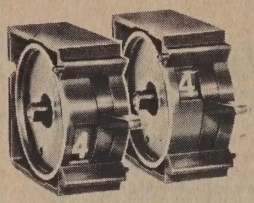
Operating Force ..... 4 to 8 ounces
Rated Electrical Loads ..... 28 volts A.C. or 28 volts D.C. at 50 milliamps resistive, at 25°C (77°F). Non-switching current limit: 2 amps
Initial Contact Resistance ..... 0.1 ohms max.
Insulation Resistance ..... 1000 megohms
Dielectric Strength ..... 500 volts RMS
Vibration ..... 5 G's 70-2000 cps; .06 in. double amplitude, 10-70 cps
Shock ..... 100 G's, 6 millisecond duration, sawtooth.
Life ..... Over 1,000,000 detent operations at 25°C (77°F)
Operating Temperature ..... −20°C to 65°C
Standard Color ..... Case, wheel and end brackets, black or Grey semi-matte as molded. Dial markings, white on black or black on Grey hot-stamped per detail specifications.
Dial Character Height ..... 0.170"





NUMBER OF MODULES	A	B	C
1	.745 (19)	.649 (16.5)	.669 (17)
2	1.060 (27)	.964 (24.5)	.984 (25)
3	1.375 (35)	1.279 (32.5)	1.299 (33)
4	1.690 (43)	1.594 (40.5)	1.614 (41)
5	2.005 (51)	1.909 (48.5)	1.929 (49)
6	2.320 (59)	2.224 (56.5)	2.244 (57)
7	2.635 (67)	2.539 (64.5)	2.559 (65)
8	2.950 (75)	2.854 (72.5)	2.874 (73)
9	3.265 (83)	3.169 (80.5)	3.189 (81)
10	3.580 (91)	3.484 (88.5)	3.504 (89)
N	N x .315 + .430 N x (8) + (11)	N x .315 + .334 N x (8) + (8.5)	N x .315 + .354 N x (8) + (9)

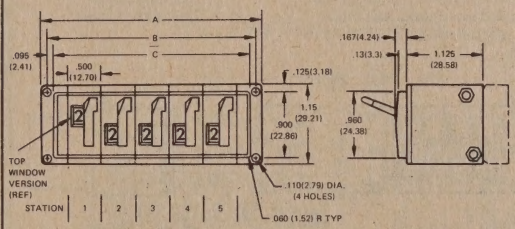
SERIES 28000
MINILEVER®
10, 12 DIAL POSITIONS

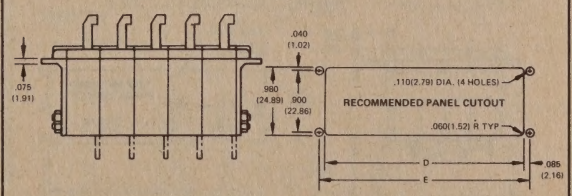


The MINILEVER is a comparatively new innovation to thumbwheel switches. Each module is actuated by a geared type lever. By moving the lever in either direction, you can instantly position the digits from zero (0) to ten (10), or zero (0) to twelve (12). For instance, they have been used on credit checking machines. The operator can set up the customers' credit card number rapidly, then push a button and check the customers' credit. He can then instantly reset all digits back to zero with one sweep of the hand. We also have a special version where the reset of all digits back to zero is done with one separate lever. A great switch for peripheral computer equipment.

SPECIFICATIONS

Operating Force ..... 4 to 8 ounces
Rated Electrical Loads ..... 28V (D.C.), 50 m.a. per common terminal. Non-switching current limit: one amp. All specs applicable after life at rated load.
Initial Contact Resistance ..... 0.1 ohms max.
Insulation Resistance ..... 1000 megohms
Dielectric Strength ..... 500 volts RMS
Vibration ..... MIL-STD-202 method 204, test condition B 15G
Shock ..... MIL-STD-202, method 213, test condition I 50G
Life ..... Over 1,000,000 detent operations
Operating Temperature ..... −40°C to +71°C
Weight ..... ½ ounce per module (approx.)
Standard Color ..... Case, end brackets, detent lever: Non-glare black. Dial: Satin black. Dial Markings: White.
Dial Character Height ..... 0.200 (10 or 12 position)

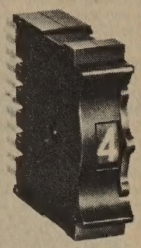




Number of .5" (12.7) Stations	A ±.03(7.62)	B	C	D	E
1	1.26(32.0)	1.09(27.7)	.90(22.9)	.92(23.4)	1.09(27.7)
2	1.76(44.7)	1.59(40.4)	1.40(35.6)	1.42(36.1)	1.59(40.4)
3	2.26(57.4)	2.09(53.1)	1.90(48.3)	1.92(48.8)	2.09(53.1)
4	2.76(70.1)	2.59(65.8)	2.40(61.0)	2.42(61.5)	2.59(65.8)
5	3.26(82.8)	3.09(78.5)	2.90(73.7)	2.92(74.2)	3.09(78.5)
6	3.76(95.5)	3.59(91.2)	3.40(86.4)	3.42(86.9)	3.59(91.2)
7	4.26(108.2)	4.09(103.9)	3.90(99.1)	3.92(99.6)	4.09(103.9)
8	4.76(120.9)	4.59(116.6)	4.40(111.8)	4.42(112.3)	4.59(116.6)
9	5.26(133.6)	5.09(129.3)	4.90(124.5)	4.92(125.0)	5.09(129.3)
10	5.76(146.3)	5.59(142.0)	5.40(137.2)	5.42(137.7)	5.59(142.0)
11	6.26(159.0)	6.09(154.7)	5.90(149.9)	5.92(150.4)	6.09(154.7)

DIGITRAN® DIGITAL SWITCHES and DATA ENTRY DEVICES

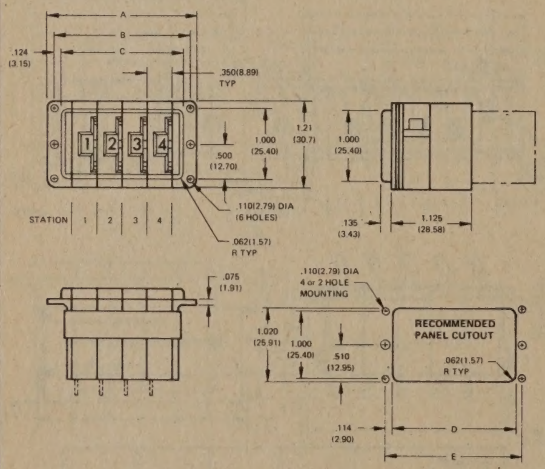
SERIES 29000
ECONOMY MINISWITCH®
10, 12 DIAL POSITIONS



Here is our new little money saver. Although slightly derated electrically from our Series 8000 MINISWITCH, certain mechanical and material changes have reduced the selling price considerably without reducing quality. If you have an application where the ultimate in low cost is mandatory, this is the switch. This switch is also sealed against normal exposure to dust and other dry contaminants.

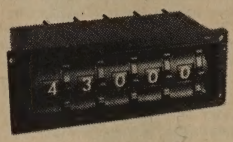
SPECIFICATIONS

Operating Force	4 to 8 ounces
Rated Electrical Loads	28 Vac or 28 Vdc at 50 m.a. at 25°C (77°F). Non-switching load 2 amp max.
Initial Contact Resistance	0.1 ohms max.
Insulation Resistance	1000 megohms
Dielectric Strength	500 volts RMS
Vibration	15 G's 70-2000 cps; .06 in. double amplitude, 10-70 cps
Shock	100 G's, 6 millisecond duration, sawtooth.
Life	Over 1,000,000 detent operations at 25°C (77°F)
Operating Temperature	0°C to +65°C
Weight	¼ ounce per module (approx.)
Standard Color	Beige case and end brackets with black dial characters. Black case with white dial characters on special order.
Dial Character Height	0.200"



NUMBER OF .35"(8.9) STATIONS	A	B	C	D	E
1	1.10(27.9)	.91(23.1)	.66(16.8)	.68(17.3)	.91(23.1)
2	1.45(36.8)	1.26(32.0)	1.01(25.7)	1.03(26.2)	1.26(32.0)
3	1.80(45.7)	1.61(40.9)	1.36(34.6)	1.38(35.1)	1.61(40.9)
4	2.15(54.6)	1.96(49.8)	1.71(43.5)	1.73(44.0)	1.96(49.8)
5	2.50(63.5)	2.31(58.7)	2.06(52.4)	2.08(52.9)	2.31(58.7)
6	2.85(72.4)	2.66(67.6)	2.41(61.3)	2.43(61.8)	2.66(67.6)
7	3.20(81.3)	3.01(76.5)	2.76(70.2)	2.78(70.7)	3.01(76.5)
8	3.55(90.2)	3.36(85.3)	3.11(79.0)	3.13(79.6)	3.36(85.3)
9	3.90(99.1)	3.71(94.2)	3.46(87.9)	3.48(88.4)	3.71(94.2)
10	4.25(108.0)	4.06(103.1)	3.81(96.8)	3.83(97.3)	4.06(103.1)

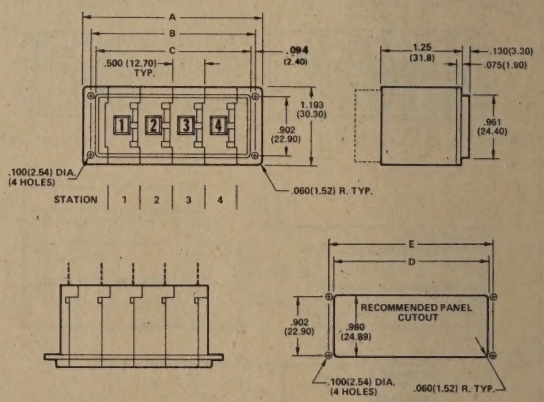
SERIES 43000
MINISWITCH®
WITH OPTIONAL LED LIGHTING



DIGITRAN regains its position as the leader with the introduction of the new Series 43000. Interchangeable with most .500" wide switches in the field, it features snap-together construction, a minimum number of parts, optional pin terminals, and a great new optional led lighting. Available in single pole outputs, as well as most popular codes from BCD to complement of nines complement. Lighting color options available are red or clear with 5, 14, and 28 volt dropping resistors. Rear-mounted.

SPECIFICATIONS

Mechanical and Electrical	
Operating Force	4 to 10 ounces
Life	Over 1,000,000 detent operations at 25°C.
Weight	¼ ounce per module (approx.)
Dial Character Height	0.200"
Standard Finish and Colors	Bezel: Molded matte black; Case and Wheel: Black; Dial: Matte black background with translucent white characters
Rated Electrical Loads	.125 milliamps at 28 VAC or 28 VDC. Non-switching load 2 amps.
Contact Resistance	0.100 ohms max. initial, 0.200 ohms max. after life test.
Insulation Resistance	1000 megohms min.
Dielectric Withstanding	500 VRMS
Lighting (optional)	
Internal LED Standard Colors	Clear and Red
Environmental	
Operating Temperature	−20°C to +65°C (−4°F to +149°F)
Storage Temperature	−40°C to +85°C (−40°F to +185°F)
Moisture Resistance	1 megohms min. insulation resistance after 10-day soak at 90%-95% relative humidity.

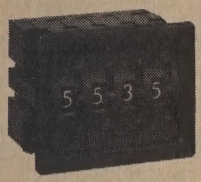


NO. OF MODULES	A	B	C	D	E
1	1.26 (32.0)	1.09 (27.7)	.90 (22.9)	.92 (23.4)	1.09 (27.7)
2	1.76 (44.7)	1.59 (40.4)	1.40 (35.6)	1.42 (36.1)	1.59 (40.4)
3	2.26 (57.4)	2.09 (53.1)	1.90 (48.3)	1.92 (48.8)	2.09 (53.1)
4	2.76 (70.1)	2.59 (65.8)	2.40 (61.0)	2.42 (61.5)	2.59 (65.8)
5	3.26 (82.8)	3.09 (78.5)	2.90 (73.7)	2.92 (74.2)	3.09 (78.5)
6	3.76 (95.5)	3.59 (91.2)	3.40 (86.4)	3.42 (86.9)	3.59 (91.2)
7	4.26 (108.2)	4.09 (103.9)	3.90 (99.1)	3.92 (99.6)	4.09 (103.9)
8	4.76 (120.9)	4.59 (116.6)	4.40 (111.8)	4.42 (112.3)	4.59 (116.6)
9	5.26 (133.6)	5.09 (129.3)	4.90 (124.5)	4.92 (125.0)	5.09 (129.3)
10	5.76 (146.3)	5.59 (142.0)	5.40 (137.2)	5.42 (137.7)	5.59 (142.0)

PRICES LISTED ARE FOR GUIDANCE ONLY

DIGITAL SWITCHES and DATA ENTRY DEVICES DIGITRAN®

SERIES 44000
MINISWITCH®
WITH OPTIONAL LED LIGHTING



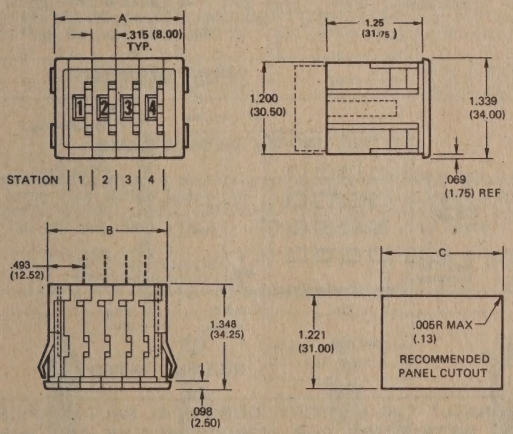
For those who want a front mount switch, the series 44000 fills the need. Interchangeable with most other 8MM (.315") wide switches, the series 44000 front mount switch features the same simplicity of construction as the series 43000. In addition, it features snap-in panel mounting for low cost, rapid assembly. Like the series 43000 it is available in single pole, as well as coded outputs. Lighting options are available in red or clear and with 5, 14, and 28 volt dropping resistors.

SPECIFICATIONS

Mechanical and Electrical
Operating Force . . . . . 4 to 10 ounces
Life . . . . . Over 1,000,000 detent operations at 25°C.
Weight . . . . . ¼ ounce per module (approx.)
Dial Character Height . . . . . 0.200"
Standard Finish and Colors . . . . . Bezel: Molded matte black; Case and Wheel: Black; Dial: Matte black background with translucent white characters
Rated Electrical Loads . . . . . .125 milliamps at 28 VAC or 28 VDC. Non-switching load 2 amps.
Contact Resistance . . . . . 0.100 ohms max. initial, 0.200 ohms max. after life test.
Insulation Resistance . . . . . 1000 megohms min.
Dielectric Withstanding . . . . . 500 VRMS

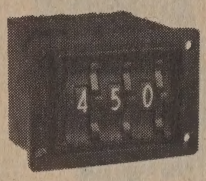
Lighting (optional)
Internal LED Standard Colors . . . . . Clear and Red

Environmental
Operating Temperature . . . . . −20°C to +65°C (−4°F to +149°F)
Storage Temperature . . . . . −40°C to +85°C (−40°F to +185°F)
Moisture Resistance . . . . . 1 megohms min. insulation resistance after 10-day soak at 90%-95% relative humidity.



NO. OF MODULES	A	B (REAR DIM.)	C
1	.728 (18.5)	.630 (16.00)	.669 (17.00)
2	1.043 (26.5)	.945 (24.00)	.984 (25.00)
3	1.358 (34.5)	1.260 (32.00)	1.299 (33.00)
4	1.673 (42.5)	1.575 (40.00)	1.614 (41.00)
5	1.988 (50.5)	1.890 (48.00)	1.929 (49.00)
6	2.303 (58.5)	2.205 (56.00)	2.244 (57.00)
7	2.618 (66.5)	2.520 (64.00)	2.559 (65.00)
8	2.933 (74.5)	2.835 (72.00)	2.874 (73.00)
9	3.248 (82.5)	3.150 (80.00)	3.189 (81.00)
10	3.563 (90.5)	3.465 (88.00)	3.504 (89.00)

SERIES 45000
MINISWITCH®
WITH OPTIONAL LED LIGHTING



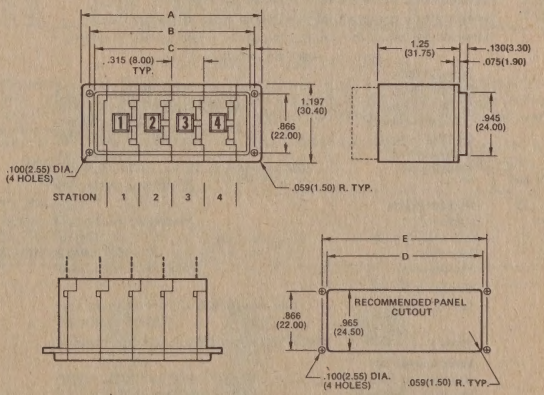
For those who want the clean appearance of a rear-mounted switch, as well as the panel saving 8mm (.315") wide spacing, the series 45000 fills both needs. It features the same simplistic design and snap-together construction as the 43000 and 44000. It features the same options in code outputs, pin options, and led lighting options to give you almost limitless design parameters. Another great new switch from DIGITRAN.

SPECIFICATIONS

Mechanical and Electrical
Operating Force . . . . . 4 to 10 ounces
Life . . . . . Over 1,000,000 detent operations at 25°C.
Weight . . . . . ¼ ounce per module (approx.)
Dial Character Height . . . . . 0.200"
Standard Finish and Colors . . . . . Bezel: Molded matte black; Case and Wheel: Black; Dial: Matte black background with translucent white characters
Rated Electrical Loads . . . . . .125 milliamps at 28 VAC or 28 VDC. Non-switching load 2 amps.
Contact Resistance . . . . . 0.100 ohms max. initial, 0.200 ohms max. after life test.
Insulation Resistance . . . . . 1000 megohms min.
Dielectric Withstanding . . . . . 500 VRMS

Lighting (optional)
Internal LED Standard Colors . . . . . Clear and Red

Environmental
Operating Temperature . . . . . −20°C to +65°C (−4°F to +149°F)
Storage Temperature . . . . . −40°C to +85°C (−40°F to +185°F)
Moisture Resistance . . . . . 1 megohms min. insulation resistance after 10-day soak at 90%-95% relative humidity.



NO. OF MODULES	A	B	C	D	E
1	1.02 (26.0)	.827 (21.0)	.591 (15.0)	.610 (15.5)	.827 (21.0)
2	1.34 (34.0)	1.142 (29.0)	.906 (23.0)	.925 (23.5)	1.142 (29.0)
3	1.65 (42.0)	1.457 (37.0)	1.220 (31.0)	1.240 (31.5)	1.457 (37.0)
4	1.97 (50.0)	1.772 (45.0)	1.535 (39.0)	1.555 (39.5)	1.772 (45.0)
5	2.28 (58.0)	2.087 (53.0)	1.850 (47.0)	1.870 (47.5)	2.087 (53.0)
6	2.60 (66.0)	2.402 (61.0)	2.165 (55.0)	2.185 (55.5)	2.402 (61.0)
7	2.91 (74.0)	2.717 (69.0)	2.480 (63.0)	2.500 (63.5)	2.717 (69.0)
8	3.23 (82.0)	3.031 (77.0)	2.795 (71.0)	2.815 (71.5)	3.031 (77.0)
9	3.54 (90.0)	3.346 (85.0)	3.110 (79.0)	3.130 (79.5)	3.346 (85.0)
10	3.86 (98.0)	3.661 (93.0)	3.425 (87.0)	3.445 (87.5)	3.661 (93.0)

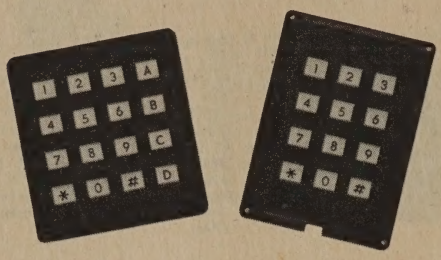
DIGITAL SWITCHES and DATA ENTRY DEVICES

DIGITRAN®

SERIES KL

MINIKEY

LOW PROFILE KEYBOARDS
12 OR 16 KEY MATRIX



LOW PROFILE...
MINIKEYS are less than 5/16" high from the top of the key to the rear suface, yet key stroke is almost 1/16".

TACTILE FEEL...
Key operation is positive, natural and quiet. . .the ideal "tactile feel" for keyboards of this type.

RELIABILITY...
MINIKEYS are made to last over 1,000,000 operations per key, (MTBF) when switching a 50 milliamp resistive load at 28VDC. Precious metal contacts ensure contact closure and reliable performance in "dry circuits" and "logic circuits".

VERSATILITY...
MINIKEYS may be used just about anywhere Key operated data entry is required.

- Front or real of panel mounting versions available. ● Frame and key colors may be specified by the user, at extra cost. ● Special key legends may be specified by the user, at additional cost. ● Two basic frame designs provide the user with a maximum of 12 Keys in a 3 x 4 Key matrix or 16 Keys in a 4 x 4 Key matrix. ● Electrical terminations with Pin terminations are standard. Special terminations provided at additional cost. ● Touch Tone* versions available. ● A moisture barrier protects the contacts.

SPECIFICATIONS

Electrical Data

Contact rating	50 ma @ 28VDC resistive
Contact resistance	500 milliohms max @.2 ma @ 17VDC
Insulation resistance	250 megohms min.
Dielectric Strength	250 VAC min @ 60Hz
Contact bounce	3 milliseconds, max.
Operating life	1,000,000 operations per Key, MTBF, @ 28VDC, 50 milliamp resistive load

Mechanical Data

Terminations	Per detailed specifications
Key actuation force	90 ±30 grams
Key travel	.050" nominal
Key overtravel	30% of Key travel, nominal

Materials & Finishes

Keytops	2-shot molded ABS with white keys and black legends are standard.
Housing	Molded ABS, black with textured finish is standard.

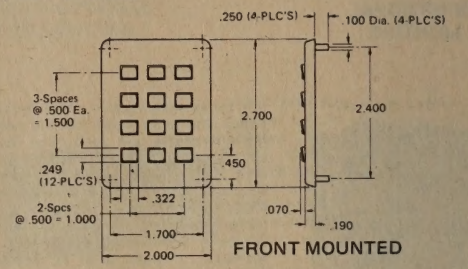
Environmental Data

Operating temperature	+32°F, (0°C) to +131°F, (+55°F)
Storage temperature	-40°F, (-40°C) to +160°F, (+71°C)
Relative humidity	0 to 95% (Non-condensing)

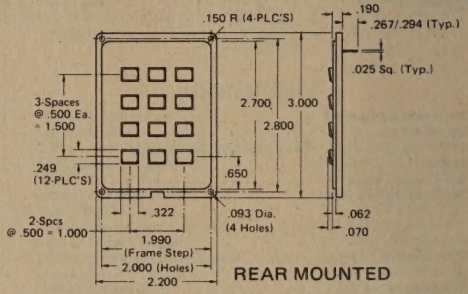
*Touch Tone is a registered Trademark of A T & T.

LINE DRAWINGS

12 KEY MATRIX

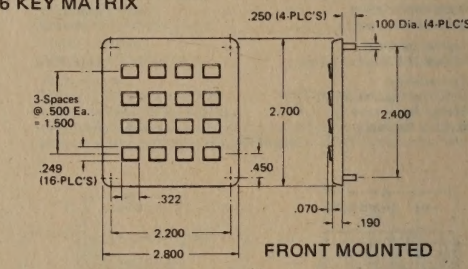


FRONT MOUNTED

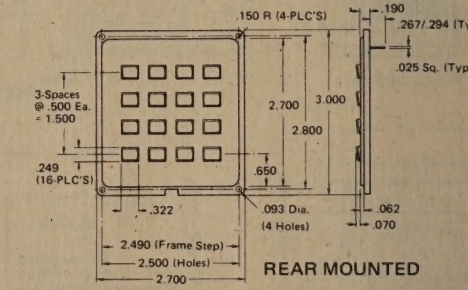


REAR MOUNTED

16 KEY MATRIX



FRONT MOUNTED



REAR MOUNTED

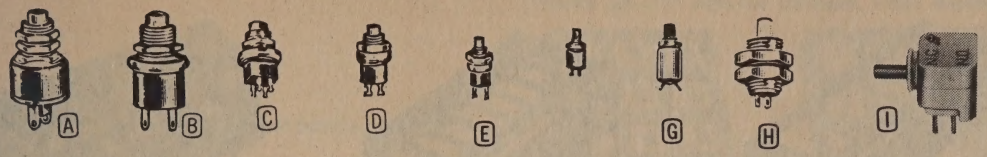
CONSULT THE FACTORY, OUR LOCAL SALES OFFICE OR DISTRIBUTOR FOR SPECIFIC PRICING AND OUR LIBERAL QUANTITY DISCOUNTS.

THE DIGITRAN® COMPANY

A Division of Becton, Dickinson and Company BD

PRICES LISTED ARE FOR GUIDANCE ONLY

Grayhill INC. Pushbutton Switches



SERIES 2000 SNAP ACTION (FIG. A)

Momentary contact design; solder terminals or "Faston" terminal to accommodate ¼" push-on termination. Extremely fast make-and-break; audible click produced by snap action mechanism. Fine silver fixed and moving contacts. **Total Button Travel:** .065" approx. **Rated:** 10 amps at 115 VAC resistive for 25,000 operations. **Mounting:** $^{15}/_{32}$-UNS-2A thread .454" long Fits $^{31}/_{64}$" dia. hole. **Size:** .880" O.D.; 1.176" behind panel; 1.903" overall; No. 7-26, 1.239" behind panel; 1.966" overall.

Grayhill Number	Description	Net Ea., Lots 1-49	50-99
2201	SPST-NO, red button	$5.60	$4.76
7-7	SPST-NO, black button	5.60	4.76
2202	SPST-NC, black button	6.00	5.10
7-8	SPST-NC, red button	6.00	5.10

SERIES 4000 WIPING CONTACT (FIG. B)

Available in standard contact action or positive-feel contact action (10-100, 10-101); detent system is independent of contact system. Silver-plated beryllium copper contact solder terminals; tinned music wire spring. **Total Button Travel:** .140" ± .032" (4001, 10-9, 10-100); .110" + .020" – .010" (4002, 10-10, 10-101). **Rated:** 1 amp at 115 VAC resistive for 100,000 operations. **Mounting:** $^{15}/_{32}$-32 UNS-2A thread, .375" long. Fits $^{31}/_{64}$" dia. hole. **Size:** .800" O.D.; .965" behind panel; 1.50" overall.

4001	SPST-NO, red button	$2.05	$1.74
4001UL	SPST-NO, red button	2.05	1.74
10-9	SPST-NO, black button	2.05	1.74
10-9UL*	SPST-NO, black button	2.05	1.74
10-100	SPST-NO, red button, pos. feel	3.10	2.64
10-101	SPST-NC, black button, pos. feel	3.10	2.64

*UL Listed.

SERIES 35 DOUBLE POLE (FIG. C)

Momentary contact switch has fine silver contact solder terminals; tinned music wire spring. **Total Button Travel:** .062" ± .015". **Rated:** ½ amp at 115 VAC resistive for 100,000 operations. **Mounting:** $^{15}/_{32}$-32 UNS-2A thread, .375" long. Fits in $^{31}/_{64}$" dia. hole. **Size:** .800" O.D.; .743" behind panel; 1.274" overall.

35-1	DPST-NO, red button	$2.92	$2.48
35-3	DPST-NO, black button	2.92	2.48

SERIES 23 WIPING CONTACT (FIG. D)

Miniature switches with silver-plated brass contact solder terminals; tinned music wire spring. **Total Button Travel:** .095" ± .010". **Rated:** ¼ amp at 115 VAC resistive for 100,000 operations. **Mounting:** $^{5}/_{16}$-32 UNEF-2A thread .250" long. Fits $^{21}/_{64}$" dia. hole. **Size:** .468" O.D.; .663" behind panel; 1.059" overall.

23-1	SPST-NO, red button	$2.00	$1.70
23-4	SPST-NO, black button	2.00	1.70

SERIES 30 BUTT CONTACT (FIG. E)

Miniature SPST-NO or -NC momentary contact switches have fine silver shorting bar and contact solder terminals. **Total Travel:** .062" ± .010" (30-1, -3); .065" + .010" – .015" (30-2, 6); .125" + .020" – .010" (30-15, – 37). **Rated:** 1 amp at 115 VAC resistive or one-million operations (500,000 operations 30-15, – 37). **Mounting:** ¼-32 UNEF-2A thread .250" long. Fits $^{17}/_{64}$" dia. hole. **Size:** 592" behind panel, .992" overall (30-1, -3); .605" behind panel. 1.005" overall (30-2, -6); .677" behind panel, 1.077" overall (30-15, -37).

Grayhill Number	Description	Net Ea., Lots 1-49	50-99
30-1	SPST-NO, red button	$1.47	$1.25
30-1UL*	SPST-NO, red button	1.47	1.25
30-2	SPST-NC, black button	1.65	1.40
30-2UL*	SPST-NC, black button	1.65	1.40
30-3	SPST-NO, black button	1.47	1.25
30-3UL*	SPST-NO, black button	1.47	1.25
30-6	SPST-NC, red button	1.65	1.40
30-64L*	SPST-NC, red button	1.65	1.40
30-15#	SPST-NO, red button	1.83	1.56
30-37#	SPST-NO, black button	1.83	1.56

*UL Listed. #.020" overtravel.

SERIES 39 BUTT CONTACT

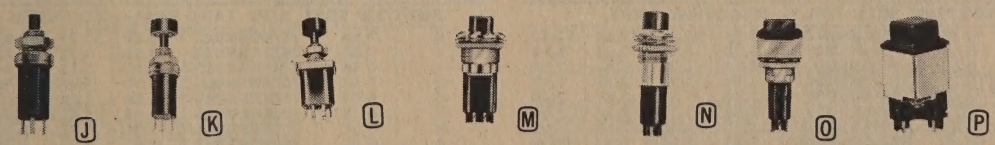
SPST-NO types have molded-in solder terminals in diallyl base; prevents flux contamination. Overtravel .015" min. (39-12) and .080" min. (39-101). Fine silver gold plated shorting bar and contact solder terminals. Limit switch 39-101 has nylon button and laminated phenolic insulator. **Voltage Breakdown:** 500 VAC between mutually insulated parts (39-101, 1000 VAC). **Total Button Travel:** .035" ± .015" (39-1, -3); .042" ± .010" (39-2); .130" ± .025" (39-12); .186" ± .025" (39-101). **Rated:** ½ amp at: one million operations (39-1, -3), 250,000 operations (39-101), 100,000 operations (39-12); rated ¼ amp at 250,000 operations (39-2). **Mounting:** 8-40 UNS-2A thread .125" long, fits $^{11}/_{64}$" dia. hole except 39-101, $^{5}/_{16}$-32 UNEF-2A thread .500" long. fits $^{21}/_{64}$" "D" shaped hole. **Size:** .315" behind panel, .615" overall (39-1, -3); .455" behind panel, .755" overall (39-12); .490" behind panel, .780" overall (39-2); .650" plus .187" long button (39-101).

Grayhill No.	Fig.	Description	Net Ea., Lots 1-49	50-99
39-1	F	SPST-NO, red button	$2.21	$1.88
39-3	F	SPST-NO, black button	2.21	1.88
39-2	G	SPST-NC, black button	3.25	2.76
39-12	F	SPST-NO, black or red button	2.73	2.32
39-101	H	SPST-NO, white button	4.53	3.85

SERIES 39-250 PC MOUNT (FIG. 1)

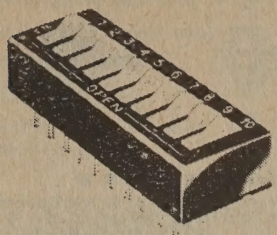
Momentary type, SPDT, butt contact switches rated at ¼ amp at 28 VDC or 115 VAC, resistive. Contact Resistance, 25 milliohms or less, initial. Voltage Rating. 1000 VAC. Life Expectancy, 500,000 operations. Protective cap (reusable) seals switch during flux cleaning operation.

Grayhill Number	Description	Net Ea., Lots 1-49	50-99
39-251 RED	Switch only	$1.25	$1.06
39-251 BLK	Switch only	1.25	1.06
39-250 RED	Switch and protective cap	1.50	1.28
39-250 BLK	Switch and protective cap	1.50	1.28

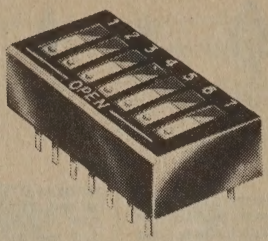


Grayhill Number	Fig.	Button Color	Circuitry	Current at 115 VAC Resistive	Operations at Rated Load	Net Each, Lots of 1-49	50-99
46-101 RED	J	Red	SPDT	¼ Amp	250,000	$2.15	$1.83
46-101 BLK	J	Black	SPDT	¼ Amp	250,000	2.15	1.83
46-102 RED (CAP)	K	Red	SPDT	¼ Amp	250,000	2.26	1.92
46-102 BLK (CAP)	K	Black	SPDT	¼ Amp	250,000	2.26	1.92
46-200 RED	L	Red	DPDT	¼ Amp	250,000	4.57	3.88
46-200 BLK	L	Black	DPDT	¼ Amp	250,000	4.57	3.88
46-05-05-502-0303	M	Red	SPDT	¼ Amp	250,000	3.92	3.33
46-05-05-502-0707	M	Black	SPDT	¼ Amp	250,000	3.92	3.33
46-05-08-502-0303	N	Red	DPDT	¼ Amp	250,000	5.19	4.41
46-05-08-502-0707	N	Black	DPDT	¼ Amp	250,000	5.19	4.41
46-01-05-500-0303	N	Red	SPDT	¼ Amp	250,000	4.90	4.17
46-01-05-500-0707	O	Black	SPDT	¼ Amp	250,000	4.90	4.17
46-01-08-500-0303	P	Red	DPDT	¼ Amp	250,000	6.17	5.24
46-01-08-500-0707	P	Black	DPDT	¼ Amp	250,000	6.17	5.24

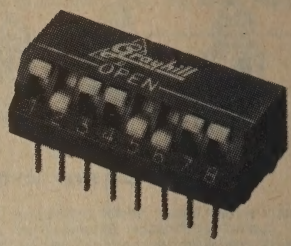
SERIES 76 ROCKER DIP SWITCHES



Raised Type



Recessed Type



Side-Actuated Type

The raised and recessed SPST rocker-actuated switches in Series 76 are intended for application in data processing, communications and other back panel and logic equipment where manual programming may be necessary. The switches are spring-loaded and the sliding ball contact system provides a degree of wiping action. The military qualified version meets military specifications MS83504/1 and MS83504/2. Switches feature plastic resin potting to prevent flux entry during wave soldering. Also available with a tape seal on top of the switches to prevent flux and cleaning solution entry. **Size:** .380" w. x .305" h.—see tables for length. Housing is red polyester. Contacts and terminals are gold plated brass. The side actuated type permits easy access when mounted on the edge of closely racked boards.

INDUSTRIAL TYPES

No. of Switches	Length, Inches	Grayhill Number	Net Each, Lots of 1-9	10-24	25-49	50-99
BOTTOM SEAL ONLY—RAISED TYPE						
2	0.28	76SB02	$2.90	$2.67	$2.29	$1.74
3	0.38	76SB03	3.00	2.76	2.37	1.80
4	0.48	76SB04	3.10	2.85	2.45	1.86
5	0.58	76SB05	3.20	2.94	2.53	1.92
6	0.68	76SB06	3.30	3.04	2.61	1.98
7	0.78	76SB07	3.35	3.08	2.65	2.01
8	0.88	76SB08	3.45	3.17	2.73	2.07
9	0.98	76SB09	3.55	3.27	2.80	2.13
10	1.08	76SB10	3.60	3.31	2.84	2.16
BOTTOM SEAL ONLY—RECESSED TYPE						
2	0.28	76RSB02	$2.90	$2.67	$2.29	$1.74
3	0.38	76RSB03	3.00	2.76	2.37	1.80
4	0.48	76RSB04	3.10	2.85	2.45	1.86
5	0.58	76RSB05	3.20	2.94	2.53	1.92
6	0.68	76RSB06	3.30	3.04	2.61	1.98
7	0.78	76RSB07	3.35	3.08	2.65	2.01
8	0.88	76RSB08	3.45	3.17	2.73	2.07
9	0.98	76RSB09	3.55	3.27	2.80	2.13
10	1.08	76RSB10	3.60	3.31	2.84	2.16

No. of Switches	Length, Inches	Grayhill Number	Net Each, Lots of 1-9	10-24	25-49	50-99
BOTTOM SEAL AND TAPE SEAL—RAISED TYPE						
2	0.28	76SB02S	$3.10	$2.85	$2.45	$1.86
3	0.38	76SB03S	3.20	2.94	2.53	1.92
4	0.48	76SB04S	3.30	3.04	2.61	1.98
5	0.58	76SB05S	3.40	3.13	2.67	2.04
6	0.68	76SB06S	3.50	3.22	2.77	2.10
7	0.78	76SB07S	3.55	3.27	2.80	2.13
8	0.88	76SB08S	3.65	3.36	2.88	2.19
9	0.98	76SB09S	3.75	3.45	2.96	2.25
10	1.08	76SB10S	3.80	3.50	3.00	2.28
BOTTOM SEAL AND TAPE SEAL—RECESSED TYPE						
2	0.28	76RSB02S	$3.10	$2.85	$2.45	$1.86
3	0.38	76RSB03S	3.20	2.94	2.53	1.92
4	0.48	76RSB04S	3.30	3.04	2.61	1.98
5	0.58	76RSB05S	3.40	3.13	2.67	2.04
6	0.68	76RSB06S	3.50	3.22	2.77	2.10
7	0.78	76RSB07S	3.55	3.27	2.80	2.13
8	0.88	76RSB08S	3.65	3.36	2.88	2.19
9	0.98	76RSB09S	3.75	3.45	2.96	2.25
10	1.08	76RSB10S	3.80	3.50	3.00	2.28

MILITARY QUALIFIED TYPES
RAISED ROCKER—MS83504/01
RECESSED ROCKER—MS83504/02

No. of Switches	Length, Inches	Grayhill Number	Net Each, Lots of 1-9	10-24	25-49	50-99
BOTTOM SEAL ONLY—RAISED TYPE						
2	0.28	76MSB02	$3.20	$2.94	$2.53	$1.92
3	0.38	76MSB03	3.30	3.04	2.61	1.98
4	0.48	76MSB04	3.40	3.13	2.67	2.04
5	0.58	76MSB05	3.50	3.22	2.77	2.10
6	0.68	76MSB06	3.60	3.31	2.84	2.16
7	0.78	76MSB07	3.65	3.36	2.88	2.19
8	0.88	76MSB08	3.75	3.45	2.96	2.25
9	0.98	76MSB09	3.85	3.50	3.00	2.28
10	1.08	76MSB10	3.90	3.59	3.08	2.34
BOTTOM SEAL ONLY—RECESSED TYPE						
2	0.28	76MRSB02	$3.20	$2.94	$2.53	$1.92
3	0.38	76MRSB03	3.30	3.04	2.61	1.98
4	0.48	76MRSB04	3.40	3.13	2.67	2.04
5	0.58	76MRSB05	3.50	3.22	2.77	2.10
6	0.68	76MRSB06	3.60	3.31	2.84	2.16
7	0.78	76MRSB07	3.65	3.36	2.88	2.19
8	0.88	76MRSB08	3.75	3.45	2.96	2.25
9	0.98	76MRSB09	3.85	3.50	3.00	2.28
10	1.08	76MRSB10	3.90	3.59	3.08	2.34

No. of Switches	Length, Inches	Grayhill Number	Net Each, Lots of 1-9	10-24	25-49	50-99
BOTTOM SEAL AND TAPE SEAL—RAISED TYPE						
2	0.28	76MSB02S	$3.40	$3.13	$2.67	$2.04
3	0.38	76MSB03S	3.50	3.22	2.77	2.10
4	0.48	76MSB04S	3.60	3.31	2.84	2.16
5	0.58	76MSB05S	3.70	3.40	2.92	2.22
6	0.68	76MSB06S	3.80	3.50	3.00	2.28
7	0.78	76MSB07S	3.85	3.54	3.04	2.31
8	0.88	76MSB08S	3.95	3.63	3.12	2.37
9	0.98	76MSB09S	4.05	3.73	3.20	2.43
10	1.08	76MSB10S	4.10	3.77	3.24	2.46
BOTTOM SEAL AND TAPE SEAL—RECESSED TYPE						
2	0.28	76MRSB02S	$3.40	$3.13	$2.67	$2.04
3	0.38	76MRSB03S	3.50	3.22	2.77	2.10
4	0.48	76MRSB04S	3.60	3.31	2.84	2.16
5	0.58	76MRSB05S	3.70	3.40	2.92	2.22
6	0.68	76MRSB06S	3.80	3.50	3.00	2.28
7	0.78	76MRSB07S	3.85	3.54	3.04	2.31
8	0.88	76MRSB08S	3.95	3.63	3.12	2.37
9	0.98	76MRSB09S	4.05	3.73	3.20	2.43
10	1.08	76MRSB10S	4.10	3.77	3.24	2.46

THE PIANO-DIP™
SIDE-ACTUATED TYPE

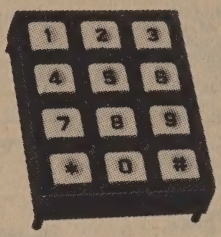
No. of Switches	Length, Inches	Grayhill Number	Net Each, Lots of 1-9	10-24	25-49	50-99
BOTTOM SEAL ONLY—SIDE ACTUATED						
4	0.48	76PSB04	$4.65	$4.28	$3.91	$3.67
5	0.58	76PSB05	4.80	4.42	4.03	3.79
6	0.68	76PSB06	4.95	4.55	4.16	3.91
7	0.78	76PSB07	5.10	4.69	4.28	4.03
8	0.88	76PSB08	5.25	4.83	4.41	4.15
9	0.98	76PSB09	5.40	4.97	4.54	4.27
10	1.08	76PSB10	5.55	5.11	4.66	4.38

No. of Switches	Length, Inches	Grayhill Number	Net Each, Lots of 1-9	10-24	25-49	50-99
BOTTOM SEAL ONLY—RECESSED TYPE						
4	0.48	76PSB04S	$4.95	$4.55	$4.16	$3.91
5	0.58	76PSB05S	5.10	4.69	4.28	4.03
6	0.68	76PSB06S	5.25	4.83	4.41	4.15
7	0.78	76PSB07S	5.40	4.97	4.54	4.27
8	0.88	76PSB08S	5.55	5.11	4.66	4.38
9	0.98	76PSB09S	5.70	5.24	4.79	4.50
10	1.08	76PSB10S	5.85	5.38	4.91	4.62

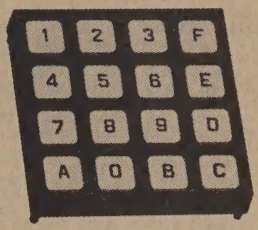
Grayhill INC 3x4 & 4x4 Keyboards

- Positive audible and tactile feedback.
- Logic compatible when used with standard buffering techniques.
- 3,000,000 operations per button.
- Low profile—recessed buttons in molded-in legend style.

SERIES 83—½" BUTTON CENTERS, POST MOUNTING

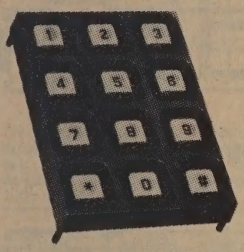


1.6" x 2.1"

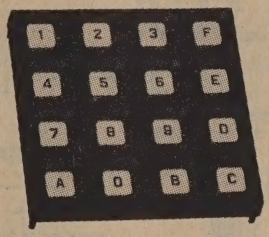


2.1" Square

SERIES 84—¾" BUTTON CENTERS, POST MOUNTING

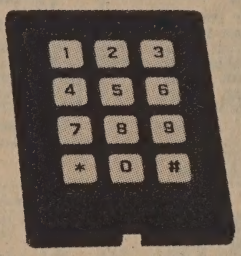


2.25" x 3.0"

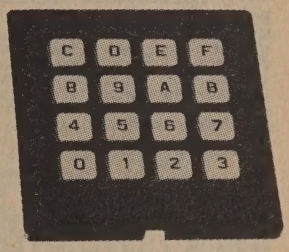


3.0" Square

SERIES 86—½" BUTTON CENTERS, FLANGE MOUNTING*



2.2" x 3.0"

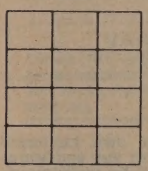


2.7" x 3.0"

*Series 86 also available in sealed version. Ask for Series 86 keyboard information.

3 x 4 LEGEND CHOICES

-001



Self Legend Snap-on Caps

-002

1	2	3
4	5	6
7	8	9
*	0	#

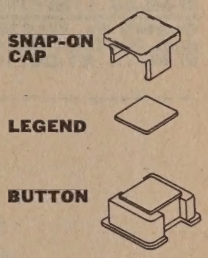
-003

1	ABC 2	DEF 3
GHI 4	JKL 5	MNO 6
PRS 7	TUV 8	WXY 9
*	OPER 0	#

Two-Shot Molded Buttons Black Legend on White

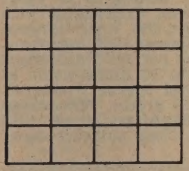
SNAP-ON CAP

Clear snap-on cap removes easily to allow for self legending of prototypes. Legend card is available with most of the popular legends. Legend peels off of card and is adhesive backed to hold firmly in place. Snap-on cap versions project approximately 0.015" above surface of keyboard.



4 x 4 LEGEND CHOICES

-004



Self Legend Snap-on Caps

-005

0	1	2	3
4	5	6	7
8	9	A	B
C	D	E	F

-006

C	D	E	F
8	9	A	B
4	5	6	7
0	1	2	3

Two-Shot Molded Buttons Black Legend on White

-101

1	2	3	C
4	5	6	D
7	8	9	E
A	0	B	F

-102

1	2	3	F
4	5	6	E
7	8	9	D
A	0	B	C

-103

1	ABC 2	DEF 3	A
GHI 4	JKL 5	MNO 6	B
PRS 7	TUV 8	WXY 9	C
*	OPER 0	#	D

Two-Shot Molded Buttons, Black Legend on White

HOW TO ORDER

83A — A1 — 103

Ⓐ Ⓑ Ⓒ

Ⓐ **Series Number**

3 x 4 Keyboard
- **83A**—½" centers, post mounting
- **84A**—¾" centers, post mounting
- **86A**—½" centers, flange mounting

4 x 4 Keyboard
- **83B**—½" centers, post mounting
- **84B**—¾" centers, post mounting
- **86B**—½" centers, flange mounting

Ⓑ **Vertical Pinout—Series 83 and 84**
- **A1**—2 out of 7 code (2 out of 8, 16 button)
- **B1**—Matrix code
- **C1**—Single pole/common bus

In-Line Pinout—Series 86
- **A2**—2 out of 7 code (2 out of 8, 16 button)
- **B2**—Matrix code
- **C2**—Single pole/common bus

Ⓒ **Legend Option Dash Number**

Specify **-101, -102** or **-103** for 12 buttons; **-001, -002, -003, -004, -005** or **-006** for 16 buttons.

Series Code	No. of Buttons	Circuit Code	Net Each, Lots of 1-49	50-99	100-499	500-999
83A	12	A1	$10.00	$8.50	$7.50	$6.40
		B1	9.00	7.65	6.75	5.76
		C1	9.50	8.08	7.13	6.00
86A		A2	10.00	8.50	7.50	6.40
		B2	9.00	7.65	6.75	5.76
		C2	9.50	8.08	7.13	6.00
84A		A1	11.00	9.35	8.25	7.04
		B1	10.00	8.50	7.50	6.40
		C1	10.50	8.93	7.88	6.72
83B	16	A1	11.00	9.35	8.25	7.04
		B1	10.00	8.50	7.50	6.40
		C1	10.50	8.93	7.88	6.72
86B		A2	11.00	9.35	8.25	7.04
		B2	10.00	8.50	7.50	6.40
		C2	10.50	8.93	7.88	6.72
84B		A1	12.50	10.63	9.38	8.00
		B1	10.50	8.93	7.88	6.72
		C1	11.50	9.78	8.63	7.36

Grayhill INC Keyboard Modules

SERIES 82 PUSHBUTTON MODULES

These switches can be used to generate coded outputs for control systems of all kinds. By combining these different modules on the appropriate circuit board, arrays of any size or shape can be assembled easily. Switching capabilities are practically endless, since any code up to 7-wire can be accomplished right in the switches. No extra logic is required. **Size:** 1-button module, .683″ w x .683″ l; 2-button module, .683″ w x 1.37″ l; 3-button module, .683″ w x 2.057″ l; 6-button module, 1.37″ w x 2.057″ l. All models stand .750″ high above mounting surface. Also available with a clear cap to allow insertion of a legend.

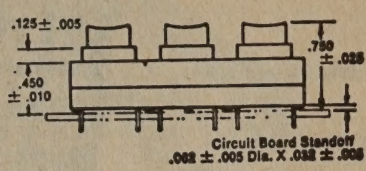
SERIES 82 WITH INSERTABLE LEGENDS

Switches are available with clear protective cap slotted on one side to allow insertion of a clear plastic tab imprinted with the legend. A legend sheet is available with all normally required legends for both vertical and horizontal mounting. Only standard switch circuitry is available. All switches are normally open.

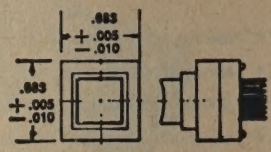
Grayhill No.	No. of Buttons	Circuit	Net Each, Lots of 1-49	50-99	100-499
82-101-71	1	SPST	$2.00	$1.70	$1.50
82-101-74	1	4PST	2.35	2.00	1.76
82-201-41	2	SPST	3.30	2.81	2.48
82-201-44	2	4PST	3.95	3.36	2.96
82-301-61	3	SPST	4.55	3.87	3.41
82-301-64	3	4PST	5.55	4.72	4.16
82-601-81	6	SPST	8.40	7.14	6.30
82-601-84	6	4PST	10.40	8.84	7.80

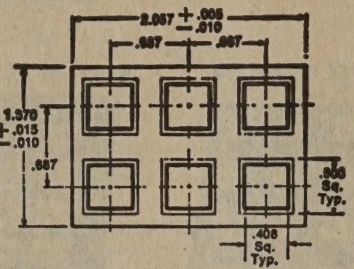
Grayhill No. 82AC2017—Clear legend sheet. Net Each, Lots of: 1–9....**$1.25** 50–99.....**$1.06**; 100–499.... **.94**

6 BUTTON MODULE

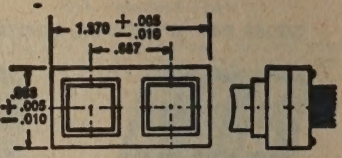


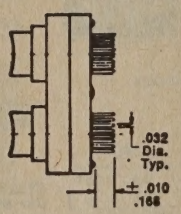
1 BUTTON MODULE



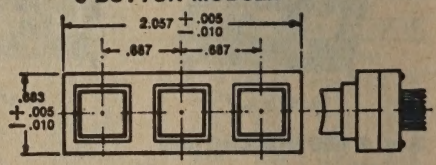


2 BUTTON MODULE

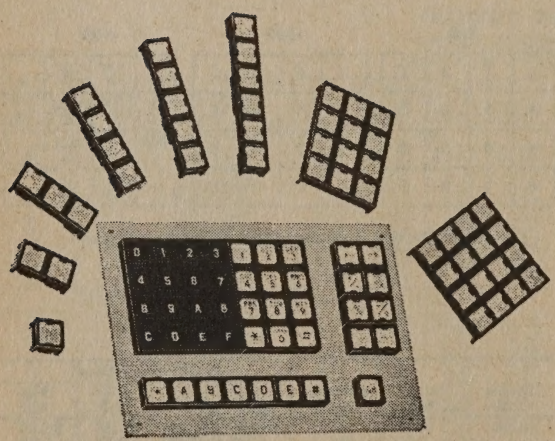




3 BUTTON MODULE



SYSTEM 87 KEYBOARD MODULES



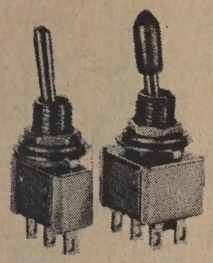
Select the modules you require to build your own keyboard design. The modules can be stacked side-by-side in any configuration that is required and ½″ button centers will be maintained. Circuitry is single pole/common bus in the single-row switches and single pole/common bus or matrix code in the 3 x 4 or 4 x 4 keyboard pads. If you wish, Grayhill will design and provide a custom keyboard to your specifications. Details are available on request. The snap-on caps enable you to legend the buttons as required. A legend card is available from Grayhill. Switches feature positive audio and tactile feedback. **Rating at 24 VDC:** 10 milliamperes, resistive. **Contact Resistance:** Compatible with MOS, TTL and DTL. **Voltage Breakdown:** 250 VAC between mutually insulated parts. **Insulation Resistance:** 1000 megohms, min. **Life Expectancy:** 3,000,000 operations per button. **Contact Bounce:** Less than 4 milliseconds at make, 10 milliseconds at break. **Button Travel:** 0.011″ nominal, total travel. **Pretravel:** 0.008″ nominal. **Operating Force:** 220, ±40 grams. **Mounting:** Mounts to 1/32″ to ⅛″ thick PC board. **Housing:** Black ABS plastic. **Buttons:** White ABS plastic. **Cap:** Clear polycarbonate. **Terminals:** Copper alloy, CDA 725.

Type of Module	Grayhill Number	Size, Inches H. x L.	Net Each, Lots of 1-49	50-99	100-499
1 Button	87CC3-201	.490 x .490	$1.45	$1.23	$1.08
2 Buttons	87DC3-201	.490 x .990	2.10	1.79	1.58
3 Buttons	87EC3-201	.490 x 1.490	2.70	2.30	2.03
4 Buttons	87FC3-201	.490 x 1.990	3.60	3.06	2.70
5 Buttons	87GC3-201	.490 x 2.490	4.50	3.83	3.38
6 Buttons	87HC3-201	.490 x 2.990	5.00	4.25	3.75
3 x 4 Matrix Code	87AB3-201	1.990 x 1.490	8.50	7.23	6.37
3 x 4 Single Pole/ Common Bus	87AC3-201	1.990 x 1.490	9.00	7.65	6.75
4 x 4 Matrix Code	87BB3-201	1.990 x 1.990	11.00	9.35	8.25
4 x 4 Single Pole/ Common Bus	87BC3-201	1.990 x 1.990	11.50	9.78	8.62

PRICES LISTED ARE FOR GUIDANCE ONLY

SERIES JMT SUBMINIATURE TOGGLE SWITCHES

Combine drastic reduction in size and weight with trouble-free construction. Ideal for manually-controlled, low current, solid state devices and miniaturized circuitry. Used in computers, aircraft, electronic instruments, geophysical and portable equipment of all kinds. Mount in single hole with ¼"-40NS-2A bushing .352" lg. with keyway. Solder terminals firmly staked to withstand repeated soldering; electrical continuity of terminal is to opposite throw of lever. Distinctive green phenolic body. Bat handle. 400" lg. **Series JMT-100:** SPDT action. Body .500" × .260" × .505" deep behind panel (including terminals). Wt., 0.19 oz. **Series JMT-200:** DPDT action. Body .500" × .450" × .505" deep behind panel (incl. terminals). Wt., 0.23 oz. **Series JMT-300:** 3PDT action. Body .652" × .500" × .571" deep behind panel (including terminals), Wt., 0.28 oz. **Series JMT-400:** 4PDT action. Body .843" × .500" × .571" deep behind panel (including terminals). Wt., 0.32 oz.



JMT-100 JMT-200 WITH COLOR CAP

SPECIFICATIONS

Electrical Characteristics: Rated 5 amps nom. resistive, 125 VAC and 24 VDC. Initial contact resistance, 5 millohms max., at 3 VDC, 100 mA. Insulation resistance, 10,000 megohms min. Dielectric strength, 1kV rms at sea level. Life, 100,000 make-and-break, min., for suffix-23 models; all others 60,000, under load. **Physical Characteristics:** Coin silver switching contacts and rockers. Bright, chrome-plated brass bat handle. Phenolic case and cradle. Bushing, locking ring (1 supplied) and hex nuts (2 supplied) are nickel-plated brass. Clamp and internal-tooth lockwasher chromate treated or stainless steel. **Circuitry:** As indicated in table, below. However, they may also be used as ST (single throw) by wiring only to applicable terminals. Example: JMT-123 connects as an On-Off switch by using center terminals and terminals on one end only.

Positions	SPDT Series JMT-100 J-B-T No.	Net Each, Lots of 1-24	25-49	50-99	100-249	DPDT Series JMT-200 J-B-T No.	Net Each, Lots of 1-24	25-49	50-99	100-249
On-Off-On	JMT-121	$2.96	$2.47	$2.47	$2.15	JMT-221	$4.10	$3.47	$3.47	$3.06
On-None-On	JMT-123	2.56	2.14	2.14	2.14	JMT-223	3.56	3.04	3.04	2.68
On-None-On†	JMT-126	2.96	2.47	2.47	2.15	JMT-226	4.22	3.57	3.57	3.15
On†-Off-On†	JMT-127	2.96	2.47	2.47	2.15	JMT-227	4.10	3.47	3.47	3.06
On-Off-On†	JMT-131	2.96	2.47	2.47	2.15	JMT-231	4.22	3.57	3.57	3.15
None-On-On†	JMT-134	2.96	2.47	2.47	2.15	JMT-234	4.57	3.87	3.87	3.41
On-On-On	.....	.....	.....	.....	.....	JMT-232	4.51	3.80	3.80	3.33
On-On-On†	.....	.....	.....	.....	.....	JMT-233	4.91	4.11	4.11	3.64
On†-On-On†	.....	.....	.....	.....	.....	JMT-235	4.91	4.11	4.11	3.64
	3PDT Series JMT-300					**4PDT Series JMT-400**				
On-Off-On	JMT-321	$6.46	$5.47	$5.47	$4.79	JMT-421	$8.34	$7.03	$7.03	$6.23
On-None-On	JMT-323	6.05	5.15	5.15	4.51	JMT-423	7.79	6.60	6.60	5.83
On†-Off-On†	JMT-327	8.08	6.82	6.82	5.96	JMT-427	9.68	8.14	8.14	7.20
On-Off-On†	JMT-331	8.08	6.82	6.82	5.96	JMT-431	9.68	8.14	8.14	7.20
None-On-On†	JMT-334	8.08	6.82	6.82	5.96	JMT-434	9.68	8.14	8.14	7.20
On-On-On	.....	.....	.....	.....	.....	JMT-432	9.35	7.86	7.86	6.91
On-On-On†	.....	.....	.....	.....	.....	JMT-433	9.35	7.86	7.86	6.91
On†-On-On†	.....	.....	.....	.....	.....	JMT-435	9.35	7.86	7.86	6.91

*See color cap ordering information table. †Momentary position.

*COLOR CAPS

To order, add suffix (as indicated below) to switch number desired (e.g., JMT-123-**W-CAP-10A**). Add **2c** each to prices shown; **$10.00** per 1000 in bulk.

Color	Suffix W-CAP	Color	Suffix W-CAP-
White	10A	Orange	10F
Blue	10B	Yellow	10G
Red	10C	Green	10H
Black	10D	Violet	10I
Brown	10E	Gray	10J

VARIATIONS OF SERIES JMT SUBMINIATURE TOGGLE SWITCHES*

Series LFH—with Flat Handle: Identical to JMT series above, except for flat handle (paddle) lever, permanently pinned for proper alignment in operating plane. Handle is satin chrome finish with matching brass nut construction and ratings same as JMT series. Available in all circuit configurations of JMT series, including 3PDT and 4PDT, and with MPC type printed circuit terminals.

LFH

Positions	SPDT Series LFH-100 Flat Handle J-B-T No.	Net Each, Lots of 1-24	25-49	50-99	100-249	DPDT Series LFH-200 Flat Handle J-B-T No.	Net Each, Lots of 1-24	25-49	50-99	100-249
On-Off-On	LFH-121	$3.60	$3.11	$3.11	$2.79	LFH-221	$4.74	$4.11	$4.11	$3.70
On-None-On	LFH-123	3.20	2.78	2.78	2.51	LFH-223	4.20	3.68	3.68	3.32
On-None-On†	LFH-126	3.60	3.11	3.11	2.79	LFH-226	4.86	4.21	4.21	3.79
On†-Off-On†	LFH-127	3.60	3.11	3.11	2.79	LFH-227	4.74	4.11	4.11	3.70
On-Off-On†	LFH-131	3.60	3.11	3.11	2.79	LFH-231	4.86	4.21	4.21	3.79
None-On-On†	LFH-134	3.60	3.11	3.11	2.79	LFH-234	5.21	4.51	4.51	4.05
On-On-On	.....	.....	.....	.....	.....	LFH-232	5.15	4.44	4.44	3.97
On-On-On†	.....	.....	.....	.....	.....	LFH-233	5.55	4.75	4.75	4.28
On†-On-On†	.....	.....	.....	.....	.....	LFH-235	5.55	4.75	4.75	4.28
	3PDT SERIES LFH-300					**4PDT SERIES LFH-400**				
On-Off-On	LFH-321	$7.10	$6.11	$6.11	$5.43	LFH-421	$8.98	$7.67	$7.67	$6.87
On-None-On	LFH-323	6.69	5.79	5.79	5.15	LFH-423	8.43	7.24	7.24	6.47
On†-Off-On†	LFH-327	8.72	7.46	7.46	6.60	LFH-427	10.32	8.78	8.78	7.84
On-Off-On†	LFH-331	8.72	7.46	7.46	6.60	LFH-431	10.32	8.78	8.78	7.84
None-On-On†	LFH-334	8.72	7.46	7.46	6.60	LFH-434	10.32	8.78	8.78	7.84
On-On-On	.....	.....	.....	.....	.....	LFH-432	9.99	8.50	8.50	7.55
On-On-On†	.....	.....	.....	.....	.....	LFH-433	9.99	8.50	8.50	7.55
On†-On-On†	.....	.....	.....	.....	.....	LFH-435	9.99	8.50	8.50	7.55

LL

Series LL—Locking-Lever Switches: Identical to JMT series above, except for locking lever. To prevent accidental or unintentional switching, the spring-loaded locking mechanism must be released by pulling out the top of the lever against spring tension. Available with anodized natural aluminum cap and in anodized red, blue, gold, black and green.

Positions	SPDT Series LL-100 J-B-T No.	Net Each, Lots of 1-24	25-49	50-99	100-249	DPDT Series LL-200 J-B-T No.	Net Each, Lots of 1-24	25-49	50-99	100-249
On-Off-On	LL-121	$4.54	$4.05	$4.05	$3.73	LL-221	$5.68	$5.05	$5.05	$4.64
On-None-On	LL-123	4.14	3.72	3.72	3.45	LL-223	5.14	4.62	4.62	4.26
On-On-On	.....	.....	.....	.....	.....	LL-232	6.09	5.38	5.38	4.91
	3PDT Series LL-300					**4PDT Series LL-400**				
On-Off-On	LL-321	$8.04	$7.05	$7.05	$6.37	LL-421	$ 9.92	$8.61	$8.61	$7.81
On-None-On	LL-323	7.63	6.73	6.73	6.09	LL-423	9.37	8.18	8.18	7.41
On-On-On	.....	.....	.....	.....	.....	LL-432	10.93	9.44	9.44	8.49

PB

Series PB—Pushbutton Switches: SPDT pushbutton-actuated subminiature switches with 100,000 cycles average life under load—5 amps at 125 VAC. Coin silver contacts and rocker; silver plated center terminal. Bushing and plunger are nickel-plated brass. High-strength plastic body with ⅜" diam. threaded molded knob. Standard black, available red or white. Also available anodized aluminum in natural, red, blue, gold, black or green. Mount in ¼" D-hole. **Series PBI** same as PB, except smaller shaft and .200" push-on knob. Standard black, available red or white.

	100 Maintained Action					100 Momentary Action				
SPDT	PB-123	$3.28	$2.72	$2.72	$2.42	PB-126	$3.28	$2.72	$2.72	$2.42
SPDT	PBI-123	3.28	2.72	2.72	2.42	PBI-126	3.28	2.72	2.72	2.42

†Momentary position (spring return).

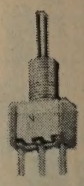
LISTING CONTINUED ON FOLLOWING PAGE

VARIATIONS OF SERIES JMT TOGGLE SWITCHES (CONT'D)

Series MPC—with PC Terminals: Identical to series JMT above, except has PC terminals for direct insertion into printed-circuit boards. Standard bat handle, bright chrome-plated brass.

Positions	SPDT Series MPC-100 J-B-T No.	Net Each, Lots of 1-24	25-49	50-99	100-249	DPDT Series MPC-200 J-B-T No.	Net Each, Lots of 1-24	25-49	50-99	100-249
On-Off-On	MPC-121	$3.02	$2.53	$2.53	$2.21	MPC-221	$4.22	$3.59	$3.59	$3.18
On-None-On	MPC-123	2.62	2.20	2.20	1.93	MPC-223	3.68	3.16	3.16	2.80
On-None-On†	MPC-126	3.02	2.53	2.53	2.21	MPC-226	4.34	3.69	3.69	3.27
On†-Off-On†	MPC-127	3.02	2.53	2.53	2.21	MPC-227	4.22	3.59	3.59	3.18
On-Off-On†	MPC-131	3.02	2.53	2.53	2.21	MPC-231	4.34	3.69	3.69	3.27
None-On-On†	MPC-134	3.02	2.53	2.53	2.21	MPC-234	4.69	3.99	3.99	3.53
On-On-On						MPC-232	4.63	3.92	3.92	3.45
On-On-On†						MPC-233	5.03	4.23	4.23	3.76
On†-On-On†						MPC-235	5.03	4.23	4.23	3.76

Positions	3PDT Series MPC-300 J-B-T No.	Net Each, Lots of 1-24	25-49	50-99	100-249	4PDT Series MPC-400 J-B-T No.	Net Each, Lots of 1-24	25-49	50-99	100-249
On-Off-On	MPC-321	$6.64	$5.65	$5.65	$4.97	MPC-421	$8.58	$7.27	$7.27	$6.47
On-None-On	MPC-323	6.23	5.33	5.33	4.69	MPC-423	8.03	6.84	6.84	6.07
On†-Off-On†	MPC-327	8.26	7.00	7.00	6.14	MPC-427	9.92	8.38	8.38	7.44
On-Off-On†	MPC-331	8.26	7.00	7.00	6.14	MPC-431	9.92	8.38	8.38	7.44
None-On-On†	MPC-334	8.26	7.00	7.00	6.14	MPC-434	9.92	8.38	8.38	7.44
On-On-On						MPC-432	9.59	8.10	8.10	7.15
On-On-On†						MPC-433	9.59	8.10	8.10	7.15
On†-On-On†						MPC-435	9.92	8.38	8.38	7.44



Series MPC

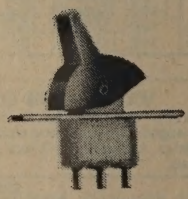
Series MR1—Rocker Switches: Same nominal rating as JMT Series, and dimensionally same below mounting bracket. Built-in extra strength in support column prevents wobbling and provides always-perfect alignment. Green body molded of glass-filled diallyl phthalate. Mounted by standoffs. Rockers are black molded nylon; red and white rockers also available. These switches also available with printed circuit, fast-on, and Wire Wrap™ terminals. Available also in 3PDT and 4PDT configurations.

Series MP1—Paddle Lever Switches: Identical to subminiature Series MR1 rocker switches, but paddle lever type.

Positions	SPDT Series MR1 and Series MP1‡ J-B-T No.	1-24	25-49	50-99	100-249	DPDT Series MR1 and Series MP1‡ J-B-T No.	1-24	25-49	50-99	100-249
On-Off-On	MR1-121	$3.40	$2.91	$2.91	$2.59	MR1-221	$4.54	$3.91	$3.91	$3.50
On-None-On	MR1-123	3.00	2.58	2.58	2.31	MR1-223	4.00	3.48	3.48	3.12
On-None-On†	MR1-126	3.40	2.91	2.91	2.59	MR1-226	4.66	4.01	4.01	3.59
On†-Off-On†	MR1-127	3.40	2.91	2.91	2.59	MR1-227	4.54	3.91	3.91	3.50
On-Off-On†	MR1-131	3.40	2.91	2.91	2.59	MRT-231	4.66	4.01	4.01	3.59
On-On-On						MR1-232	4.95	4.24	4.24	3.77
On-On-On†						MR1-233	5.35	4.55	4.55	4.08
On†-On-On†						MR1-235	5.35	4.55	4.55	4.08

Positions	3PDT Series MR1 and Series MP1 J-B-T No.	1-24	25-49	50-99	100-249	4PDT Series MR1 and Series MP1 J-B-T No.	1-24	25-49	50-99	100-249
On-Off-On	MR1-321	$6.90	$5.91	$5.91	$5.23	MR1-421	$8.78	$7.47	$7.47	$6.67
On-None-On	MR1-323	6.49	5.59	5.59	4.95	MR1-423	8.23	7.04	7.04	6.27
On†-Off-On†	MR1-327	8.52	7.26	7.26	6.40	MR1-427	10.12	8.58	8.58	7.64
On-Off-On†	MR1-331	8.52	7.26	7.26	6.40	MR1-431	10.12	8.58	8.58	7.64
On-On-On						MR1-432	9.79	8.30	8.30	7.35
On-On-On†						MR1-433	9.79	8.30	8.30	7.35
On†-On-On†						MR1-435	9.79	8.30	8.30	7.35

Series MR1



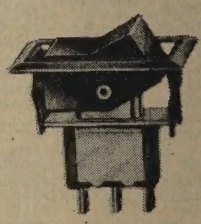
Series MP1

Series MR2—Rocker Switches: Identical to series MR1, except they are panel mounted with a snap in bezel. The 1- and 2-pole types can be mounted in the bezel and inserted from the front of the panel; the 3- and 4-pole types are inserted in the bezel from behind the panel.

Series MP2—Paddle Lever Switches: Identical to series MR2, except paddle lever type.

Positions	SPDT Series MR2 and Series MP2‡ J-B-T No.	1-24	25-49	50-99	100-249	DPDT Series MR2 and Series MP2‡ J-B-T No.	1-24	25-49	50-99	100-249
On-Off-On	MR2-121	$3.85	$3.36	$3.36	$3.04	MR2-221	$4.99	$4.36	$4.36	$3.95
On-None-On	MR2-123	3.45	3.03	3.03	2.76	MR2-223	4.45	3.93	3.93	3.57
On-None-On†	MR2-126	3.85	3.36	3.36	3.04	MR2-226	5.11	4.46	4.46	4.04
On†-Off-On†	MR2-127	3.85	3.36	3.36	3.04	MR2-227	4.99	4.36	4.36	3.95
On-Off-On†	MR2-131	3.85	3.36	3.36	3.04	MR2-231	5.11	4.46	4.46	4.04
On-On-On						MR2-232	5.40	4.69	4.69	4.22
On-On-On†						MR2-233	5.80	5.00	5.00	4.53
On†-On-On†						MR2-235	5.80	5.00	5.00	4.53

Positions	3PDT Series MR2 and Series MP2 J-B-T No.	1-24	25-49	50-99	100-249	4PDT Series MR2 and Series MP2 J-B-T No.	1-24	25-49	50-99	100-249
On-Off-On	MR2-321	$7.35	$6.36	$6.36	$5.68	MR2-421	$9.23	$7.92	$7.92	$7.12
On-None-On	MR2-323	6.94	6.04	6.04	5.40	MR2-423	8.68	7.49	7.49	6.72
On†-Off-On†	MR2-327	8.97	7.71	7.71	6.85	MR2-427	10.57	9.03	9.03	8.09
On-Off-On†	MR2-331	8.97	7.71	7.71	6.85	MR2-431	10.57	9.03	9.03	8.09
On-On-On						MR2-432	10.24	8.75	8.75	7.80
On-On-On†						MR2-433	10.24	8.75	8.75	7.80
On†-On-On†						MR2-435	10.24	8.75	8.75	7.80



Series MR2

Series MR3—Rocker Switches: Identical to series MR1 and MR2, except they have a larger rocker and mounting plate, requiring larger panel cutout. Rockers of different colors may be interchanged from front of panel without disturbing mounting of switch.

Positions	SPDT Series MR3-100 J-B-T No.	1-24	25-49	50-99	100-249	DPDT Series MR3-200 J-B-T No.	1-24	25-49	50-99	100-249
On-Off-On	MR3-121	$3.40	$2.91	$2.91	$2.59	MR3-221	$4.54	$3.91	$3.91	$3.50
On-None-On	MR3-123	3.00	2.58	2.58	2.31	MR3-223	4.00	3.48	3.48	3.12
On-None-On†	MR3-126	3.40	2.91	2.91	2.59	MR3-226	4.66	4.01	4.01	3.59
On†-Off-On†	MR3-127	3.40	2.91	2.91	2.59	MR3-227	4.54	3.91	3.91	3.50
On-Off-On†	MR3-131	3.40	2.91	2.91	2.59	MR3-231	4.66	4.01	4.01	3.59
On-On-On						MR3-232	4.95	4.24	4.24	3.77
On-On-On†						MR3-233	5.35	4.55	4.55	4.08
On†-On-On†						MR3-235	5.35	4.55	4.55	4.08

Positions	3PDT Series MR3-300 J-B-T No.	1-24	25-49	50-99	100-249	4PDT Series MD3-400 J-B-T No.	1-24	25-49	50-99	100-249
On-Off-On	MR3-321	$6.90	$5.91	$5.91	$5.23	MR3-421	$8.78	$7.47	$7.47	$6.67
On-None-On	MR3-323	6.49	5.59	5.59	4.95	MR3-423	8.23	7.04	7.04	6.27
On†-Off-On†	MR3-327	8.52	7.26	7.26	6.40	MR3-427	10.12	8.58	8.58	7.64
On-Off-On†	MR3-331	8.52	7.26	7.26	6.40	MR3-431	10.12	8.58	8.58	7.64
On-On-On						MR3-432	9.79	8.30	8.30	7.35
On-On-On†						MR3-433	9.79	8.30	8.30	7.35
On†-On-On†						MR3-435	9.79	8.30	8.30	7.35

Series MP2

†Momentary position (spring return). ‡Listed are J-B-T Nos. for rocker switch models. To order paddle lever models, change second character in J-B-T No. to P. Example: MP1-121; same price.

LISTING CONTINUED ON FOLLOWING PAGE

VARIATIONS OF SERIES JMT TOGGLE SWITCHES (CONT'D)

Series TO1—Bat Handle: Identical to JMT series above, except contacts rated at 0.5 watts at 28 VDC/AC max. Terminals are for wire wrapping.

Positions	SPDT Series TO1-100 J-B-T No.	Net Each, Lots of 1-24	25-49	50-99	100-249	DPDT Series TO1-200 J-B-T No.	Net Each, Lots of 1-24	25-49	50-99	100-249
On-Off-On	TO1-121	$3.09	$2.60	$2.60	$2.28	TO1-221	$4.36	$3.73	$3.73	$3.32
On-None-On	TO1-123	2.69	2.27	2.27	2.00	TO1-223	3.82	3.30	3.30	2.94
On-None-On†	TO1-126	3.09	2.60	2.60	2.28	TO1-226	4.48	3.83	3.83	3.41
On†-Off-On†	TO1-127	3.09	2.60	2.60	2.28	TO1-227	4.36	3.73	3.73	3.32
On-Off-On†	TO1-131	3.09	2.60	2.60	2.28	TO1-231	4.48	3.83	3.83	3.41
None-On-On†	TO1-134	3.09	2.60	2.60	2.28	TO1-234	4.83	4.13	4.13	3.67
On-On-On	.....	.....	.....	.....	.....	TO1-232	4.77	4.06	4.06	3.59
On-On-On†	.....	.....	.....	.....	.....	TO1-233	5.17	4.37	4.37	3.90
On†-On-On†	.....	.....	.....	.....	.....	TO1-235	5.17	4.37	4.37	3.90

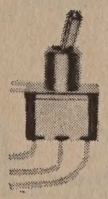
Positions	3PDT Series TO1-300 J-B-T No.	Net Each, Lots of 1-24	25-49	50-99	100-249	4PDT Series TO1-400 J-B-T No.	Net Each, Lots of 1-24	25-49	50-99	100-249
On-Off-On	TO1-321	$6.85	$5.86	$5.86	$5.18	TO1-421	$8.86	$7.55	$7.55	$6.75
On-None-On	TO1-323	6.44	5.54	5.54	4.90	TO1-423	8.31	7.12	7.12	6.35
On†-Off-On†	TO1-327	8.47	7.21	7.21	6.35	TO1-427	10.20	8.66	8.66	7.72
On-Off-On†	TO1-331	8.47	7.21	7.21	6.35	TO1-431	10.20	8.66	8.66	7.72
None-On-On†	TO1-334	8.47	7.21	7.21	6.35	TO1-434	10.20	8.66	8.66	7.72
On-On-On	.....	.....	.....	.....	.....	TO1-432	9.87	8.38	8.38	7.43
On-On-On†	.....	.....	.....	.....	.....	TO1-433	9.87	8.38	8.38	7.43
On†-On-On†	.....	.....	.....	.....	.....	TO1-435	9.87	8.38	8.38	7.43

TO1

TO2

Series TO2—Bat Handle: For right angle mounting in printed-circuit boards, has unthreaded bushing, rated at 0.5 watts at 28 VDC/AC max.

Positions	SPDT Series TO2-100 J-B-T No.	Net Each, Lots of 1-24	25-49	50-99	100-249	DPDT Series TO2-200 J-B-T No.	Net Each, Lots of 1-24	25-49	50-99	100-249
On-Off-On	TO2-121	$3.16	$2.67	$2.67	$2.35	TO2-221	$4.50	$3.87	$3.87	$3.46
On-None-On	TO2-123	2.76	2.34	2.34	2.07	TO2-223	3.96	3.44	3.44	3.08
On-None-On†	TO2-126	3.16	2.67	2.67	2.35	TO2-226	4.62	3.97	3.97	3.55
On†-Off-On†	TO2-127	3.16	2.67	2.67	2.35	TO2-227	4.50	3.87	3.87	3.46
On-Off-On†	TO2-131	3.16	2.67	2.67	2.35	TO2-231	4.62	3.97	3.97	3.55
None-On-On†	TO2-134	3.16	2.67	2.67	2.35	TO2-234	4.97	4.27	4.27	3.81
On-On-On	.....	.....	.....	.....	.....	TO2-232	4.91	4.20	4.20	3.73
On-On-On†	.....	.....	.....	.....	.....	TO2-233	5.31	4.51	4.51	4.04
On†-On-On†	.....	.....	.....	.....	.....	TO2-235	5.31	4.51	4.51	4.04



TO8

Series TO8—Bat Handle: Similar to series TO2, except designed for vertical mounting. Has an unthreaded bushing and is rated at 0.5 watts at 28 VDC/AC max.

Positions	SPDT Series TO8-100 J-B-T-No.	Net Each, Lots of 1-24	25-49	50-99	100-249	DPDT Series TO8-200 J-B-T No.	Net Each, Lots of 1-24	25-49	50-99	100-249
On-Off-On	TO8-121	$3.16	$2.67	$2.67	$2.35	TO8-221	$4.50	$3.87	$3.87	$3.46
On-None-On	TO8-123	2.76	2.34	2.34	2.07	TO8-223	3.96	3.44	3.44	3.08
On-None-On†	TO8-126	3.16	2.67	2.67	2.35	TO8-226	4.62	3.97	3.97	3.55
On†-Off-On†	TO8-127	3.16	2.67	2.67	2.35	TO8-227	4.50	3.87	3.87	3.46
On-Off-On†	TO8-131	3.16	2.67	2.67	2.35	TO8-231	4.62	3.97	3.97	3.55
None-On-On†	TO8-134	3.16	2.67	2.67	2.35	TO8-234	4.97	4.27	4.27	3.81
On-On-On	.....	.....	.....	.....	.....	TO8-232	4.91	4.20	4.20	3.73
On-On-On†	.....	.....	.....	.....	.....	TO8-233	5.31	4.51	4.51	4.04
On†-On-On†	.....	.....	.....	.....	.....	TO8-235	5.31	4.51	4.51	4.04

Group I

GROUP I—SP AND DP heavy duty toggle switches rated 20A @ 125 VAC, 10A @ 250 VAC.

Positions	Screw Terminals J-B-T-No.	Net Each, Lots of 1-24 *	25-49	50-99	100-249	Solder Terminals J-B-T No.	Net Each, Lots of 1-24 *	25-49	50-99	100-249	Push-on (Spade) Terminals J-B-T No.	Net Each, Lots of 1-24 *	25-49	50-99	100-249
SPST—2 Terminals															
On-None-Off	4222S	$2.18	$1.77	$1.77	$1.36	4222L	$1.91	$1.55	$1.55	$1.20	4222P	$1.91	$1.55	$1.55	$1.20
On-Off-None	4224S	2.18	1.77	1.77	1.36	4224L	1.91	1.55	1.55	1.20	4224P	1.91	1.55	1.55	1.20
On-Off†-None	4225S	3.67	2.98	2.98	2.30	4225L	3.23	2.63	2.63	2.02	4225P	3.23	2.63	2.63	2.02
None-Off-On†	4228S	3.67	2.98	2.98	2.30	4228L	3.23	2.63	2.63	2.02	4228P	3.23	2.63	2.63	2.02
On-None-Off†	4229S	3.84	3.12	3.12	2.40	4229L	3.38	2.74	2.74	2.11	4229P	3.38	2.74	2.74	2.11
Off-None-On†	4230S	3.67	2.98	2.98	2.30	4230L	3.23	2.63	2.63	2.02	4230P	3.23	2.63	2.63	2.02
SPDT—3 Terminals															
On-Off-On	4221S	$2.82	$2.29	$2.29	$1.77	4221L	$2.39	$1.94	$1.94	$1.50	4221P	$2.39	$1.94	$1.94	$1.50
On-None-On	4223S	2.82	2.29	2.29	1.77	4223L	2.39	1.94	1.94	1.50	4223P	2.39	1.94	1.94	1.50
On-None-On†	4226S	3.84	3.12	3.12	2.40	4226L	3.38	2.74	2.74	2.11	4226P	3.38	2.74	2.74	2.11
On†-Off-On†	4227S	3.84	3.12	3.12	2.40	4227L	3.38	2.74	2.74	2.11	4227P	3.38	2.74	2.74	2.11
On-Off-On†	4231S	3.84	3.12	3.12	2.40	4231L	3.38	2.74	2.74	2.11	4231P	3.38	2.74	2.74	2.11
DPST—4 Terminals															
On-None-Off	5222S	$3.68	$2.99	$2.99	$2.30	5222L	$3.10	$2.52	$2.52	$1.94	5222P	$3.10	$2.52	$2.52	$1.94
On-Off-None	5224S	3.68	2.99	2.99	2.30	5224L	3.10	2.52	2.52	1.94	5224P	3.10	2.52	2.52	1.94
On-Off†-None	5225S	5.73	4.65	4.65	3.58	5225L	5.09	4.13	4.13	3.18	5225P	5.09	4.13	4.13	3.18
None-Off-On†	5220S	5.73	4.65	4.65	3.58	5228L	5.09	4.13	4.13	3.18	5228P	5.09	4.13	4.13	3.18
On-None-Off†	5229S	5.73	4.65	4.65	3.58	5229L	5.22	4.24	4.24	3.26	5229P	5.22	4.24	4.24	3.26
Off-None-On†	5230S	5.73	4.65	4.65	3.58	5230L	5.09	4.13	4.13	3.18	5230P	5.09	4.13	4.13	3.18
DPDT—6 Terminals															
On-Off-On	5221S	$4.53	$3.68	$3.68	$2.83	5221L	$3.68	$2.99	$2.99	$2.30	5221P	$3.68	$2.99	$2.99	$2.30
On-None-On	5223S	4.53	3.68	3.68	2.83	5223L	3.68	2.99	2.99	2.30	5223P	3.68	2.99	2.99	2.30
On-None-On†	5226S	6.80	5.53	5.53	4.25	5226L	5.94	4.83	4.83	3.72	5226P	5.94	4.83	4.83	3.72
On†-Off-On†	5227S	7.25	5.89	5.89	4.53	5227L	6.40	5.20	5.20	4.00	5227P	6.40	5.20	5.20	4.00
On-Off-On†	5231S	6.77	5.50	5.50	4.23	5231L	5.94	4.83	4.83	3.72	5231P	5.94	4.83	4.83	3.72
On-On-On	5232S	7.10	5.77	5.77	4.44	5232L*	6.24	5.07	5.07	3.90	5232P	6.24	5.07	5.07	3.90
On-On-On†	5233S*	7.50	6.09	6.09	4.69	5233L*	6.63	5.39	5.39	4.15	5233P	6.63	5.39	5.39	4.15
On†-On-On†	5235S*	7.58	6.16	6.16	4.74	5235L*	6.71	5.45	5.45	4.20	5235P	6.71	5.45	5.45	4.20

†Momentary. *On orders for single switches, add 50c. *Not presently U.L. listed.

**SPACE DOES NOT PERMIT LISTING OF ALL RELATED COMPONENTS.
WRITE FOR INFORMATION ON UNLISTED ITEMS.**

STACKPOLE®

KS 200 KEYBOARD ARRAYS

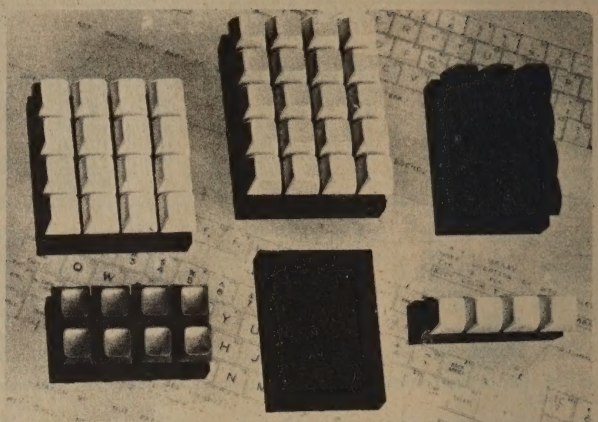
Stackpole offers just the right numeric or function pad for your array requirements. Our momentary and alternate action versions are also available in a discrete form.

The discrete momentary and alternate action switches are ideal for awkward station locations or unusual alignment situations.

These inexpensive, molded monolithic arrays can be secured to a P C Board with 2 screws.

These units are ideal for either wave or hand soldering, and inventory problems are greatly reduced.

- **Keycaps come in your choice of white or black.**
- **Keycaps are industry standard profile or 13° tilt.**



SPECIFICATIONS

MECHANICAL

Reliability, each station:
Momentary Action-20 x 10^6 cycles, typ.
Alternate Action-5 x 10^6 cycles, typ.

Operating Forces, Std.:
Momentary Action-2 oz. typ.
Alt. Act.-to latch 3½ oz. typ.

Stroke:
Momentary Action-total .150" nom.
Momentary Action-to make .075" nom.
Alternate Action-total .195"
Alternate Action-to latch .110" nom.

Materials:
Housing-One piece molded thermoplastic
Plunger-Acetal
Key Caps-A B S or Valox
Contacts-Phos. bronze with precious metal inlay

ELECTRICAL

Form A (SPST-NO) using twin bifurcated contacts:
Rating-Dry circuit to 10 ma @ 5 VDC resistive
Dielectric-500V RMS. 60 Hz.

Contact Resistance (@ switch terminals):
New-.100Ω Max.
Overlife-50Ω Max.

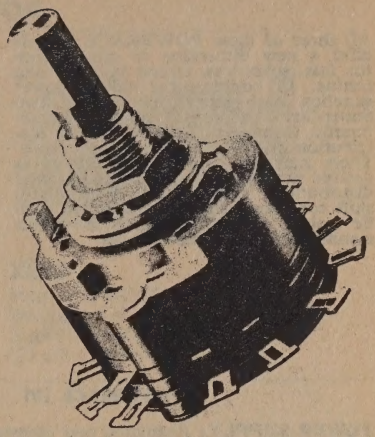
Bounce:
New-1 ms typ., 5ms max.
Overlife-5 ms max.

Environmental:
Operating Temp. 0°C to +50°C
Storage Temp. −40°C to +55°C
Relative Humidity 0 to 95%

Mounting
Arrays can be mounted cheek to cheek.

	Net Each, Lots of				
	1-24	25-99	100-499	500-999	1000-2499
63 Key Numeric	$50.00	$40.00	$35.00	$30.00	$28.00
54 Key Numeric	45.00	37.00	32.00	27.00	25.00
11 Key Numeric	14.50	12.50	10.00	9.00	8.00
18 Key Array	17.00	15.00	13.00	11.50	10.50
14 Key Array	14.50	12.50	10.00	9.00	8.00
4 x 4 Array	16.00	14.00	12.00	10.00	8.00
3 x 4 Array	13.00	11.00	8.50	7.50	6.50
1 x 4 Array	8.00	6.00	5.50	4.00	3.00
4 x 1 Array	8.00	6.00	5.50	4.00	3.00
1 x 1 Momentary	2.50	1.50	1.00	.75	.50
1 x 1 Alternate Action	3.00	2.00	1.50	1.25	1.15
1 x 1 Keycap	.75	.55	.40	.30	.25
1½ x Keycap	.90	.70	.55	.45	.40

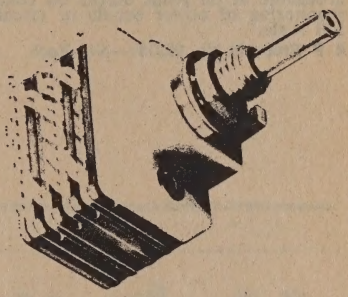
SERIES 100 ROTARY SWITCH



Fully enclosed, environment-proof rotary switch in 1⅛" diameter. Dual ball detent provides positive indexing and long life. Available in shorting or non-shorting types with adjustable stops and excellent shock and vibration characteristics. Contacts are silver plated brass. Insulation is diallyl phthalate or equivalent in wafer, and delrin or equivalent in front housing and rotor. Shaft is ¼" diam. brass x ⅞" long, FMS. Bushing is ⅜"-32 x ⅜" long. Contacts are rated at 0.3 A at 125 VAC, 0.5 A at 28 VDC. Index angle is 30°. Switches are explosion-proof in accordance with MIL-3786B; conform to low-frequency vibration test MIL-3786B; and conform to shock test MIL-3786B. **Voltage Breakdown:** Terminal to terminal, 1000 VAC, rms; terminal to ground, 2000 VAC, rms. **Contact Resistance:** Average initial, 0.003 ohm; less than 0.004 ohm after 10,000 cycles. **Size:** 1⅛" diam. x 0.792" d. behind panel (single deck) or 1.076" d. behind panel (double deck). UL and CSA listed. Also available as a special BCD switch.

No. of Decks	Poles per Deck	No. of Pos.	Stackpole No.		Net Each, Lots of		
			Shorting	Non-Shorting	1-49	50-99	100-249
1	1	2 to 12	73-1024	73-1025	$5.90	$4.55	$3.50
1	2	2 to 6	73-1036	73-1037	6.00	4.60	3.55
1	3	2 to 4	73-1044	73-1045	6.25	4.80	3.70
2	1	2 to 12	73-1076	73-1077	7.70	5.90	4.55
2	2	2 to 6	73-1088	73-1089	8.10	6.25	4.80
2	3	2 to 4	73-1096	73-1097	8.55	6.60	5.05

SERIES 80 ROTARY SELECTOR SWITCH

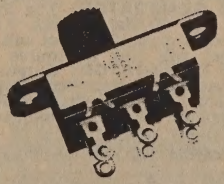


Subminiature size rotary switches feature fully enclosed modular design, riveted construction, high reliability dual-ball detent, and in-line 0.100" grid spacing between terminals and between decks. Switches are available in shorting or non-shorting types. Contacts are silver plated brass. Insulation is diallyl phthalate or equivalent in wafer, and delrin or equivalent in front housing and rotor. Shaft is ¼" diam. brass x ⅝" long, FMS. Terminals are solder lug type. Bushing is ¼"-32 x ¼" long. **Breakdown Voltage:** Terminal to terminal, 600 VAC, rms; terminal to ground, 1000 VAC, rms. **Contact Rating:** 0.100 A at 125 VAC. **Contact Resistance:** Less than 0.005 ohm initial, 0.01 ohm max. **Index Angle:** 30°. **Size:** 0.8125" w. x 0.8125" h. x 0.606" d. behind panel (single deck) or 0.806" d. behind panel (double deck). UL and CSA listed.

No. of Decks	Poles per Deck	No. of Pos.	Shorting Type				Nonshorting Type			
			Stackpole Number	Net Each, Lots of			Stackpole Number	Net Each, Lots of		
				1-49	50-99	100-249		1-49	50-99	100-249
1	1	12	73-8820	$5.05	$3.90	$3.00	73-8821	$5.25	$4.05	$3.10
1	2	6	73-8830	5.25	4.05	3.10	73-8831	5.50	4.20	3.25
1	3	4	.....	....	....	....	73-8837	5.50	4.20	3.25
2	1	12	.....	....	....	....	73-8875	7.70	5.90	4.55
2	3	4	.....	....	....	....	73-8881	7.90	6.10	4.70

SLIDE SWITCHES

Slide switches, available in a wide variety of sizes and types, feature high reliability and long life. Switches are UL and CSA listed and approved (inductive load ratings).



Stackpole No.	Form	Contact Rating	Net per Thousand, Lots of			
			1-99	100-499	500-999	1000-4999
MINIATURE						
S-9012CD01-0	SPDT	D	$1010.00	$673.00	$337.00	$169.00
S-9022CD01-0	DPDT	D	1077.00	718.00	373.00	199.00
S-9123CD01-0	DP3T	D	1125.00	750.00	409.00	240.00
STANDARD						
S-2012SR06-0	SPDT*	A	$1190.00	$ 793.00	$395.00	$207.00
P-2011SR03-0	SPST♯	E	1188.00	792.00	406.00	214.00
S-2013SD06-0	SP3T	A	1112.00	741.00	376.00	194.00
S-2012SD06-0	SPDT	A	1176.00	784.00	382.00	180.00
S-5022CD03-0	DPDT	B	1158.00	772.00	379.00	184.00
S-5123BD03-0	DP3T	B	1656.00	1104.00	650.00	321.00

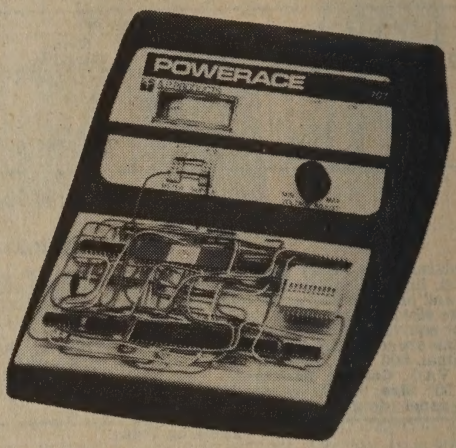
*Spring return. ♯Push-button type, momentary contact, normally open, no-detent switch.

WRITE US FOR INFORMATION AND PRICING ON ALL NEW OR UNLISTED ITEMS. NO SPECIAL ORDER NUMBERS NECESSARY, JUST USE THE MANUFACTURER'S MODEL NUMBERS.

POWERACE CIRCUIT EVALUATORS

All three of these POWERACE models offer a new dimension in convenience for fast, solderless, circuit building and testing. In addition to built-in power supplies, each model incorporates two Super-Strip universal plug-in breadboards. Combined, they provide 16 distribution buses of 25 tie points per bus. These may be jumpered in groups as desired and used for voltage and ground distribution, reset lines, clock lines, shift command, etc. The remaining 1280 tie points are for plugging in circuit components and jumper wires.

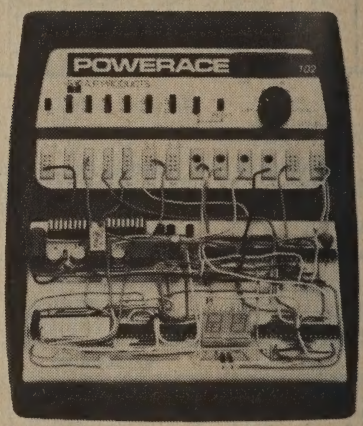
- 1680 solderless, plug-in tie points—will hold up to eighteen 14-pin DIPs
- Breadboard elements accept all DIP sizes—including RTL, DTL, TTL, and CMOS devices, TO-5s and discretes with leads up to .032: diameter
- All connections to and from switches, indicators, power supplies and meters are made via solderless, plug-in, tie point blocks on control panels
- Make interconnections with any solid 20 to 30 AWG wire
- Breadboard elements are mounted on ground planes—ideal for high-frequency and high-speed, low-noise circuits
- Short-circuit-proof, fused power supplies
- POWERACES operate from 110 to 130 VAC at 60 Hertz
- Compact size and high-grade components permit convenient, organized and quick prototyping



POWERACE 101

POWER SUPPLY: Regulated and adjustable from +5 to +15 VDC at 600 mA. Ripple/noise is ≤10 mV at full load. Line and load regulation is ≤3%. **METER:** 0-15 VDC. Inputs are accessible at tie point blocks on control panel which allows monitoring of power supply or circuits. Accuracy is 5% of full scale.

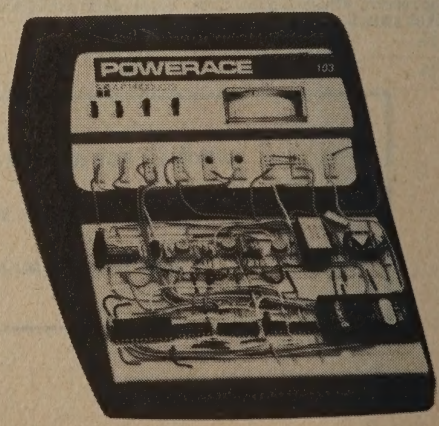
A P Products No. 923101—Net Each **$96.95**



POWERACE 102

POWER SUPPLY: Regulated +5 VDC at 1 Ampere. Ripple/noise is ≤10 mV at full load. Line and load regulation is ≤1%. **PULSE DETECTION WITH MEMORY:** Built-in. Will detect positive or negative going pulses as short as 10 nanoseconds. Memory is reset by momentary switch on control panel. **LOGIC INDICATORS:** Three LEDs have buffered inputs that require 1 microamp maximum. **LOGIC SWITCHES:** Two momentary switches with debounce circuitry. Both Q and Q outputs can sink 15 mA and source 5 mA. **DATA SWITCHES:** Four switches with logic 1 or logic 0 outputs have unlimited sinking capabilities and can source 10 mA. **CLOCK GENERATOR:** The following frequencies are available: 1 Hz, 10 Hz, 100 Hz, 1 KHz, 10 KHz, 100 KHz with a 50% duty cycle. C output will sink 15 mA and source 5 mA. C output will sink or source 50 mA. 50 mA. **ONE-SHOT PULSE GENERATOR:** Output of 7 millisecond pulse, positive or negative going. Both Q and Q outputs can sink 15 mA and source 400 microamps. **LOGIC PROBE:** Pulse detection with memory plus logic indicator features constitute a free, built-in logic probe.

A P Products No. 923102—Net Each **$149.95**

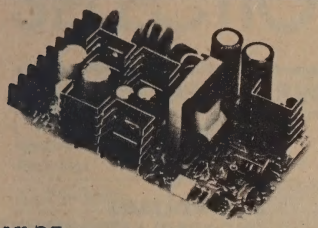


POWERACE 103

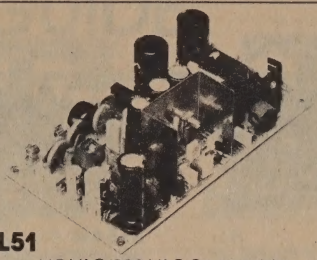
POWER SUPPLY: Regulated and fixed at +5 VDC at 750 mA; +15 VDC at 250 mA; and −15 VDC at 250 mA. Ripple/noise is ≤10 mV at full load for all outputs. Line and load regulation is ≤1% for all outputs. The +15 and −15 outputs track. **METER:** 15-0-15 VDC. Inputs are accessible at tie point block on control panel which allows monitoring of power supplies or circuits. Meter accuracy is 5% of full scale. **LOGIC INDICATORS:** Two LEDs have buffered inputs that require 1 microamp maximum. **LOGIC SWITCHES:** Two momentary switches with debounce circuitry. Both Q and Q outputs can sink 15 mA and source 5 mA. **DATA SWITCHES:** Two switches with logic 1 and logic 0 outputs have unlimited sinking capabilities and can source 10 mA.

A P Products No. 923103—Net Each **$149.95**

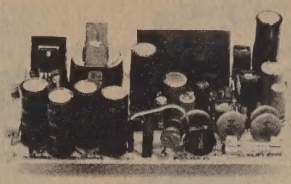
XL SERIES MULTIPLE OUTPUTS



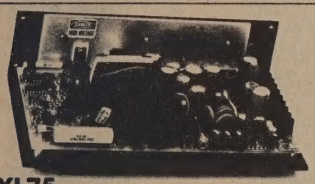
XL25
Input: 115 VAC/230 VAC Strappable
Weight: 11 oz. (0.32 kg)
Size: 6.3" x 3.9" x 2.3"
(16.0 cm x 10 cm x 5.8 cm)



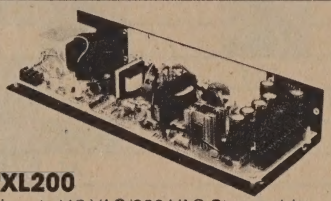
XL51
Input: 115 VAC/230 VAC Strappable
Weight: 1.2 lb. (.55 kg)
Size: 7.75" x 4.25" x 2.25"
(19.7 cm x 10.8 cm x 5.7 cm)



XL53
Input: 115 VAC/230 VAC
Weight: 1.4 lb. (.64 kg)
Size: 8.25" x 4.25" x 2.25"
(21 cm x 10.8 cm x 5.7 cm)

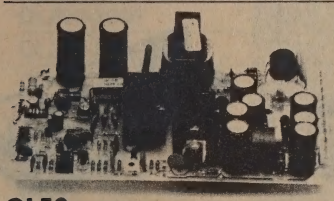


XL75
Input: 115 VAC/230 VAC Strappable
Weight: 2.5 lb. (1.1 kg)
Size: 9.5" x 5.5" x 2.6"
(24.1 cm x 14.0 cm x 6.6 cm)

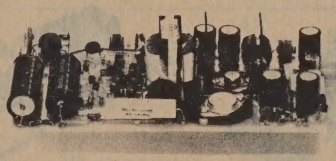


XL200
Input: 115 VAC/230 VAC Strappable
Weight: 5.0 lb. (2.27 kg)
Size: 15" x 5.3" x 2.6"
(38.1 cm x 13.46 cm x 6.6 cm)

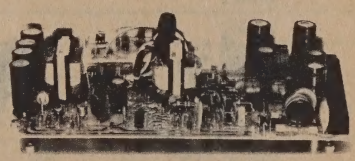
OL SERIES MULTIPLE OUTPUTS



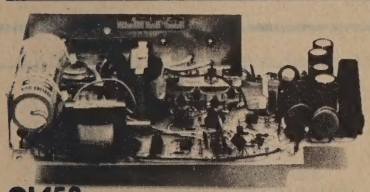
OL50
Input: 115 VAC only
Weight: 16 oz. (0.4 kg)
Size: 7.25" x 4.26" x 2.00"
(18.4 cm x 10.8 cm x 5.1 cm)



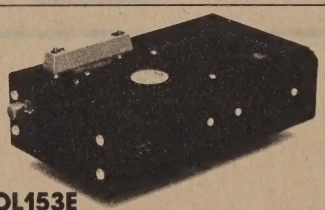
OL65
Input: 115 VAC/230 VAC Strappable
Weight: 18 oz. (0.5 kg)
Size: 9.44" x 5.00" x 2.00"
(24.0 cm x 12.7 cm x 5.1 cm)



OL130
Input: 115 VAC/230 VAC Strappable
Weight: 2.5 lb. (1.1 kg)
Size: 10.5" x 5" x 2.5"
(26.7 cm x 12.7 cm x 6.4 cm)



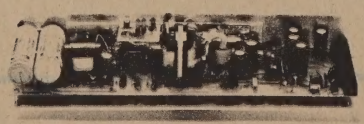
OL153
Input: 115 VAC or 230 VAC
Weight: 2 lb. (0.9 kg)
Size: 10.02" x 5.56" x 2.25"
(25.5 cm x 14.1 cm x 5.7 cm)



OL153E
Input: 115 VAC or 230 VAC
Weight: 4.5 lb. (2.0 kg)
Size: 10.44" x 5.81" x 2.81"
(26.5 cm x 14.8 cm x 7.1 cm)

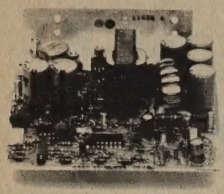
OL200
Input: 115 VAC/230 Strappable
Weight: 4 lb. (1.8 kg)
Size: 15.0" x 4.95" x 2.45"
(38.1 cm x 12.6 cm x 6.2 cm)

OL301
Input: 115 VAC/230 VAC Strappable
Weight: 4.25 lb. (1.9 kg)
Size: 11.75" x 7.62" x 2.5"
(29.8 cm x 19.4 cm x 6.4 cm)

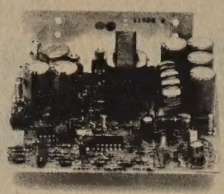


OL400
Input: 115 VAC/230 VAC Strappable
Weight: 5 lb. (2.3 kg)
Size: 16.87" x 5.2" x 2.5"
(42.8 cm x 13.2 cm x 6.4 cm)

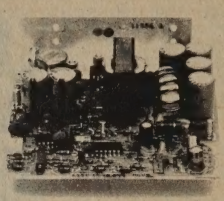
SUBMODULAR SERIES



3T12AP
Weight: 11 oz. (.3 kg)
Size: 5.4" x 5" x 1.85"
(13.7 cm x 12.7 cm x 4.7 cm)



3T20AP
Weight: 15 oz. (0.4 kg)
Size: 5.4" x 5" x 1.85"
(13.7 cm x 12.7 cm x 4.7 cm)

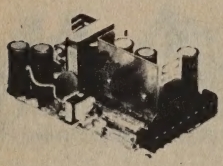


3T5AN
Weight: 9 oz. (0.25 kg)
Size: 5.4" x 5" x 1.85"
(13.7 cm x 12.7 cm x 4.7 cm)

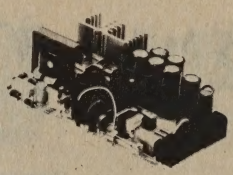
LOW VOLTAGE ENCAPSULATED MODULES
Weight: 7 oz. (200 gm)
Size: 3.5" x 2.5" x .86"
(8.9 cm x 6.35 cm x 2.18 cm)

HIGH VOLTAGE ENCAPSULATED MODULES
Weight: 6.5 oz. (185 g)
Size: 2.5" x 2" x 1.19"
(6.35 cm x 5.08 cm x 3.02 cm)

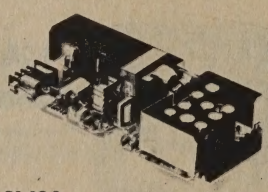
SL SERIES SINGLE OUTPUTS



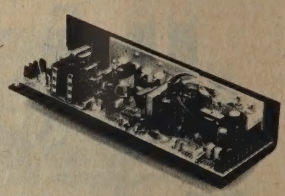
SL30
Input: 115 VAC/230 VAC Strappable
Weight: 0.97 lb. (0.44 kg)
Size: 6.5" x 4.6" x 2.2"
(16.5 cm x 11.75 cm x 5.6 cm)
Available 3Q82



SL60
Input: 115 VAC/230 VAC Strappable
Weight: 1.34 lb. (0.61 kg)
Size: 8" x 4.6" x 2.2"
(20.3 cm x 11.75 cm x 5.6 cm)
Available 3Q82

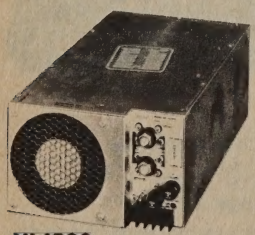


SL120
Input: 115 VAC/230 VAC Strappable
Weight: 2.56 lb. (1.16 kg)
Size: 11.5" x 4.6" x 2.2"
(21.6 cm x 11.75 cm x 5.6 cm)
Available 3Q82



SL220
Input: 115 VAC/230 VAC Strappable
Weight:4.4 lb. (2 kg)
Size: 14.5" x 4.9" x 2.5"
(36.8 cm x 12.4 cm x 6.4 cm)
Available 3Q82

HIGH POWER PRODUCTS



HL1500
Input: 167 VAC-250 VAC
Weight: 25 lb. (11.36 kg)
Size: 15" x 8" x 5"
(38.1 cm x 20.3 cm x 12.7 cm)

SWITCHING POWER SELECTION GUIDE

Boschert

MULTIPLE OUTPUT SWITCHERS

Model Number		Output Voltages and Maximum Current								Maximum Continuous Output Power
		+5V	−5V	+12V	+12V	−12V	+15V	−15V	+24V	
XL25-3001		3.5A	0.5A	0.5A		0.5A				25W
OL50-1022		6A	0.7A	1A		1A				50W
XL51-3101	FCC	4A	0.5A	2A		0.5A				40W
XL51-3601	⚠	4A	0.5A	2A		0.5A				40W
XL53-3101	FCC	6A	0.6A	2.5A		0.6A				70W
XL53-3601	⚠	6A	0.6A	2.5A		0.6A				70W
XL53-3106	FCC	6A		0.6A		0.6A			1.25A	70W
OL65-3020		6A	0.5A	1.5A		1.5A			1.2A	65W
OL65-3032		6A	0.5A				1.5A	1.5A	1.2A	65W
XL75-3001		8A	1A	2A		2A				75W
OL130-3001		15A	0.7A	3A		2A				130W
OL130-3022		15A		3A		2A			2A	130W
OL130-3023		15A	0.7A				3A	2A		130W
OL130-3058		10A		4A	2A	0.5A				130W
OL153-1033*		20A		4A		4A			4A	180W
OL153-1001E		20A					4A	4A		180W
OL200-3006		25A†	3A	4A		4A				200W
OL200-3024		25A†		4A		4A			4A	200W
OL200-3035		25A†		4A	4A	4A				200W
XL200-3501	⚠	25A†	3A	4A		4A				200W
XL200-3504	⚠	25A†		4A		4A			4A	200W
OL301-3026*		20A		4A		4A	4A	4A	4A	300W
OL400-3015*		45A	4A	10A		10A			4A	400W

Shaded outputs are tightly regulated.
*Requires fan.
†Fan required for 25A, no fan required for 20A.

All Boschert products are designed to meet UL and CSA. Models XL51-3101, XL53-3101 and XL53-3106 are designed to meet FCC RFI requirements. Models XL51-3601 and XL53-3601 are designed to meet VDE0730 safety and VDE0871RFI. VDE models are also designed to meet FCC requirements.

Multiple Output, Single Output, and Encapsulated Modules have one-year warranty. 3 Terminal Regulators have 90-day warranty. HL1500 has two-year warranty.

SUBMODULAR PRODUCTS

Model Number	Description
3T12AP-4030	10V-40V input, output adjustable from 4.5V-30V @ 12A
3T12AP-6030	20V-60V input, output adjustable from 4.5V-30V @ 12A
3T20AP-6015	20V-60V input, output adjustable from 4.5V-15V @ 20A
3T5AN-4030	10V-40V input, output adjustable from −4.5V- −30V @ 5A
3T5AN-6030	20V-60V input, output adjustable from −4.5V- −30V @ 5A
5S5	4.5V-6.5V input, 5V @ 2A output
5S12	4.5V-6.5V input, 12V @ 1A output
5D12	4.5V-6.5V input, ±12V @ 500 mA output
5D15	4.5V-6.5V input, ±15V @ 400 mA output
48D12	36V-63V input, ±12V @ 500 mA output
48D15	36V-63V input, ±15V @ 400 mA output
12S250-7.5	12V input, 250V @ 30 mA output
12S250-25	12V input, 250V @ 100 mA output

SINGLE OUTPUT SWITCHERS

Model Number	Output Voltage Adjustment Range	Rated Current at 50°C	Maximum Continuous Output Power
SL30-3105	4.5V-5.5V	6A	30W
SL30-3112	11.5V-15.5V	2.5A	30W
SL30-3124	22V-30V	1.25A	30W
SL60-3105	4.5V-5.5V	12A	60W
SL60-3112	11.5V-15.5V	5A	60W
SL60-3124	22V-30V	2.5A	60W
SL120-3105	4.5-5.5V	24A	120W
SL120-3112	11.5V-15.5V	10A	120W
SL120-3124	22V-30V	5A	120W
SL220-3105	4.5V-5.5V	44A	220W
SL220-3112	11.5V-15.5V	20A	220W
SL220-3124	22V-30V	10A	220W

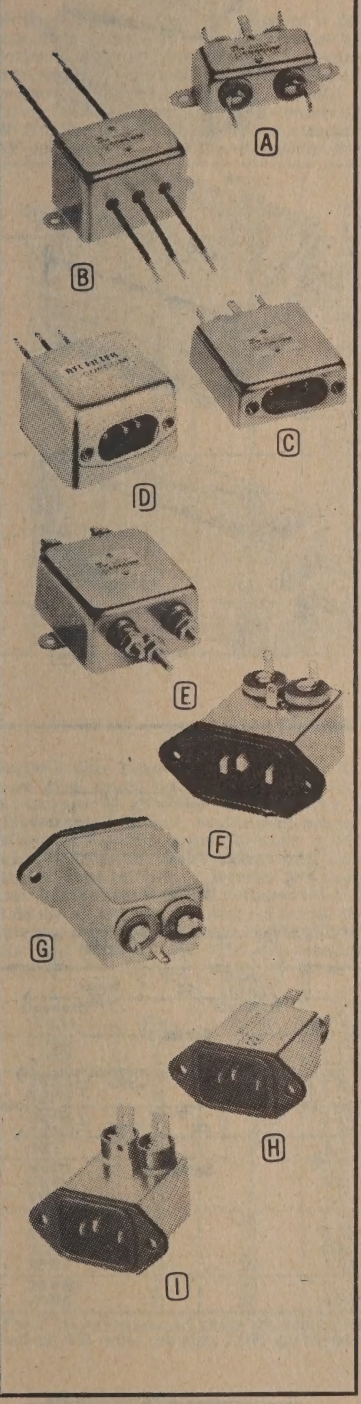
All the above SL models are designed to meet FCC RFI requirements.

All SL models are available in versions designed to meet VDE0730 safety and VDE0871 RFI. To order, specify −36XX in the model number suffix, e.g., SL120-3605 is a VDE model of SL120 with a 5V output.

HIGH POWER PRODUCTS

Model Number	Output Voltage Adjustment Range	Rated Current at 50°C	Maximum Continuous Output Power
HL1500-2001 RBFI	4.5V-5.5V	300A	1500W

PRICES LISTED ARE FOR GUIDANCE ONLY



SERIES B FILTERS

Series B general purpose filters effectively provide RFI control of line to ground noise in a small size at a low cost. Designed to meet a variety of electronic and electrical applications. UL recognized. **Rated Voltage:** 115–250 VAC, 50–60 Hz. **Maximum Leakage Current:** 0.65 mA at 115 VAC, 60 Hz; 1.5 mA at 250 VAC, 60 Hz. Leakage current measured between line to ground. **Capacitance:** 9,000 pF between line to ground. **Operating Frequency:** 50–400 Hz. **Test Voltage:** 2250 VDC.

Corcom Type	Fig.	Rated Amps at 115 VAC	Size, Inches L. x W. x H.	Net Each, Lots of 1-24	25-49	50-99	100-499
1B1	A	1	1.98 x 2.50 x 0.65	$11.00	$ 9.09	$ 7.65	$ 6.70
1B3	B	1	0.94 x 2.50 x 0.65	12.00	9.91	8.35	7.30
1B4	C	1	2.40 x 2.00 x 0.75	14.58	12.05	10.15	8.88
1B5	D	1	1.88 x 2.00 x 0.75	14.90	12.31	10.36	9.07
2B1	A	2	1.98 x 2.50 x 0.65	9.91	8.18	6.89	6.03
2B3	B	2	0.94 x 2.50 x 0.65	10.90	9.00	7.58	6.63
2B4	C	2	2.40 x 2.00 x 0.75	13.36	11.03	9.29	8.13
2B5	D	2	1.88 x 2.00 x 0.75	13.67	11.29	9.51	8.32
3B1	A	3	2.35 x 2.50 x 0.75	11.42	9.44	7.95	6.95
3B3	B	3	1.31 x 2.50 x 0.75	12.44	10.28	8.65	7.57
3B4	C	3	2.65 x 2.00 x 0.75	15.03	12.41	10.45	9.15
3B5	D	3	2.13 x 2.00 x 0.75	15.37	12.70	10.69	9.35
5B1	A	5	2.35 x 2.50 x 0.75	10.59	8.74	7.36	6.44
5B3	B	5	1.31 x 2.50 x 0.75	11.42	9.44	7.95	6.95
5B4	C	5	2.65 x 2.00 x 0.75	13.64	11.27	9.49	8.30
5B5	D	5	2.13 x 2.00 x 0.75	13.96	11.53	9.71	8.50
10B1	A	10	2.35 x 2.50 x 1.13	11.94	9.87	8.31	7.27
10B3	B	10	1.31 x 2.50 x 1.13	12.62	10.43	8.78	7.68
10B4	C	10	2.65 x 2.00 x 1.13	14.79	12.22	10.29	9.00
10B5	D	10	2.13 x 2.00 x 1.13	15.05	12.44	10.47	9.16
10B6	E	10	2.60 x 2.50 x 1.13	14.43	11.92	10.04	8.78
20B1	A	20	3.10 x 2.78 x 1.13	16.52	13.65	11.49	10.05
20B6	E	20	3.35 x 2.75 x 1.13	18.56	15.23	12.91	11.30
30B6	.....	30	5.22 x 4.13 x 1.50	35.65	29.45	24.80	21.70

SERIES EF INTERNATIONAL FILTERS

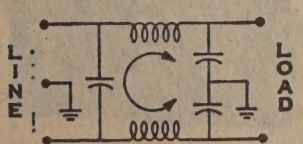
Type EF international series incorporates the special IEC (International Electrotechnical Commission) power line connector. Connector has 4 mm minimum pin spacing and complies with all current and proposed requirements for industrial and test equipment in the European market where a detachable power cord is a part of the equipment design. Series EF features extremely low leakage current. Meets requirements of IEC, BSI, VDE, CSA, and ASA for data processing. UL Recognized, CSA certified, VDE and SEV approved. **Rated Voltage:** 115–250 VAC, 50–60 Hz. **Maximum Leakage Current:** 0.25 mA at 115 VAC, 60 Hz; 0.50 mA at 250 VAC, 60 Hz. Leakage current measured between line and ground. **Capacitance:** 5,000 pF. **Operating Frequency:** 50/60 Hz. **Test Voltage:** 2250 VDC line to ground, 1450 VDC line to line.

Corcom Type	Fig.	Rated Amps at 115 VAC	Size, Inches L. x W. x H.	Net Each, Lots of 1-24	25-49	50-99	100-499
1EF1	G	1	1.97 x 1.97 x 0.79	$11.87	$9.80	$8.25	$7.22
3EF1	G	3	1.97 x 1.97 x 0.79	11.19	9.24	7.78	6.81
6EF1	G	6	1.97 x 1.97 x 0.79	10.51	8.68	7.31	6.40
1EF2	F	1	1.55 x 1.97 x 1.23	11.87	9.80	8.25	7.22
3EF2	F	3	1.55 x 1.97 x 1.23	11.19	9.24	7.78	6.81
6EF2	F	6	1.55 x 1.97 x 1.23	10.51	8.68	7.31	6.40

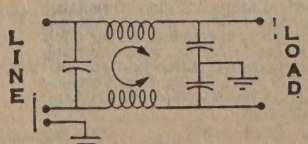
SERIES EH

Series EH is designed to meet UL544 specifications for medical and dental equipment. **Rated Voltage:** 115–250 VAC, 50–60 Hz. **Maximum Leakage Current** (from line to ground): 2 μA at 115 VAC, 60 Hz; 5 μA at 250 VAC, 50 Hz. **Operating Frequency:** 50–400 Hz. **Test Voltage:** 2000 VAC line to ground, 2150 VDC line to line.

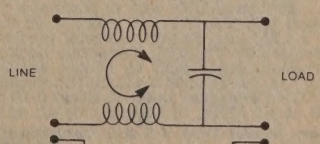
Corcom Type	Fig.	Rated Amps at 115 VAC	Size, Inches L. x W. x H.	Net Each, Lots of 1-24	25-49	50-99	100-499
6EH1	A	6	2.11 x 2.50 x 0.63	$10.79	$ 8.92	$7.51	$6.57
6EH4	H	6	2.16 x 1.97 x 0.78	13.43	11.10	9.35	8.18
6EH9	I	6	1.55 x 1.97 x 1.45	13.43	11.10	9.35	8.18



Series B



Series EF



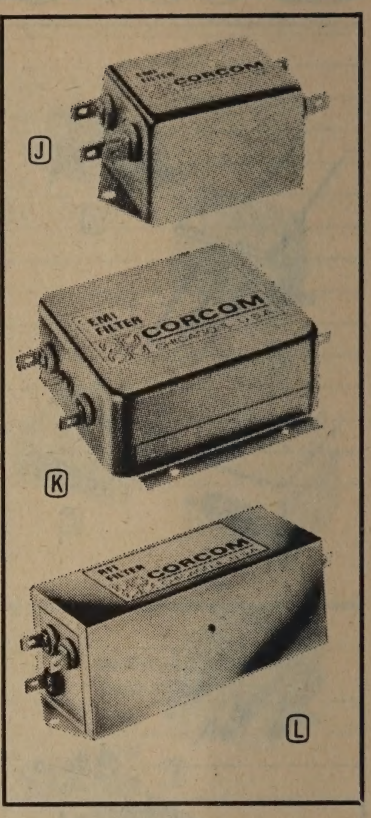
Series EH

RFI POWER LINE FILTERS

SERIES S, V AND W FILTERS

These filters combine line-to-ground RFI filters with additional circuitry to reduce low-frequency line-to-line noise. They are designed to protect equipment from malfunctions due to conducted line interference coming into the equipment from the line (susceptibility). They also provide needed noise suppression to allow most equipment to meet VDE, CISPR and CSA specifications for conducted emission. They are particularly effective when applied in equipment using switching type power supplies, SCR and TTL circuits.

Corcom Type	Fig.	Rated Amps at 115 VAC	Size, Inches L. x W. x H.	Net Each, Lots of 1-24	25-49	50-99	100-499
3S1A	J	3	3.13 x 1.75 x 1.25	$17.83	$14.73	$12.40	$10.85
6S1	J	6	3.60 x 2.00 x 1.50	17.59	14.53	12.24	10.71
10S1	J	10	3.60 x 2.00 x 1.50	18.74	15.48	13.04	11.41
20S1	K	20	4.97 x 4.12 x 1.49	40.77	33.68	28.36	24.82
3V1A	J	3	3.13 x 1.75 x 1.25	19.60	16.19	13.64	11.93
6V1	J	6	3.60 x 2.00 x 1.50	19.11	15.78	13.29	11.63
10V1	J	10	3.60 x 2.00 x 1.50	20.54	16.97	14.29	12.50
20V1	K	20	4.97 x 4.12 x 1.49	42.45	35.06	29.53	25.84
3W1A	J	3	3.13 x 1.75 x 1.25	21.69	17.92	15.09	13.20
6W1	J	6	3.60 x 2.00 x 1.50	20.07	16.58	13.96	12.22
10W1	J	10	3.60 x 2.00 x 1.50	22.27	18.40	15.49	13.55
20W1	K	20	4.97 x 4.12 x 1.49	43.36	35.82	30.16	26.39



SERIES SP FILTERS (FIG. L)

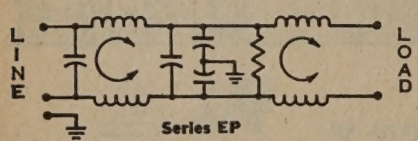
Series SP power line filters are designed to suppress RFI noise, generated by switching power supplies, to acceptable limits. SP filters comply with UL and IEC standards and FCC specifications. Provide high insertion losses for both line-to-ground and line-to-line emissions throughout the frequency range, without any degradation of performance due to large-peak currents drawn by switching power supplies. **Max. Leakage Current:** 2 mA at 115 VAC, 60 Hz, each line-to-ground; 3 mA at 250 VAC, 50 Hz. **Test Voltage:** Line-to-ground, 2250 VDC; line-to-line, 1450 VDC. **Operating Frequency:** 50-60 Hz. **Rated Voltage:** 115-250 VAC.

Corcom Type	Rated Current (Amps rms)	Max. Peak Current (Amps)	Size (In) L. x W. x H.	Net Each, Lots of 1-24	25-49	50-99	100-499
3SP1A	3	17	6.49 x 2 x 1.75	$33.38	$27.57	$23.22	$20.32
6SP1A	6	23	6.49 x 2 x 2.25	44.46	36.73	30.93	27.06
10SP1A	10	34	6.49 x 2 x 2.75	55.62	45.95	38.69	33.85

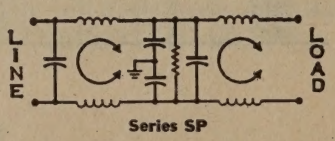
SERIES EP FILTERS

RFI power line filters for switching power supply noise suppression. Designed to reduce conducted noise to acceptable limits for equipment that must comply with proposed FCC specifications. UL recognized; comply with requirements of IEC 161. **Max. Leakage Current:** 0.4 mA at 250 VAC, 50 Hz, each line-to-ground. **Test Voltage:** Line-to-ground, 2000 VAC; line-to-line, 1450 VDC. **Operating Frequency:** 50/60 Hz. **Rated Voltage:** 115/250 VAC. **Max. Peak Current:** 3EP, 10 amps; 6EP, 18 amps; 10EP, 30 amps.

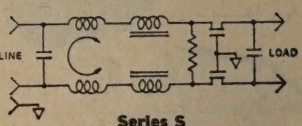
Corcom Type	Fig.	Rated Amps at 115 VAC	Size, Inches L. x W. x H.	Net Each, Lots of 1-24	25-49	50-99	100-499
3EP1	P	3	3.74 x 2.00 x 1.75	$26.37	$21.79	$18.35	$16.05
3EP3	R	3	3.32 x 2.00 x 1.75	26.37	21.79	18.35	16.05
3EP7	Q	3	3.15 x 2.19 x 1.75	28.72	23.73	19.58	17.48
6EP1	P	6	6.50 x 2.00 x 2.25	39.88	32.95	27.75	24.28
6EP3	R	6	6.00 x 2.00 x 2.25	39.88	32.95	27.75	24.28
10EP1	P	10	6.50 x 2.00 x 2.75	50.97	42.10	35.45	31.02
10EP3	R	10	6.00 x 2.00 x 2.75	50.97	42.10	35.45	31.02



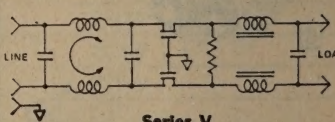
Series EP



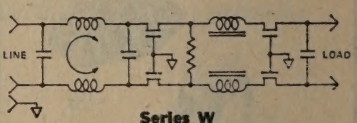
Series SP



Series S



Series V



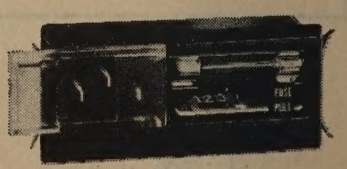
Series W

SERIES J VOLTAGE SELECTING, FUSED CONNECTOR (V S & F)

Developed for worldwide operation, the V S & F eliminates the need for internal wiring changes or special power supplies. Provides an internationally approved connector, a fuse holder and a means of changing transformer primary connections with a unique voltage selector card. The fuse and voltage selector card are enclosed behind a see-thru plastic cover which cannot be moved until the power cord is removed from the equipment. With the V S & F, equipment can be operated anywhere in the world without modification at time of installation. CSA approved and recognized under the component program of UL. Units available with or without a RFI filter. **Current:** 6 amps AC max. **Operating Voltage:** 100, 120, 220, 240 VAC, 50-60 Hz. **Fuse:** Internal fuse holder, line side; accepts 0.25″ x 1.25″ fuse. Power connector meets UL/IEC requirements; specifications per CEE Publication 22 Type VI. Connector back terminals suitable for soldering, wire wrapping or crimp-on lugs, such as Molex #2123. **Max. Leakage Current (Line-To-Ground):** Model 6J1, 5 μA at 250 VAC, 50 Hz; Model 6J4, 500 μA at 250 VAC, 50 Hz. **Test Voltage:** 2250 VDC. **Insertion Loss:** 12 dB at 0.15 MHz, 8 dB min.; 15dB at 0.2 MHz, 10 dB min.; 25 dB at 0.5 MHz, 18 dB min.; 55 dB at 10-20 MHz, 40 dB min.

Corcom Model 6VJ1 V S & F Connector—Unfiltered. Net Each, 1-99.....**$7.90**
100-2499.....**$6.87**; 2500-Up.....**Price on request**

Corcom Model 6J4 V S & F Connector—Filtered. Net Each, 1-99.....**$14.23**
100-2499.....**$12.37**; 2500-Up.....**Price on request**



6VJ1

PRICES LISTED ARE FOR GUIDANCE ONLY

corcom RFI POWER LINE FILTERS

SERIES K FILTERS

Series K filters are similar to series B filters. These filters have added feature of being extremely effective in the control of line to line as well as line to ground RFI interference. Series K filters are particularly suited where pulsed, continuous and/or intermittent RFI interference is present. Can also be used where line to line interference protection is required. UL recognized plus VDE and CSA approved. **Rated Voltage:** 115–250 VAC, 50–60 Hz. **Maximum Leakage Current:** 0.65 mA at 115 VAC, 60 Hz; 1.5 mA at 250 VAC, 60 Hz. Maximum leakage current measured between line to ground. **Capacitance:** 11,000 pF between line to ground. **Operating Frequency:** 50-400 Hz. **Test Voltage:** 2250 VDC.

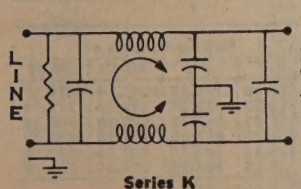
Corcom Type	Fig.	Max. Line Current Amps	Size, Inches L. x W. x H.	Net Each, Lots of 1-24	25-49	50-99	100-499
1VK1	M	1	3.00 x 2.78 x 0.88	$14.24	$11.77	$ 9.91	$ 8.67
1VK3	N	1	1.81 x 2.78 x 0.88	15.13	12.50	10.53	9.21
1K4	C	1	2.65 x 2.00 x 0.88	17.90	14.79	12.45	10.90
1K5	D	1	2.13 x 2.00 x 0.88	18.27	15.09	12.71	11.12
2VK1	M	2	3.00 x 2.78 x 0.88	12.23	10.10	8.51	7.45
2VK3	N	2	1.81 x 2.78 x 0.88	13.49	11.14	9.38	8.21
2K4	C	2	2.65 x 2.00 x 0.88	16.73	13.82	11.64	10.18
2K5	D	2	2.13 x 2.00 x 0.88	17.04	14.08	11.85	10.37
3VK1	M	3	3.00 x 2.78 x 1.13	14.56	12.03	10.13	8.86
3VK3	N	3	1.81 x 2.78 x 1.13	15.29	12.63	10.64	9.31
3K4	C	3	2.65 x 2.00 x 1.13	18.40	15.20	12.80	11.20
3K5	D	3	2.13 x 2.00 x 1.13	18.71	15.46	13.02	11.39
3K7	Q	3	3.19 x 2.19 x 1.25	16.49	13.62	11.47	10.04
5VK1	M	5	3.00 x 2.78 x 1.13	12.44	10.28	8.65	7.57
5VK3	N	5	1.81 x 2.78 x 1.13	14.32	11.83	9.96	8.72
5K4	C	5	2.65 x 2.00 x 1.13	17.01	14.06	11.84	10.36
5K5	D	5	2.13 x 2.00 x 1.13	17.35	14.34	12.07	10.56
5K7	Q	5	3.19 x 2.19 x 1.25	15.24	12.59	10.60	9.28
10VK1	M	10	3.25 x 2.78 x 1.13	13.41	11.08	9.33	8.16
10VK3	N	10	2.06 x 2.78 x 1.13	14.06	11.62	9.78	8.56
10K6	E	10	3.35 x 2.75 x 1.13	15.79	13.04	10.98	9.61
10K7	Q	10	3.70 x 2.19 x 1.25	16.88	13.95	11.75	10.28
20VK1	M	20	3.23 x 3.32 x 1.50	17.90	14.79	12.45	10.90
20K6	E	20	3.35 x 3.32 x 1.50	20.70	17.10	14.40	12.60
30K6	E	30	5.23 x 4.12 x 1.50	40.09	33.12	27.89	24.40

SERIES R FILTERS

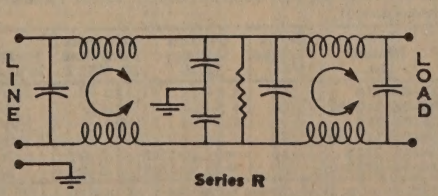
Series R dual T-section RFI power line filters provide premium performance at moderate cost. Well suited for low impedance loads where noisy RFI environments are present. At frequencies as low as 150 kHz, series R has an insertion loss as high as 45 dB. These filters control pulsed, continuous and/or intermittent interference insuring protection of equipment from power line noise in addition to protecting line from equipment noise. Ideal replacement for PI filters while incorporating the "value added" concept. Series R dual T type provides extremely low leakage current without deterioration of insertion loss characteristics. **Rated Voltage:** 115–250 VAC, 50–60 Hz. **Maximum Leakage Current:** 0.65 mA at 115 VAC, 60 Hz; 1.5 mA at 250 VAC, 60 Hz. Leakage current measured from line to ground. **Capacitance:** 11,000 pF from line to ground. **Operating Frequency:** 50–400 Hz. **Test Voltage:** 2250 VDC. UL recognized plus VDE and CSA approved.

Corcom Type	Fig.	Max. Line Current Amps	Size, Inches L. x W. x H.	Net Each, Lots of 1-24	25-49	50-99	100-499
1VR1	P	1	3.23 x 1.75 x 1.13	$20.31	$16.78	$14.13	$12.36
1VR3	R	1	2.75 x 1.75 x 1.13	21.43	17.70	14.91	13.05
2VR1	P	2	3.23 x 1.75 x 1.13	18.35	15.16	12.76	11.17
2VR3	R	2	2.75 x 1.75 x 1.13	20.33	16.80	14.15	12.38
3VR1	P	3	3.73 x 2.00 x 1.13	19.73	16.30	13.73	12.01
3VR3	R	3	3.32 x 2.00 x 1.13	20.99	17.34	16.40	12.78
3R7	Q	3	4.33 x 2.19 x 1.25	22.74	18.78	15.82	13.84
5VR1	P	5	3.73 x 2.00 x 1.13	18.53	15.31	12.89	11.28
5VR3	R	5	3.32 x 2.00 x 1.13	20.49	16.93	14.25	12.47
5R7	Q	5	4.33 x 2.19 x 1.25	21.48	17.75	14.95	13.08
10VR1	P	10	3.73 x 2.00 x 1.50	19.45	16.06	13.53	11.84
10VR3	R	10	3.32 x 2.00 x 1.50	20.13	16.63	14.00	12.25
10R6	O	10	3.85 x 2.00 x 1.50	23.05	19.04	16.04	14.03
10R7	Q	10	4.33 x 2.19 x 1.50	23.08	19.06	16.05	14.05
20VR1	P	20	5.11 x 4.12 x 1.50	40.62	33.55	28.25	24.72
20R6	O	20	5.23 x 4.12 x 1.50	41.66	34.42	28.98	25.36

These filters recognized under the components program of Underwriters Laboratories, Inc.; and all VR units are also VDE approved.



Series K



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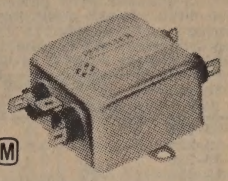
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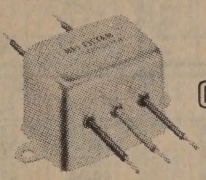
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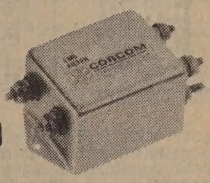
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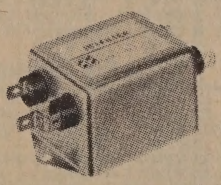
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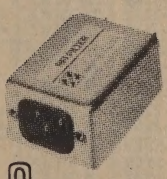
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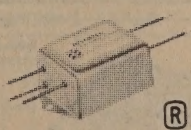
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S

SOLA ELECTRIC — Sola Solid Power Supplies

SOLA® SOLIDS PC BOARD DC SUPPLIES

A series regulated solid power supply specifically designed for printed circuit board mounting. Output can be shorted without damaging supply. **Input:** 115 VAC ± 10 VAC, 50–400 Hz. **Output voltage accuracy:** ±2%. **Line/Load regulation:** .02% or 2.5 mV. **Operating temp.:** −25° C to +71° C.

Sola No.	DC Output		PARD	Size		
	Volts	Amps	mVrms	H″	W″	D″
84-05-150	5	.5	1	.875	2.5	3.5
84-05-210	5	1.0	1	1.25	2.5	3.5
84-05-220	5	2.0	1	1.62	2.5	3.5
84-12-110	12	.1	.5	1.0	1.75	2.25
84-15-110	15	.1	.5	1.0	1.75	2.25
84-12-2112	±12	.12 ea.	.5	.875	2.5	3.5
84-12-2124	±12	.24 ea.	.5	1.25	2.5	3.5
84-12-2140	±12	.4 ea.	.5	1.62	2.5	3.5
84-15-2025	±15	.025 ea.	2.0	.875	2.5	3.5
84-15-2110	±15	.1 ea.	.5	.875	2.5	3.5
84-15-2120	±15	.2 ea.	.5	1.25	2.5	3.5
84-15-2135	±15	.35 ea.	.5	1.62	2.5	3.5

Sola No.	Net Each, Lots of			
	1-4	5-9	10-49	50-99
84-05-150	$ 77.70	$ 73.05	$ 68.40	$ 59.05
84-05-210	109.55	102.95	96.40	83.25
84-05-220	140.05	131.65	123.25	106.45
84-12-110	48.10	45.25	42.35	36.60
84-15-110	48.10	45.25	42.35	36.60
84-12-2112	73.05	68.40	59.05	55.76
84-12-2124	109.55	102.95	96.40	83.25
84-12-2140	157.90	148.45	138.95	120.05
84-15-2025	55.15	51.85	48.55	41.90
84-15-2110	77.70	73.05	68.40	59.05
84-15-2120	109.55	102.55	96.40	83.25
84-15-2135	157.90	148.40	138.95	120.00

CHASSIS MOUNT POWER MODULE

Convenient, direct chassis mount. Easy terminal strip connections. Low cost, off-the-shelf delivery. The 85 Series chassis-mount modular power supplies are designed for applications where printed circuit mounting is impractical or undesirable. Total epoxy encapsulation is an advantage where vibration or adverse atmospheric conditions exist. The convenience of threaded insert mounting and terminal strip connections allows easy prototyping and efficient one-shot design work.

Output Voltage (V)	Output Current (mA)	Source Effect Max.	Load Effect Max.	PARD (mV)	Sola Number
5	1000	±0.05%	±0.15%	2	85-05-210*
5	2000	±0.05%	±0.15%	2	85-05-220*
±12	240	±0.05%	±0.05%	1	85-12-2124
±12	400	±0.05%	±0.05%	1	85-12-2140
±15	100	±0.05%	±0.05%	1	85-15-2110
±15	200	±0.05%	±0.05%	1	85-15-2120
±15	350	±0.05%	±0.05%	1	85-15-2135
±15	500	±0.05%	±0.05%	1	85-15-2150

*With overvoltage protection; overvoltage crowbar set to trip at 6.2 V nominal.

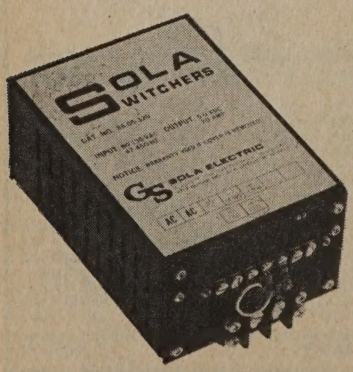
PRICING

Sola Number	Net Each, Lots of			
	1-4	5-9	10-49	50-99
85-05-210	$126.20	$118.65	$111.10	$ 95.95
85-05-220	157.95	148.45	139.00	120.05
85-12-2124	126.20	118.65	111.10	95.95
85-12-2140	173.25	162.85	152.45	131.65
85-15-2110	102.55	96.40	90.25	77.95
85-15-2120	126.20	118.65	111.10	95.95
85-15-2135	173.25	162.85	152.45	131.65
85-15-2150	198.10	186.20	174.30	150.05

SOLA DC/DC SOLIDS

DC/DC Solid power supplies series 87 provide line/load regulation while Pi-type input filter minimizes reflected input ripple current. Available in single and dual outputs. **Output Voltage Accuracy:** ±0.5%. **Max. Oper. Temp.:** −25° C to 71° C. **Line Regulation:** ±0.02% full range max. **Load Regulation:** For single output models ±0.04% (NL-FL) max, for dual output models ±0.02% (NL-FL) max.

Sola No.	Input Voltage	Output Voltage	Output Current	Input Current Full Load/ No Load (typical)	Fault Mode Current (typical)	Reflected Ripple Current	Net Each, Lots of			
							1-4	5-9	10-49	50-99
87-99-1210	5 VDC	5 VDC	1000 mA	1540 mA/25 mA	2300 mA	54 mA p-p	$129.05	$121.35	$113.60	$ 98.10
87-98-1160	5 VDC	9 VDC	600 mA	1660 mA/30 mA	2490 mA	58 mA p-p	129.05	121.35	113.60	98.10
87-97-1147	5 VDC	12 VDC	470 mA	1735 mA/30 mA	2600 mA	61 mA p-p	129.05	121.35	113.60	98.10
87-96-1140	5 VDC	15 VDC	400 mA	1845 mA/35 mA	2770 mA	64 mA p-p	129.05	121.35	113.60	98.10
87-97-2123	5 VDC	±12 VDC	±230 mA	1650 mA/132 mA	2475 mA	58 mA p-p	137.20	129.00	120.75	104.30
87-96-2119	5 VDC	±15 VDC	±190 mA	1700 mA/136 mA	2550 mA	60 mA p-p	137.20	129.00	120.75	104.30
87-79-1210	12 VDC	5 VDC	1000 mA	640 mA/14 mA	960 mA	22 mA p-p	129.05	121.35	113.60	98.10
87-78-1160	12 VDC	9 VDC	600 mA	690 mA/15 mA	1035 mA	24 mA p-p	129.05	121.35	113.60	98.10
87-77-1147	12 VDC	12 VDC	470 mA	725 mA/15 mA	1080 mA	26 mA p-p	129.05	121.35	113.60	98.10
87-76-1140	12 VDC	15 VDC	400 mA	770 mA/17 mA	1150 mA	27 mA p-p	129.05	121.35	113.60	98.10
87-77-2123	12 VDC	±12 VDC	±230 mA	690 mA/55 mA	1035 mA	24 mA p-p	137.20	129.00	120.75	104.30
87-76-2119	12 VDC	±15 VDC	±190 mA	710 mA/57 mA	1065 mA	25 mA p-p	137.20	129.00	120.75	104.30
87-59-1210	24 VDC	5 VDC	1000 mA	320 mA/7 mA	480 mA	11 mA p-p	129.05	121.35	113.60	98.10
87-58-1160	24 VDC	9 VDC	600 mA	350 mA/8 mA	525 mA	12 mA p-p	129.05	121.35	113.60	98.10
87-57-1147	24 VDC	12 VDC	470 mA	360 mA/8 mA	540 mA	13 mA p-p	129.05	121.35	113.60	98.10
87-56-1140	24 VDC	15 VDC	400 mA	385 mA/9 mA	580 mA	13 mA p-p	129.05	121.35	113.60	98.10
87-57-2123	24 VDC	±12 VDC	±230 mA	340 mA/27 mA	510 mA	12 mA p-p	137.20	129.00	120.75	104.30
87-56-2119	24 VDC	±15 VDC	±190 mA	350 mA/28 mA	525 mA	12 mA p-p	137.20	129.00	120.75	104.30
87-49-1210	28 VDC	5 VDC	1000 mA	275 mA/7 mA	410 mA	10 mA p-p	129.05	121.35	113.60	98.10
87-48-1160	28 VDC	9 VDC	600 mA	300 mA/8 mA	450 mA	11 mA p-p	129.05	121.35	113.60	98.10
87-47-1147	28 VDC	12 VDC	470 mA	310 mA/8 mA	465 mA	11 mA p-p	129.05	121.35	113.60	98.10
87-46-1140	28 VDC	15 VDC	400 mA	330 mA/9 mA	495 mA	12 mA p-p	129.05	121.35	113.60	98.10
87-47-2123	28 VDC	±12 VDC	±230 mA	290 mA/23 mA	435 mA	10 mA p-p	137.20	129.00	120.75	104.30
87-46-2119	28 VDC	±15 VDC	±190 mA	300 mA/24 mA	450 mA	11 mA p-p	137.20	129.00	120.75	104.30
87-39-1210	48 VDC	5 VDC	1000 mA	160 mA/7 mA	240 mA	22 mA p-p	137.20	129.00	120.75	104.30
87-38-1160	48 VDC	9 VDC	600 mA	170 mA/8 mA	260 mA	24 mA p-p	137.20	129.00	120.75	104.30
87-37-1147	48 VDC	12 VDC	470 mA	180 mA/8 mA	270 mA	25 mA p-p	137.20	129.00	120.75	104.30
87-36-1140	48 VDC	15 VDC	400 mA	190 mA/9 mA	285 mA	27 mA p-p	137.20	129.00	120.75	104.30
87-37-2123	48 VDC	±12 VDC	±230 mA	170 mA/19 mA	255 mA	24 mA p-p	145.30	136.60	127.90	110.45
87-36-2119	48 VDC	±15 VDC	±190 mA	180 mA/20 mA	270 mA	25 mA p-p	145.30	136.60	127.90	110.45



HIGH FREQUENCY POWER SUPPLY SWITCHING REGULATORS

Compact, light-weight units. Convection cooled. High efficiency; 75% at 5 volts output and full load. Low ripple (PARD). Short-circuit proof; for indefinite period. Tracking outputs. Fast load transient recovery. No audible noise. **Regulation:** 0.1% max. for ±10% change in line voltage. Ripple and noise average 35 mVp-p for 5 volt supply with a temperature coefficient of 0.01%/° C typical. **Temperature Range:** 0° C to +71° C; derate 2.5%/° C above 45° C. **Input Voltage Range:** 95–130 VAC (115 VAC nominal) or 180–260 VAC (230 VAC nominal), 47–450 Hz. **Switching Frequency:** 25 kHz at normal load to 2 kHz at short circuit or below 0.5 Ampere load. **Over-Voltage Protection:** Trips at 6.0 volts output; current limited. **Input Isolation:** 50 megohms (900 Vrms minimum breakdown).

Sola Model No.	Input Voltage VAC	Output Voltage VDC	Output Current @ 45° C	PARD mVp-p	Net Each, Lots of			
					1-4	5-9	10-49	50-99
86-05-310	115	4.5–5.5	10 A	25	$319.10	$303.15	$287.15	$271.20
86-05-310-50	230	4.5–5.5	10 A	25	319.10	303.15	287.15	271.20
86-05-320	115	4.5–5.5	20 A	50	471.00	447.45	423.90	400.35
86-05-320-50	230	4.5–5.5	20 A	50	471.00	447.45	423.90	400.35
86-12-2215	115	±11.5–15.5	1.5 A*	3	319.10	303.15	287.15	271.20
86-12-2215-50	230	±11.5–15.5	1.5 A*	3	319.10	303.15	287.15	271.20

*Each side; 3 Amperes total (sum of positive and negative outputs).

PRICES LISTED ARE FOR GUIDANCE ONLY

Regulated Power Supplies

SERIES REGULATED POWER SUPPLIES DUAL AND TRIPLE OUTPUTS

Completely interchangeable power supplies with remote sensing and short circuit protection. **Input:** 120/240 VAC ±10%, 47–420 Hz. **Regulation:** Line and load combined, ±0.1%. **Ripple:** 0.01% rms. **Operating temperature:** 0° C to 55° C. **Recovery time:** Less than 50 microseconds.

Sola No.	Output Volts	Output Amps	Net Each, Lots of 1-4	5-9	10-49	50-99
83-12-2180	±12	.8	$ 63.00	$ 59.25	$ 55.45	$ 47.90
83-15-2170	±15	.7	63.00	59.25	55.45	47.90
83-12-2218	±12	1.8	96.50	90.75	84.95	73.35
83-15-2216	±15	1.6	96.50	90.75	84.95	73.35
83-12-2250	±12	5.0	192.95	181.40	169.80	146.65
83-15-2240	±15	4.0	192.95	181.40	169.80	146.65
83-12-3218	±12 5	1.8 6.0	158.10	148.65	139.15	120.20
83-15-3216	±15 5	1.6 6.0	158.10	148.65	139.15	120.20

MICROPROCESSOR POWER SUPPLIES

1C regulated power supplies with fully isolated, independent outputs for either positive or negative operation. Designed to operate most of the microprocessors on the market today. Versatile packaging allows vertical or horizontal mounting in a rack or on the bench. Outputs can be connected in series or parallel. Completely protected short circuit proof; automatic current limiting; overvoltage protection available for all outputs—standard on +5 V outputs. **Input Voltage Range:** 104–127/208–254 VAC. **Input Frequency Range:** 50–400 Hz (derate load 75% at 400 Hz). **Output Ripple:** 0.05% peak-to-peak, 0.01% rms. **Regulation Line and Load Combined:** ±0.1%. **Output Noise:** 0.01% rms (10 MHz bandwidth). **Input/Output Isolation:** 1000 megohms DC, 2500 VAC. **Temperature Coefficient:** 0.01%/°C. **Overvoltage Protection:** Standard on all +5 V outputs; optional on others. **Polarity:** May be used either positive or negative. **Operating Temperature:** 0° C to +55° C without derating; −20° C to +80° C with performance derating (consult factory). **Storage Temperature:** −40° C to +85° C. **Recovery Time:** Less than 50 microseconds from half-load to full load. **Minimum Output Adjustment Range:** ±5% at full rated load. **Maximum Output Current:** 120% of rated current. **Maximum Short Circuit Current:** 30% of rated current. **Maximum Allowable Lead Drop for Remote Sensing:** 5%.

Sola No.	Output Volts	Output Amps	Net Each, Lots of 1-4	5-9	10-49	50-99
83-05-230-2	5	3.0	$ 44.10	$ 41.45	$ 38.85	$33.55
83-05-260-2	5	6.0	90.70	85.30	79.85	68.95
83-12-218-2	12	1.8	44.10	41.45	38.85	33.55
83-15-216-2	15	1.6	44.10	41.45	38.85	33.55
83-12-250-2	12	5.0	90.70	85.30	79.85	68.95
83-15-240-2	15	4.0	90.70	85.30	79.85	68.95
83-81-2225	+5 +9 to +12	2.5 0.5	66.05	62.10	58.15	50.20
83-82-2230	+5 −5	3.0 0.1	66.05	62.10	58.15	50.20
83-81-2250	+5 +9 to +12	5.0 0.8	117.45	110.40	103.40	89.30
83-82-2250	+5 −5	5.0 0.1	117.45	110.40	103.40	89.30
83-83-3225	+5 +9 to +12 −9 to −12	2.5 .25 .25	102.90	96.75	90.55	78.20
83-84-3225	+5 +9 to +12 −5	2.5 .25 0.1	102.90	96.75	90.55	78.20
83-83-3250	+5 +9 to +12 −9 to −12	5.0 0.5 0.5	130.65	122.85	115.00	99.30
83-84-3250	+5 +9 to +12 −5	5.0 0.5 0.1	130.65	122.85	115.00	99.30

OVERVOLTAGE PROTECTION

A low-cost option for Sola Class 81 and 83 power supplies.

Power Supply	Overvoltage Protection	Sola Number	Net Each, Lots of 1-4	5-9	10-49
15 Watts	5 V/6 V	999-226-5	$14.50	$13.60	$12.75
	12 V/15 V	999-226-12	14.50	13.60	12.75
	24 V	999-226-24	14.50	13.60	12.75
30 Watts	5 V	999-219-5	14.50	13.60	12.75
	12 V	999-219-12	14.50	13.60	12.75
	15 V	999-219-15	14.50	13.60	12.75
	24 V	999-219-24	14.50	13.60	12.75
60 Watts	5 V	999-189-5	22.05	20.75	19.40
	12 V	999-189-12	22.05	20.75	19.40
	15 V	999-189-15	22.05	20.75	19.40
	24 V	999-189-24	22.05	20.75	19.40
120 Watts	12 V	999-189-12	22.05	20.75	19.40
	15 V	999-189-15	22.05	20.75	19.40
	24 V	999-189-24	22.05	20.75	19.40
	48 V	999-189-48	22.05	20.75	19.40

OEM SERIES MODULAR SUPPLIES

Series regulated DC supplies for bench or rack use in powering computers, data processing, process control, electronic measuring, telemetering and others. Completely protected short-circuit proof with automatic current limiting. Convection cooled. Complete serviceability. Remote sensing. **Input:** 108–132 or 216–264 VAC, 50–400 Hertz. **Regulation:** ±.05%, line or load. **Ripple:** 10 mV rms. **Operating Temperature:** 0° C to +55° C. **Recovery Time:** Less than 50 microseconds. Optional crowbar protection devices are available for this series; ask for pricing and availability UL listed.

Sola No.	Input Voltage	Output Voltage Range	Output Current Amps	Net Each, Lots of 1-4	5-9	10-49
15 WATT SERIES						
81-05-230-1	115	5–6	3.0–2.5	$38.45	$36.15	$33.85
81-12-215-1	115	12–15	1.5–1.2	38.45	36.15	33.85
81-24-180-1	115	24	0.8	38.45	36.15	33.85
30 WATT SERIES						
83-05-230-2	230	4.8–5.5	3.0	$44.10	$41.45	$38.85
83-12-218-2	230	11.5–12.5	1.8	44.10	41.45	38.85
83-15-216-2	230	1415–15.5	1.6	44.10	41.45	38.85
83-24-212-2	230	23–25	1.2	44.10	41.45	38.85
60 WATT SERIES						
83-05-260-2	115	4.8–5.5	6.0	$90.70	$85.30	$79.85
83-12-250-2	115	11.5–12.5	5.0	90.70	85.30	79.85
83-15-240-2	115	14.5–15.5	4.0	90.70	85.30	79.85
83-24-225-2	115	23–25	2.5	90.70	85.30	79.85
120 WATT SERIES						
83-05-312-2	115	4.8–5.5	12.0	$137.35	$129.15	$120.90
83-12-310-2	115	11.5–12.5	10.0	137.35	129.15	120.90
83-15-280-2	115	14.5–15.5	8.0	137.35	129.15	120.90
83-24-260-2	115	23–25	6.0	137.35	129.15	120.90
83-48-230-2	115	46–50	3.0	137.35	129.15	120.90

CVDC SERIES CONSTANT VOLTAGE SUPPLIES

Rugged, simple and dependable power supplies in both modular and rack-mounted styles. Designed for computers, data processing, measurement, telemetering and wherever isolation from line fluctuation is required. Contains a constant-voltage transformer, rectifier and filter circuit. Provides tight regulation, quick response, isolation and current limiting. **Regulation:** ±1% or less for input variations as great as ±15%. **Rated Input Voltage:** 100–130 volts, 60 Hz. **Response Time:** 25 milliseconds. **Load Regulation:** Less than 4% from 20% to full load. **Efficiency:** Approx. 75%. **Ripple:** Less than 1%. **Operating Temperature:** 0° C to +50° C. Units may be connected in series or parallel for higher current or voltage.

MODULAR STYLE

Sola Number	Output V.	Output A.	% Load Regulation 25% f.l.	50% f.l.	Size, Inches H.	W.	D.	Net Each
28-04-315	4	15	0.8	0.5	3.5	5.25	13	$167.50
28-05-315	5.2	15	0.8	0.5	3.5	5.25	13	167.50
28-06-315	6.3	15	0.8	0.5	3.5	5.25	13	167.50
28-10-312	10	12	1.0	0.6	3.5	5.25	13	167.50
28-12-310	12	10	1.0	0.6	3.5	5.25	13	167.50
28-15-280	15	8	1.3	0.8	3.5	5.25	13	167.50
28-18-267	18	6.7	1.3	0.8	3.5	5.25	13	167.50
28-24-250	24	5	1.7	1.0	3.5	5.25	13	167.50
28-28-243	28	4.3	2.0	1.2	3.5	5.25	13	167.50
28-48-225	48	2.5	3.4	2.0	3.5	5.25	13	167.50
28-04-325	4	25	0.8	0.5	6.9	4.94	9.75	249.10
28-05-325	5.2	25	0.8	0.5	6.9	4.94	9.75	249.10
28-06-325	6.3	25	0.8	0.5	6.9	4.94	9.75	249.10
28-10-318	10	18	1.0	0.6	6.9	4.94	9.75	249.10
28-12-315	12	15	1.0	0.6	6.9	4.94	9.75	249.10
28-15-312	15	12	1.0	0.6	6.9	4.94	9.75	249.10
28-18-310	18	10	1.0	0.6	6.9	4.94	9.75	249.10
28-24-280	24	8	1.2	0.7	6.9	4.94	9.75	249.10
28-28-270	28	7	1.2	0.7	6.9	4.94	9.75	249.10
28-48-240	48	4	1.7	1.0	6.9	4.94	9.75	249.10

RACK MOUNTING STYLE

Sola Number	Output V.	Output A.	% Load Regulation 20% f.l.	50% f.l.	Size, Inches H.	W.	D.	Net Each
28-1513-2	6	10	9	7	3½	.....	7⅝	$293.65
28-2123-1	6	15	10	7	5¼	.....	7¼	339.20
28-1514-2	12	5	7	5	3½	.....	7⅝	293.65
28-2124-1	12	10	9	5	5¼	.....	7¼	293.65
28-1845-2	12	15	10	7	5¼	.....	7¼	339.20
28-1515-2	18	5	5	4	3½	.....	7⅝	293.65
28-2125-1	18	10	7	5	5¼	.....	7¼	339.20
28-1024-1	24	6	5	4	5¼	.....	9¾	293.65
28-2126-1	24	10	6	4	5¼	.....	8¾	339.20
28-1203-2	24	15	7	5	7	.....	7¼	364.65
28-2127-1	24	25	7	5	8¾	.....	9	474.90
28-626-2	28	8	6	4	5¼	.....	8¾	339.20
28-2128-1	28	15	7	5	7	.....	7¼	364.65
28-1048	48	4	3.5	2.5	5¼	.....	9¾	293.65
28-1561-2	48	10	4	2	5¼	.....	9¾	339.20
28-2129-1	48	20	4	2.5	8¾	.....	9¾	474.90
28-1125-1	125	2	2.5	1.5	5¼	.....	9¾	339.20
28-1150-1	150	2	2	1.5	5¼	.....	9¾	339.20
28-1200	200	1	3	2	5¼	.....	9¾	339.20
28-1250	250	1	3	2	5¼	.....	9¾	339.20

SOLA ELECTRIC HARMONIC NEUTRALIZED TRANSFORMERS

CVS HARMONIC NEUTRALIZED TYPE

Contains less than 3% total harmonic content in output at full load operation. Recommended for all AC applications where harmonics can affect operation. Only constant-voltage transformers with built-in harmonic neutralizing circuits. Use no filters; do not need extra capacitors or noisy chokes. Smaller and more rugged than transformers employing filters for wave-shape improvement. ±½% regulation for an input range of ±15% of nominal range. Due to their low harmonic content and inherent isolation from line, Sola CVS transformers are ideally suited for use with electronic test equipment and mini-computers. All units contain non-PCB components.

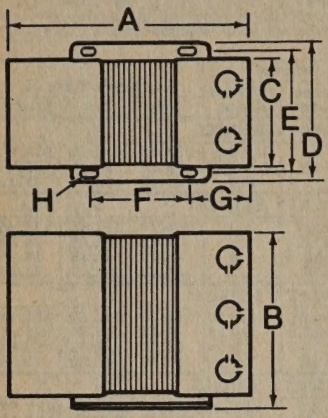


Fig. 1

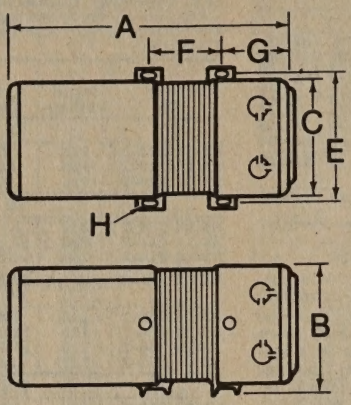


Fig. 2

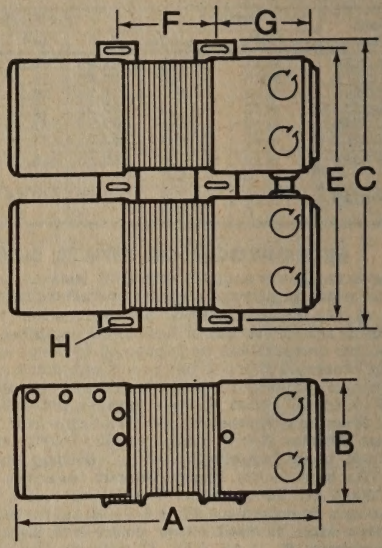


Fig. 3

Reg. Output	Input Range	VA	Sola Number	Fig.	Dimensions, Inches A	B	C	D	E	F	G	H	Each
60 HERTZ, SINGLE PHASE, UL LISTED													
120	95–130	30	23-13-030-2	1	6 1/8	5 3/16	3 1/4	4	3 1/2	3	1 3/4	7/32 x 19/32	$ 96.35
	95–130	60	23-13-060-2	1	6 13/16	5 3/16	3 1/4	4	3 1/2	3	1 3/4	7/32 x 19/32	113.60
	190–260 x 380–520	60	23-23-060-2	1	6 13/16	5 3/16	3 1/4	4	3 1/2	3	1 3/4	7/32 x 19/32	123.90
	95–130 x 190–260	120	23-22-112-2	1	8 1/8	5 3/16	3 1/4	4	3 1/2	3	2 7/16	7/32 x 19/32	146.85
	190–260 x 380–520	120	23-23-112-2	1	8 1/8	5 3/16	3 1/4	4	3 1/2	3	2 7/16	7/32 x 19/32	154.85
	95–130 x 190–260	250	23-22-125	1	9 5/8	7 7/16	4 1/2	5 3/8	4 3/4	4 1/8	2 3/16	5/16 x 1 1/16	199.55
	190–260 x 380–520	250	23-23-125	1	9 7/8	7 7/16	4 1/2	5 3/8	4 3/4	4 1/8	2 3/16	5/16 x 1 1/16	211.05
	95–130 x 190–260	500	23-22-150	1	12 7/16	6 7/16	7 25/32	9	8 1/8	5 3/8	3 1/16	3/8 x 1 3/16	323.35
120 x 240	190–260 x 380–520	500	23-26-150	1	12 7/16	6 7/16	7 25/32	9	8 1/8	5 3/8	3 1/16	3/8 x 1 3/16	323.35
	95–130 x 175–235 x 190–260	750	23-25-175	1	16 3/16	6 7/16	7 25/32	9	8 1/8	5 3/8	2 9/32	3/8 x 1 3/16	413.95
	95–130 x 175–235 x 190–260	1000	23-25-210	1	17 7/8	6 7/8	7 25/32	9	8 1/8	5 3/8	4 1/16	3/8 x 1 3/16	505.65
	190–260 x 380–520	1000	23-26-210	1	17 7/8	6 7/8	7 25/32	9	8 1/8	5 3/8	4 1/16	3/8 x 1 3/16	505.65
	95–130 x 175–235 190–260	1500	23-25-215	2	18 7/16	9 1/32	10 9/16	...	11 3/4	3	5 3/16 x	7/16 x 1 1/16	679.95
	95–130 x 175–235 190–260	2000	23-25-220	2	19 5/16	9 1/32	10 9/16	...	11 3/4	3 7/8	5 3/16	7/16 x 1 1/16	861.05
	190–260 x 380–520	2000	23-26-220	2	19 5/16	9 1/32	10 9/16	...	11 3/4	3 7/8	5 3/16	7/16 x 1 1/16	861.05
	95–130 x 170–235 190–260	3000	23-25-230-3	2	20 1 1/16	9 1/16	10 9/16	...	11 3/4	5 1/4	5 3/16	7/16 x 1 1/16	1193.60
	190–260 x 380–520	3000	23-26-230	2	20 1 1/16	9 1/32	10 9/16	...	11 3/4	5 1/4	5 3/16	7/16 x 1 1/16	1193.60
	95–130 x 175–235 190–260	5000	23-25-250	3	19 7/8	9 1/32	25 1 3/16	...	24 1 3/16	4 7/16	5 3/16	7/16 x 1 1/16	1865.40
	190–260 x 380–520	5000	23-26-250	3	19 7/8	9 1/32	25 1 3/16	...	24 1 3/16	5 3/16	5 3/16	7/16 x 1 1/16	1865.40
	190–260 x 380–520	7500	23-28-275	†	19 7/8	9 3/8	38 1/4	...	37 7/32	4 7/16	5 3/16	7/16 x 1 1/16	2294.20

†Triplex assembly; same as Fig. 3, except addition of one more transformer.

50 HERTZ, SINGLE PHASE													
110 x 220	90–130 x 180–260	60	24-551-2	1	7 3/4	5 3/16	3 5/16	4	3 1/2	3	2 7/16	7/32 x 19/32	$ 125.75
	90–130 x 180–260	120	24-552-2	1	8 1 3/16	7 7/16	4 1/2	5 3/8	4 3/4	4 1/8	2 3/16	5/16 x 1 1/16	162.10
	90–130 x 180–260	250	24-553-2	1	11 7/16	6 7/16	7 25/32	9	8 1/8	5 3/8	3 1/16	3/8 x 1 3/16	219.45
	90–130 x 180–260	500	24-554-2	1	13 5/16	6 7/16	7 25/32	9	8 1/8	5 3/8	3 1/16	3/8 x 1 3/16	328.55
	90–130 x 180–260	1000	24-555-2	2	18 7/8	9 1/32	10 9/16	...	11 3/4	3 1/2	5 3/16	7/16 x 1 1/16	567.75
	90–130 x 180–260	2000	24-556-2	2	21 1/16	9 1/32	10 9/16	...	11 3/4	5 1 1/16	5 3/16	7/16 x 1 1/16	906.20
	90–130 x 180–260	3000	24-557-2	2	27	9 1/32	10 9/16	...	11 3/4	8 1/4	5 3/16	7/16 x 1 1/16	1388.60
	90–130 x 180–260	5000	24-572-2	3	22 3/8	9 1/32	25 1 3/16	...	24 1 3/16	7	5 3/16	7/16 x 1 1/16	2178.30

CORD/RECEPTACLE ADAPTER KITS

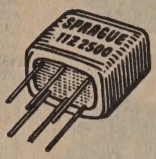
Adapter kits may be used when the convenience of input plug and output receptacle is preferred to the standard arrangement of terminals in the transformer housing.

Adapter Code	Sola No.	Input Cord	Output Connections	Net Each
a	999-105	2-Wire	2-Wire receptacle	$14.05
a	999-019	3-Wire	3-Wire receptacle	12.90

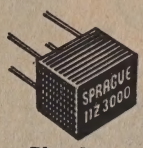
PRICES LISTED ARE FOR GUIDANCE ONLY

TYPE 11Z TRIGATE® PULSE TRANSFORMERS

Flexible 6-Lead Type



Plug-In, Thermoplastic Sheath



Plug-In, Pre-molded Case

Trigate pulse transformers are specifically designed for commercial and industrial SCR triggering applications where low cost and excellent performance are required. Unique features offered by these devices include: Balanced pulse characteristics and energy transfer from the primary to secondary and tertiary windings; minimum saturation effect to allow operation where increased pulse widths are required; fast pulse rise time and increased current capability to prevent SCR dI/dt failure; increased energy transfer efficiency. **Operating Temperature Range:** −10° C to +70° C; transformers for −40° C to +105° C operation are available on request. **Dielectric Test:** 1600 volts rms at 60 Hz. **AC Line Voltage:** 240 volts rms max. at 60 Hz. Choice of flexible lead and printed wiring board designs.

Flexible Lead 240-VAC Types—Leads are polyurethane-insulated magnet wire for direct soldering to terminals or other circuit components without removal of wire insulation. Mount with plastic clip or bracket such as Weckesser Etho-Loc snap clips. Case size, 0.593″ dia. x 0.828″ lg. with flexible leads 1.500″ lg. min.

Sprague No.	Turns Ratio	Min. L_p, µH	Max. L_L, µH	Max. C_C, pF	Max. DCR, Ohms	No. of Leads	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499	500-999
11Z12	1:1	200	3	800	1.5–1.5	4	$3.09	$1.925	$1.26	$0.91	$0.84	$0.77
11Z13	1:1:1	200	3	800	2–2–2	6	3.72	2.338	1.53	1.105	1.02	.935
11Z14	2:1	1000	10	1300	10–2	4	4.17	2.613	1.71	1.235	1.14	1.045
11Z15	2:1:1	1000	15	1300	10–2–2	6	4.62	2.888	1.89	1.365	1.26	1.155
11Z16	5:1	5000	1500	400	19–3	4	5.49	3.438	2.25	1.625	1.50	1.375

Horizontal Plug-In Thermoplastic Sheath 240-VAC Types—Self-supporting, single-ended pulse transformers with leads especially designed for mounting on printed wiring boards. Case size, 0.968″ w. x 0.775″ d. x 0.800″ h. max. with No. 20 AWG pretinned copper wire leads 0.250″ lg. min.

11Z2000	1:1	200	3	800	1.5–1.5	4	$5.91	$3.713	$2.43	$1.755	$1.62	$1.485
11Z2001	1:1	1000	12	2000	8–8	4	6.15	3.85	2.52	1.82	1.68	1.54
11Z2003	2:1	1000	10	1300	10–2	4	7.23	4.538	2.97	2.145	1.98	1.815
11Z2004	5:1	5000	1500	400	19–3	4	6.57	4.125	2.70	1.95	1.80	1.65
11Z2100	1:1:1	200	3	800	2–2–2	6	6.81	4.263	2.79	2.015	1.86	1.705
11Z2101	1:1:1	1000	12	2000	10–10–10	6	7.02	4.40	2.88	2.08	1.92	1.76
11Z2103	2:1:1	1000	15	1300	10–2–2	6	7.89	4.95	3.24	2.34	2.16	1.98
11Z2104	5:1:1	5000	1500	400	20–4–4	6	7.23	4.538	2.97	2.145	1.98	1.815

Horizontal Plug-In, Pre-molded Case 240-VAC Types—Same as above. Case size, .950″ w. x .775″ d. x .750″ h.

Sprague Number	Turns Ratio	Min. L_p, µH	Max. L_L, µH	Max. C_C, pF	Max. DCR, Ohms	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499	500-999
11Z3000	1:1	200	3	800	1.5–1.5	$8.10	$5.088	$3.33	$2.405	$2.22	$2.035
11Z3001	1:1	1000	12	2000	8–8	8.34	5.225	3.42	2.47	2.28	2.09
11Z3002	1:1	5000	15	3500	18–18	8.97	5.638	3.69	2.665	2.46	2.255
11Z3003	2:1	1000	10	1300	10–2	9.42	5.913	3.87	2.795	2.58	2.365
11Z3004	5:1	5000	1500	400	19–3	8.76	5.50	3.60	2.60	2.40	2.20
11Z3100	1:1:1	200	3	800	2–2–2	8.97	5.638	3.69	2.665	2.46	2.255
11Z3101	1:1:1	1000	12	2000	10–10–10	9.21	5.775	3.78	2.73	2.52	2.31
11Z3102	1:1:1	5000	15	3500	27–27–27	9.63	6.05	3.96	2.86	2.64	2.42
11Z3103	2:1:1	1000	15	1300	10–2–2	10.08	6.325	4.14	2.99	2.76	2.53
11Z3104	5:1:1	5000	1500	400	20–4–4	9.42	5.913	3.87	2.795	2.58	2.365

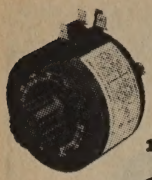
TYPE 66Z SCR TRIGGER TRANSFORMERS

Pre-molded construction permits slightly lower cost than fully-molded units without sacrifice in humidity resistance. Small size for use on PC boards and in encapsulated modular packages. Size, .400″ w. x .785″ l. x .312″ h.

Sprague Number	Turns Ratio	Min. L_p µH	Max. L_L µH	Max. C_C pF	Output Winding*	rms Volts†	Line VAC‡	Net Each, Lots of 1-24	25-49	50-99	100-249
66Z900	1:1:1	700	300	25	60	1000	240	$16.10	$12.65	$ 8.28	$5.98
66Z903	1:1:1	700	300	25	60	2200	550	16.625	13.063	8.55	6.175
66Z930	1:1:1	4800	25	50	110	1000	240	19.075	14.988	9.81	7.085
66Z932	1:1:1	4800	25	50	110	2200	550	23.625	18.563	12.15	8.775

*Typical Vµsec. †60-cycle dielectric test. ‡Max. 60 Hz AC line voltage.

POWERSTAT® VARIABLE TRANSFORMERS WITH POWERKOTE® COILS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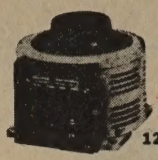
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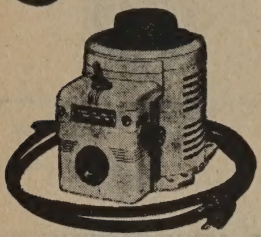
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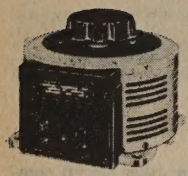
21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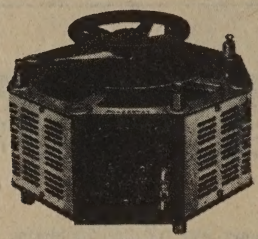

1256D

POWERSTAT Variable Transformers with POWERKOTE Coils give an average of 20% higher current ratings, 10:1 greater overload capability, longer life, greater resistance to fungus, salt spray and other contaminating atmospheres. POWERKOTE Coil commutator bars are embedded in place, preventing steady-state operating temperature and severe overloads from distorting the commutator. POWERSTAT Variable Transformers deliver continuously adjustable voltage from AC lines; feature rugged construction, precious metal-plated commutators, excellent regulation, high efficiency and conservative ratings. They introduce no waveform distortion. Manual and motorized single and ganged assemblies are offered in ratings from .13 to 244 kVA. For complete technical data request current POWERSTAT catalog.

DIGITAL MOTOR DRIVES

Motor-driven units in Series 116B-216B, 117B-217B, 126-226, 136B-236B and 146-246 are available with digital motor drive which permits full range output voltage to be controlled at any speed, 5 to 200 secs. **To Order:** Add prefix **DM** to type number and **$562.00** to the motor driven price. For digital motor control **65455-001,** add **$28.20** to price.

SINGLE PHASE

Superior Number‡	Line Volts	Frequency Hz	Output Volts	Output Max. Amps	Output Max. kVA	Net Each Manual	Net Each Motor* Driven
•10C	120	60■	0–132	2.25♯	0.30	$ 22.00	.....
•21	120	50/60	0–140	5	0.63	37.00	$ 287.00
•116BU	120	50/60	0–140	10	1.4	48.00	298.00
•116B§	120	50/60	0–140	10	1.4	71.00	321.00
117BT	120	60	0–120	12	1.4	74.00	324.00
•126U	120	50/60	0–140	15	2.1	98.00	425.00
•126	120	50/60	0–140	15	2.1	109.00	436.00
•3PN126	120	50/60	0–140	15	2.1	146.00	473.00
•136B	120	50/60	0–140	22	3.1	155.00	482.00
•3PN136B	120	50/60	0–140	22	3.1	211.00	538.00
•1156D	120	50/60	0–140	50	7.0	349.00	676.00
136B-3‡	120	50/60	0–140	66	9.2	601.00	928.00
1156D-2P	120	50/60	0–140	100	14.0	758.00	1085.00
1156D-3P	120	50/60	0–140	150	21.0	1328.00	1655.00
1156D-4P	120	50/60	0–140	200	28.0	1849.00	2176.00
1156D-6P	120	50/60	0–140	300	42.0	2689.00	3016.00
•12	240	50/60	0–264	0.5	0.13	33.00	.....
10C-2	240	60■	0–264	2.25♯	0.59	78.00	.....
•22	240	50/60	0–280	2.5	0.70	54.00	304.00
•216BU	240†	50/60	0–280	3.5	0.98	64.00	314.00
•216B§	240†	50/60	0–280	3.5	0.98	86.00	336.00
21-2	240	50/60	0–280	5	1.3	124.00	374.00
217BT	240	60	0–240	5	1.2	84.00	334.00
•226U	240†	50/60	0–280	7.5	2.1	98.00	425.00
•226	240†	50/60	0–280	7.5	2.1	112.00	439.00
3PN226	240†	50/60	0–280	7.5	2.1	150.00	477.00
116BU-2	240	50/60	0–280	10	2.8	147.00	397.00
116BT-2	240	50/60	0–280	10	2.8	185.00	435.00
•236B	240†	50/60	0–280	10	2.8	155.00	482.00
•3PN236B	240†	50/60	0–280	10	2.8	211.00	538.00
117BT-2	240	60	0–240	12	2.9	201.00	451.00
•246	240†	50/60	0–280	15	4.2	254.00	581.00
126U-2	240	50/60	0–280	15	4.2	229.00	556.00
126-2	240	50/60	0–280	15	4.2	273.00	600.00
•136B-2▲	240†	50/60	0–280	22	6.2	387.00	714.00
•1256D	240†	50/60	0–280	28	7.8	349.00	676.00
146-2♦	240	50/60	0–280	30	8.4	603.00	930.00
1156D-2S	240	50/60	0–280	50	14.0	707.00	1034.00
1256D-2P	240†	50/60	0–280	56	15.7	735.00	1062.00
1256D-3P	240†	50/60	0–280	84	23.5	1304.00	1631.00
1156D-4PS	240	50/60	0–280	100	28.0	1849.00	2176.00
1256D-4P	240†	50/60	0–280	112	31.4	1849.00	2176.00
1156D-6PS	240	50/60	0–280	150	42.0	2646.00	2973.00
1256D-6P	240†	50/60	0–280	168	47.0	2689.00	3016.00
12-2	480	50/60	0–528	0.5	0.26	98.00	.....
22-2	480	50/60	0–560	2.5	1.4	160.00	410.00
216BT-2	480†	50/60	0–560	3.5	2.0	217.00	467.00
217BT-2	480	60	0–480	5	2.4	222.00	472.00
226-2	480†	50/60	0–560	7.5	4.2	278.00	605.00
236B-2▲	480†	50/60	0–560	10	5.6	379.00	706.00
246-2▲	480†	50/60	0–560	15	8.4	603.00	930.00
1256D-2S	480†	50/60	0–560	28	15.7	688.00	1015.00
1256D-4PS	480†	50/60	0–560	56	31.4	1811.00	2138.00
1256D-6PS	480†	50/60	0–560	84	47.0	2646.00	2973.00

THREE PHASE

Superior Number‡	Line Volts	Frequency Hz	Output Volts	Output Max. Amps	Output Max. kVA	Net Each Manual	Net Each Motor* Driven
10C-2	120	60■	0–132	2.25♯	0.51	$ 78.00	.....
21-2	120	50/60	0–140	5	1.1	124.00	$ 374.00
116BU-2	120	50/60	0–140	10	2.4	147.00	397.00
116BT-2	120	50/60	0–140	10	2.4	185.00	435.00
117BT-2	120	60	0–120	12	2.5	201.00	451.00
126U-2	120	50/60	0–140	15	3.6	229.00	556.00
126-2	120	50/60	0–140	15	3.6	273.00	600.00
136B-2▲	120	50/60	0–140	22	5.3	387.00	714.00
146-2♦	120	50/60	0–140	30	7.3	603.00	930.00
1156D-2D	120	50/60	0–140	50	12.1	719.00	1046.00
1156D-4D	120	50/60	0–140	100	24.2	1767.00	2094.00
1156D-6D	120	50/60	0–140	150	36.4	2646.00	2973.00
12-2	240	50/60	0–264	0.5	0.23	98.00	.....
10C-3	240	60■	0–240	2.25♯	0.94	121.00	.....
22-2	240	50/60	0–280	2.5	1.2	160.00	410.00
216BU-2	240†	50/60	0–280	3.5	1.7	169.00	419.00
216BT-2	240†	50/60	0–280	3.5	1.7	217.00	467.00
21-3	240	60■	0–280	5	2.2	195.00	445.00
217BT-2	240	60	0–240	5	2.1	222.00	472.00
226-2	240†	50/60	0–280	7.5	3.6	278.00	605.00
116BT-3	240	60■	0–280	10	4.8	266.00	516.00
236B-2▲	240†	50/60	0–280	10	4.8	379.00	706.00
117BT-3	240	60	0–240	12	5.0	280.00	530.00
126-3	240	60■	0–280	15	7.3	420.00	747.00
136B-3‡	240	60■	0–280	22	10.7	601.00	928.00
1256D-2D	240†	50/60	0–280	28	13.6	706.00	1033.00
146-3I	240	60■	0–280	30	14.5	899.00	1226.00
1156D-3Y	240	60■	0–280	50	24.2	1205.00	1532.00
1256D-4D	240†	50/60	0–280	56	27.2	1767.00	2094.00
1256D-6D	240†	50/60	0–280	84	40.7	2646.00	2973.00
1156D-6Y	240	60■	0–280	100	48.5	2603.00	2930.00
12-3	480	60■	0–528	0.5	0.46	150.00	.....
22-3	480	60■	0–560	2.5	2.4	249.00	499.00
216BT-3	480†	60■	0–560	3.5	3.4	296.00	546.00
217BT-3	480	60	0–480	5	4.2	317.00	567.00
226-3	480†	60■	0–560	7.5	7.3	426.00	753.00
236B-3‡	480†	60■	0–560	10	9.7	559.00	886.00
246-3‡	480†	60■	0–560	15	14.5	900.00	1227.00
1256D-3Y	480†	60■	0–560	28	27.2	1222.00	1549.00
1256D-6Y	480†	60■	0–560	56	54.3	2603.00	2930.00

EXPLANATION OF FOOTNOTES

‡Letters in Part Numbers Indicate as Follows:

3PN—NEMA plug and receptacle.

Suffix letters and numbers (2, 2S, 4P, 6P, etc.), indicate ganged units. Numeral shows number of units in assembly.

U—Supplied without protective screening, terminal enclosure, input cord, output receptacle, fuse or switch.

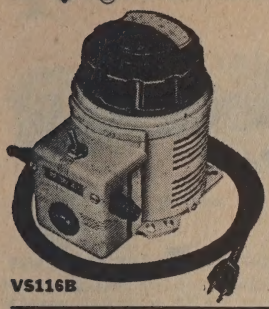
*Add type number prefix from table below to Superior Powerstat No. for full-range travel motor speed desired; e.g., type **5M**21 is 5-sec No. 21 Powerstat, **15MC**126 is 15-sec No. 126 Powerstat, etc. Four-gang or larger types not available in 5-sec speed.

Superior Powerstat Series	Prefix for Full-Range Travel Motor Speed 5 Sec	15 Sec	30 Sec	60 Sec
21-22 116B-216B 117B-217B 146-246	5M	15M	30M	60M
1156D-1256D	5MB	15MB	30MB	60MB
126-226	5MC	15MC	30MC	60MC
136B-236B	5MD	15MD	30MD	60MD

†Also has terminals for operating at ½ this input voltage. ‡For parallel connection, order T5579B choke at **$128.70** extra. §Also available as 3PN type. ♯Metal panel mounted rating. See published derating for brackets and nonmetallic panels. ▲For parallel connection, order T5000B choke at **$67.10** extra. ■If the maximum output voltage is limited to the input voltage, the frequency range is 50–60 Hz. ♦For parallel connection, order T6053 choke at **$91.70** extra. IFor parallel connection, order T6065 choke at **$160.90** extra.

• AVAILABLE OFF-THE-SHELF FROM STOCK.

PRICES LISTED ARE FOR GUIDANCE ONLY

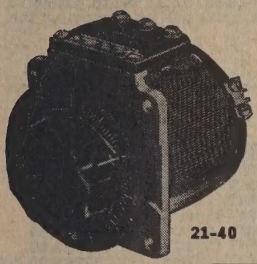

VS116B

METERED KNOB POWERSTAT® VARIABLE TRANSFORMERS

Stationary, direct-reading voltmeter on knob has accuracy of ±3% FS. Voltmeter does not turn with knob; insensitive to stray magnetic fields. Saves panel space, wiring and installation costs. Series 21-22 thru 146-246 back-of-panel mounted types may be combined with metered knob assemblies. Existing models can be retrofitted also.

Superior Type	Line Volts	Freq. Hz	Output Volts	Output Amps‡	Output kVA‡	Price Each
VS116B*	120	50/60	0–140	10	1.4	$218.00
VS117BT*	120	60	0–120	12	1.4	224.00
VS126*	120	50/60	0–140	15	2.1	260.00
VS136B*	120	50/60	0–140	22	3.1	309.00
VS146	120	50/60	0–140	30	4.2	419.00
VS216B*	240†	50/60	0–280	3.5	0.98	232.00
VS217BT*	240	60	0–240	5	1.2	233.00
VS226*	240†	50/60	0–280	7.5	2.1	272.00
VS236B*	240†	50/60	0–280	10	2.8	305.00
VS246	240†	50/60	0–280	15	4.2	419.00

*Also available with cord-plugs shown in standard type chart. †Has terminals for operating at half input voltage. ‡Max.


21-40

40-VOLT POWERSTAT VARIABLE TRANSFORMERS

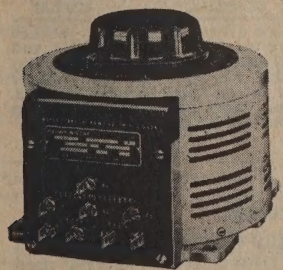
Meet the high current, low voltage requirements of low voltage power supplies and a wide range of transistor circuit applications. All types are open construction. Individual units in ganged assemblies have the same electrical ratings as single units of the corresponding type number.

SINGLE PHASE

Superior Type	Line Volts	Freq. Hz	Output Volts	Output Max. Amps	Output Max. kVA	Price Each Manual	Price Each Motor* Driven
*10B-40	40	60	0–40	6	.24	★	.....
10B-40-2†	40	60	0–40	6	.24	★	.....
10B-40-3†	40	60	0–40	6	.24	★	.....
*21-40	40	60	0–40	15	.6	★	.....
21-40-2†	40	60	0–40	15	.6	★	.....
21-40-3†	40	60	0–40	15	.6	★	.....
116BU-40	40	60	0–40	25	1.0	★	.....
116BU-40-2†	40	60	0–40	25	1.0	★	.....
116BU-40-3†	40	60	0–40	25	1.0	★	.....

★ Prices available on request.
*Add type number prefix for full range travel motor speed desired: 5M for 5 sec.; 15M for 15 sec.; 30M for 30 sec.; 60M for 60 sec. (for example, 15M21-40). †Ratings given apply separately to each unit in assembly.

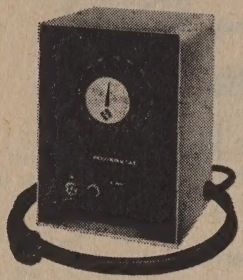
DOUBLE WOUND POWERSTAT VARIABLE TRANSFORMERS WITH ISOLATED SECONDARY



POWERSTAT type LW136B is a double wound assembly with an isolated secondary. When ordering (*) motor driven assemblies prefix type number with desired speed of either 5, 15, 30 or 60 seconds for full range travel and letters MD (for example, 5MDLW136B-3). Any of the ratings given below are possible simply by using the proper terminal connections. These are only a few of the many ratings that can be obtained. Data sheet on request.

Superior Type	Line Volts	Output Volts	Output Max. Amps	Output Max. kVA	Price Each Manual	Price Each Motor* Driven
*LW136B	120	0–30	25	.75	$237.00	$564.00
For	120	15–0–15	35	.52		
50/60 Hz	240	0–30	25	.75		
single	240	15–0–15	35	.52		
phase	120	105–135	35	4.7		
	107–137	120	35	4.2		
	240	225–255	35	8.9		
	226–256	240	35	8.4		
LW136B-3	240	210–270	35	16.4	857.00	1184.00
For 60 Hz	214–260	240	35	14.6		
three-	480	450–510	35	31.0		
phase	452–512	480	35	29.1		

ENCLOSED L SERIES POWERSTAT VARIABLE TRANSFORMERS


L116B

Enclosed laboratory models are equipped with grounded NEMA cord/plug assembly, on-off switch, pilot light, fuse and output receptacle. Integral handle; recessed controls. Slot, provided at the rear, accepts wall hanger bracket. Meets OSHA requirements.

Superior Type	Input Freq., Hz	Output Volts	Output Amps	Output kVA	Price Each
*L10B	60	0–132	2.25	0.30	$ 67.00
*L21	50/60	0–140	4.5	0.63	86.00
*L116B	50/60	0–140	10	1.4	102.00

*Ratings for constant current load; for constant impedance load, ratings are 13 amps, 1.6 kVA.

COMPACT Q TYPE POWERSTATS

Ideally suited for applications where space is a critical factor. Compact, square frame units available only in manually operated open construction assemblies. Removable shafts may be extended from either end of unit.

SINGLE PHASE

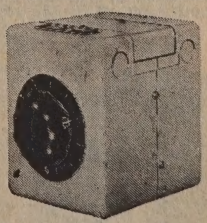
Superior Type*	Line Volts	Input Freq. Hz	Output Volts	Output Max. Amps	Output Max. kVA	Price Each
*Q116U	120	50/60	0–120 0–140	9 9	1.1 1.3	$ 50.00
*Q117U	120	60	0–120	10	1.2	60.00
*Q216U	240 120	50/60	0–280 0–260	3.5 3.5	0.98 0.42	64.00
*Q217U	240	60	0–240	5	1.2	67.00
Q116U-2	240	50/60	0–240 0–280	9 9	2.2 2.5	151.00
Q117U-2	240	60	0–240	10	2.4	172.00
Q216U-2	480 240	50/60	0–560 0–560	3.5 3.5	2.0 0.85	175.00
Q217U-2	480	60	0–480	5	2.4	185.00

THREE PHASE

Q116U-2	120	50/60	0–120 0–140	9 9	1.9 2.2	$151.00
Q117U-2	120	60	0–120	10	2.1	172.00
Q216U-2	240 120	50/60	0–280 0–280	3.5 3.5	1.7 0.74	175.00
Q217U-2	240	60	0–240	5	2.1	185.00
Q116U-3	240	50/60 60	0–240 0–280	9 9	3.8 4.4	212.00
Q117U-3	240	60	0–240	10	4.2	224.00
Q216U-3	480 240	60 60	0–560 0–560	3.5 3.5	3.4 1.5	240.00
Q217U-3	480	60	0–480	5	4.2	267.00

*Number suffix indicates ganged assembly; number is no. of units.

EN TYPE POWERSTATS



Wide application and mounting flexibility. Housed in lightweight, functional aluminum enclosures that permit easy installation, wiring and servicing. Single units and ganged assemblies available for 120, 240 and 480 volt, single and three phase service with loads up to 6.0 kVA. Data sheet on request. Single units below size: 5¾" w. x 6" d. x 6 11/16" h. Shipping Weight, 15 lbs.

Superior Type†	Input Volts	Input Freq.	Output Volts	Output Amps	Output kVA	Price Each
EN116B	120	50/60	0–140	8	1.1	$114.00
EN117B	120	60	0–120	10*	1.7*	119.00
EN216B	240	50/60	0–280	3	0.84	131.00
EN217B	240	60	0–240	4.4*	1.4*	133.00

*Current is maximum for constant-current load; kVA is maximum for constant-impedance load. †For single phase service.

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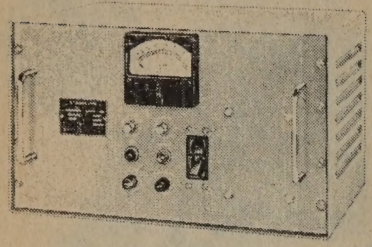
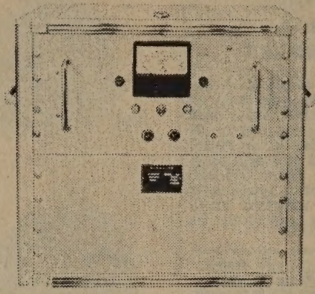
Superior Electric Voltage Regulators

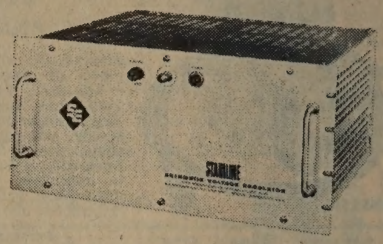
STABILINE® AUTOMATIC VOLTAGE REGULATORS



Type EMT4106C



Type EMT4115B



Types IES9103B and IES9203B

ELECTRO-MECHANICAL TRANSISTORIZED SERIES

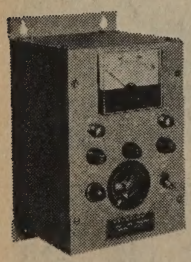
Type EMT: Utilize transistorized control circuits, motor-driven Powerstat® variable transformers and buck-boost transformers to regulate line voltage. Widely used in industrial applications or where constant output voltage is required with zero waveform distortion. EMT Series types are offered in ratings from 2.3 to 118 kVA. For heavier load requirements, models of the EMS Series (not listed) are offered in ratings from 25 to 275 kVA. **Type EMK:** Stabiline automatic voltage regulators offer an extremely fast correction rate. Rugged construction assures dependable performance with little or no maintenance. Efficiency, approx. 99%; rated accuracy, ±0.75% for all variations of line voltage or lead current within the stated range of the unit.

INSTANTANEOUS ELECTRONIC SOLID STATE SERIES

Highly accurate, fast-correcting units feature solid state circuitry which permits smaller and lighter units than comparable tube-type regulators. Other benefits include low distortion, high efficiency (up to 95%) and wide operating frequency range. Speed of correction can be considered instantaneous for most applications. Will maintain output voltage within 100 mV rms band for any combination of rated input voltage and/or load from 1.0 to 0 power factor lagging. With the exception of types IES9110, IES9115, IES9210 and IES9215, all models can be rack mounted by removing the cabinet feet.

Superior Number	Nom'l Output Voltage	AC Hz	Input Voltage Range*	Output Voltage Range	Max. Output Amps	Rated Output kVA	Correction Rate: Sec./Volt†	Approx. Wt., Pounds Net	Approx. Wt., Pounds Shpg.	Superior Number	Net Each
•EMT4102B‡■	115	50/60	95–135	110–120	20	2.3	.075	54	63	EMT4102B‡■	$1159.00
•EMT4106C■	115	50/60	95–135	110–120	57	6.6	.075	87	95	EMT4106C■	1381.00
•EMT4112B§■	115	50/60	105–125	110–120	114	13.0	.15	90	98	EMT4112B§■	1421.00
•EMT4115B	115	50/60	95–135	110–120	144	16.6	.125	258	280	EMT4115B	1800.00
EMT4104B♯*	120	60	108–137	110–120	35	4.2	.10	47	52	EMT4104B♯*	1599.00
•EMT4207CI	230	50/60	195–255	220–240	36	8.3	.083	153	175	EMT4207CI	1629.00
•EMT4228C^	230	50/60	205–250	220–240	130	29.9	.111	253	275	EMT4228C^	2120.00
EMT4407B*	460	50/60	400–520	440–480	20	9.2	.041	165	187	EMT4407B*	2208.00
EMT4418B*	460	50/60	400–520	440–480	45	20.7	.041	263	285	EMT4418B*	2466.00
EMT6210YBI♦*	230	50/60	195–255	220–240	33	13.1	.083	372	453	EMT6210YBI♦*	3191.00
EMT6215YBI♦*	230	50/60	195–255	220–240	48	19.1	.083	374	455	EMT6215YBI♦*	3309.00
•EMT6220YBI♦	230	50/60	195–255	220–240	63	25.1	.083	378	457	EMT6220YBI♦	3334.00
•EMT6245YBI♦	230	50/60	195–255	220–240	145	57.8	.25	835	969	EMT6245YBI♦	4457.00
EMT6270DBI♦*	230	50/60	195–255	220–240	188	74.9	.25	795	939	EMT6270DBI♦*	6171.00
EMT6412YB♦*	460	50/60	400–520	440–480	18	14.3	.041	350	430	EMT6412YB♦*	3501.00
EMT6417YB♦*	460	50/60	400–520	440–480	24	19.1	.041	370	450	EMT6417YB♦*	3758.00
•EMT6425YB♦	460	50/60	400–520	440–480	35	27.9	.041	390	470	EMT6425YB♦	3355.00
EMT6450YB♦*	460	50/60	400–520	440–480	75	59.8	.125	771	905	EMT6450YB♦*	5402.00
EMT6475YB♦	460	50/60	400–520	440–480	100	75	.125	820	954	EMT6475YB♦	5590.00
•EMT64100YB♦	460	50/60	420–500	440–480	148	118	.188	841	975	EMT64100YB♦	5723.00
EMK4105■I*	115	50/60	105–125	110–120	46	5.3	.04	69	79	EMK4105■I*	1633.00
IES91005B	115	50/60	95–135	110–120	4.4	0.5	.....	53	57	IES91005B	1042.00
•IES9101B	115	50/60	95–135	110–120	8.7	1.0	.....	68	72	IES9101B	1111.00
•IES9103B	115	50/60	95–135	110–120	26.1	3.0	.....	131	136	IES9103B	1712.00
•IES9106B	115	50/60	95–135	110–120	52.2	6.0	.....	167	181	IES9106B	1970.00
IES9110C*	115	50/60	95–135	110–120	87.0	10.0	.....	360	380	IES9110C*	3577.00
•IES9115C	115	50/60	95–135	110–120	130	15.0	.....	360	382	IES9115C	3772.00
IES9203B*	230	50/60	195–255	220–240	13	3.0	.....	120	126	IES9203B*	2085.00
•IES9206B	230	50/60	195–255	220–240	26.1	6.0	.....	139	153	IES9206B	2179.00
IES9210C*	230	50/60	195–255	220–240	43.5	10.0	.....	330	350	IES9210C*	3888.00
IES9215C	230	50/60	195–255	220–240	65	15.0	.....	350	372	IES9215C	4209.00

*At nominal output voltage; input voltage range shifts proportionally with output voltage setting. †Motor drive travel time in seconds divided by input range in volts. ‡Can also be operated with an input range of 105–125 volts, output rating of 40 amps, 4.6 kVA and correction rate of .15 sec/V. §Can also be operated with an input range of 95–135 volts, output rating of 57 amps, 6.6 kVA and correction rate of .075 sec/V. ♯60 Hz only. ‡Can also be operated with a nominal 208 volt output, input range of 177–230 volts and output range of 200–216 volts. ^Can also be operated with a nominal 208 volt output, input range of 186–226 volts and output range of 200–216 volts. ■Also available as rack models (add suffix **R**); prices on request. ♦Three-phase types; all others single-phase. ICan also be operated on an input range of 95–135 volts with rating of 23 amps, 2.6 kVA and correction of .02 sec/V. *Units subject to setup charges.



SUPERIOR ELECTRIC VOLTAGE CONTROL EQUIPMENT

STABILINE FULL-RANGE REGULATOR CONTROLLER

Designed for use with motor-driven Powerstat® variable transformers to maintain constant output voltage. Adjustable to any value within the full range of the Powerstat used. Regulates output from any motor-driven Powerstat rated 120 or 240 volts, 50/60 Hz, single-phase. Dependent on Powerstat used, unit may be used for 3-phase applications maintaining one line-to-neutral or one line-to-line voltage. Can also be used in 480 volts, 50/60 Hz, 3-phase, but an auxiliary step-down transformer is required for sensing line-to-line voltage. Voltage output remains within 4-volt band when used with 240 V types. Voltmeter on front panel monitors Powerstat output in 0–300 volt range. Other controls include voltage adjust, on-off switch, pilot indicating when unit is energized, motor damping control and three fuses. Size: 11″ h. x 6″ w. x 7″ d., overall. Mtg. centers 4½″ x 10¼″ maximum.

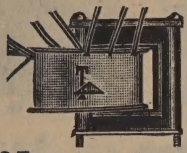
•Superior Type FR501B Regulator Controller—Net Each.....**$519.00**

●AVAILABLE OFF-THE-SHELF FROM STOCK

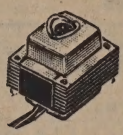
PRICES LISTED ARE FOR GUIDANCE ONLY

Power Transformers and Chokes

Type EE


S Type

X


BS

BC

A

TOROIDAL TRANSISTOR POWER SUPPLY TRANSFORMERS

Epoxy molded, DC to DC. Exceed MIL-T-27B Grade 5, Class R specs. Case type EE except open types case S.

Triad No.	Input Volts	Output V*	Output mA	Size, Inches Dia.	Size, Inches Height	Wt., Lbs.	Net Each
TY-68S†	12	250	65	§	1¾	.2	$15.93
TY-69S†	12	300	100	#	1⅞	.5	16.97
TY-71S†	12	375	200	•	2	.65	16.78
TY-74S†	12	600	200	‡	2	1.07	24.07
TY-77S†	12	670	180	‡	2	1.07	28.19
TY-78	12.6	250	100	1¾	1 11/16	.35	37.84
TY-79	12.6	300	200	1¾	1	.35	41.53
TY-81	12.6	375	200	2	1	.50	39.97
TY-82	12.6	450	150	2	1	.50	41.34
TY-83	12.6	500	250	2¾	1⅜	.85	50.22
TY-84	12.6	600	200	2¾	1⅜	1.00	49.69
TY-85	12.6	600	350	2⅞	1⅞	2.00	56.29
TY-86	12.6	425	350	2¾	1⅜	1.00	51.29
TY-88	28	250	80	1 5/16	5/16	.25	32.00
TY-89	28	300	100	1¾	11/16	.35	35.67
TY-90	28	325	200	1¾	1	.35	43.86
TY-91	28	375	200	2	1	.50	39.28
TY-92	28	450	200	2	1	.50	42.67
TY-93	28	500	250	2¾	1⅜	.85	56.29
TY-99	6	300	100	1¾	1	.35	39.22
TY-100	6	325	150	2	1	50	38.10

*F.W. bridge. †Open frame type. ‡4 1/16" w. x 3" d. §1¾" w. x 1 11/32" d. #2⅜" w. x 1⅞" d. •2⅜" w. x 2 7/16" d.

DC TO AC TRANSISTOR TRANSFORMERS

Open and vertical shielded types. Secondary, 110–115–125 volts.

Triad No.	DC Pri.	Secondary W	Secondary Hz	Case	Size, Inches H. x W. x D.	Wt., Lbs.	Net Each
TY-46S	28	60	400	L	1⅞ x 2¼ x 2	½	$29.14
TY-46Z	12	60	400	L	1⅞ x 2¼ x 2	½	33.00
TY-75A	12	115	60	A	3⅛ x 3 1/32 x 3½	5	41.79
TY-76A	12	60	60	A	3⅜ x 2 31/32 x 2⅝	3	27.28

STEP-DOWN AUTOFORMERS—50-60 Hz

Triad No.	VA Output	Input Volts	Output Volts	Size, Inches H. x W. x D.	Net Each
N-1X	50	230	115	2 1/32 x 3 11/16 x 2	$ 9.90
N-3M§	85	230	115	3 11/32 x 2 31/32 x 2⅞	21.64
N-4M§	150	230	115	3 11/32 x 2 31/32 x 3⅝	24.31
N-5M§	250	230	115	3⅞ x 3 1/32 x 4¼	34.66
N-7M§	600	230	115	4⅝ x 3 15/16 x 5	60.50
N-9M§	1250	230	115	5 1/16 x 4½ x 6¼	139.48
N-11M§	2000	230	115	5 1/16 x 4½ x 8	161.41
N-34X	150	0/95/ 105/115/ 125/135	115	2 19/32 x 4 x 2¼	14.98
N-33MG*	150	65/75/90 100/115 130/145	115	5 5/16 x 3 15/16 x 5½	71.81
N-36MG*	350	65/75/90 100/115 130/145	115	5 5/16 x 3 15/16 x 6¼	104.14
N-37MG*	500	65/75/90 100/115 130/145	115	5 5/16 x 3 15/16 x 7	132.55

§Also available with 3-wire cord, plug and socket (MG). *Has 3-wire cord, plug, switch, socket, and meter.

STEP-UP AUTOFORMERS—50-60 Hz

With 3-wire cord, plug, and socket.

N150MG	150	115	230	3 19/32 x 2 31/32 x 4	$ 88.53
N250MG	250	115	230	3⅞ x 3¼ x 4 9/16	89.88
N500MG	500	115	230	4⅝ x 3⅞ x 4¼	96.16
N1000MG	1000	115	230	5⅜ x 4½ x 5½	109.60

DC TO DC CONVERTER TRANSFORMERS

For use in blocking oscillator type power supplies where small size, high voltage and low power are required.

Triad No.	Typical Operation Input	Typical Operation Output	Net Each
TY-200X	3 VDC at 20 mA	1050 VDC at 25 μA	$19.10
TY-201TZ	4 VDC at 15 mA	500 VDC at 50 μA	13.33
TY-202X	4 VDC at 45 mA	550 VDC at 80 μA	14.84

VOLTAGE STABILIZERS

Input: 95–130 v. 60 Hz. Output: 118 v, 20% normal harmonic.

Triad No. K-100A—30 VA. Net Each..... **$ 96.09**
Triad No. K-101A—60 VA. Net Each..... **122.83**
Triad No. K-102—120 VA. Net Each..... **181.72**
Triad No. K-103A—250 VA. Net Each..... **217.81**
Triad No. K-104A—500 VA. Net Each..... **273.76**
Triad No. K-105A—750 VA. Net Each..... **335.93**
Triad No. K-106A—1000 VA. Net Each..... **429.50**

ADAPTER KITS

Triad No. KA-1—Used with K-100A and K-101A. Net Each..... **$22.26**
Triad No. KA-2—Used with K-102. Net Each..... **23.26**
Triad No. KA-3—Used with K-103A, K-104A, K-105A and K-106A. Net Each..... **22.90**

SPECIAL POWER TRANSFORMERS

Multiple filament industrial and TV replacement type. Static shield. Pri. 115 V, 50–60 Hz except R-67BC thru R-675A, 60 Hz.

Triad No.	Plate Supply AC Volts	Plate Supply mA DC	Filaments Volts-Amps	Size, Inches H. x W. x D.	Net Each
R-52BC	600 CT	270	5-3A., 6.3-5A., 6.3-5A., 6.3-1.2A.	3⅛x4½ x3¾	$46.64
R-67BC	600 CT	250	5-3A., 6.3-9A.	3⅛x4⅛ x3 7/16	48.31
R-77BS	550 CT	350	5CT-6A.,6.3-8A., 6.3-6A., 6.3-2A.	3⅞x4½ x3¾	62.22
R-78BC	700 CT	200	5-3A., 6.3-6A., 6.3-4A., 6.3-2A.*	2⅝x4½ x3¾	29.38
R-675A	660 CT	270	5-6A., 6.3-9.35A., 6.3-1.2A.*	4⅝x3 15/16x4¼	54.67

*Damper wdg.

SMOOTHING FILTER REACTORS

Triad No.	Induct., Henries*	Current mADC	Resist., Ohms	Size, Inches H. x W. x D.	Net Each
C-85X	1.5	10	70	1¼ x2½ x1⅛	$ 5.45
C-30X	50	15	3500	1⅜ x2⅜ x1½	6.40
C-2X	2	15	70	1 3/16 x2 1/16 x1¼	4.69
C-1X	15	20	1000	1 3/16 x2 1/16 x1¼	5.34
C-84X	12	30	400	1⅜ x2⅜ x1⅜	6.45
C-3X	10	50	500	1⅝ x2 13/16 x1½	6.00
C-4X	4	50	360	1⅜ x2⅜ x1⅜	5.05
C-6X	5	65	330	1⅝ x2 13/16 x1½	5.95
C-5X	12	75	390	1 15/16 x3 5/16 x1¾	7.17
C-8X	7	75	240	1 15/16 x3 5/16 x1¾	6.60
C-7X	10	90	270	1 15/16 x3 5/16 x2	7.60
C-9X	4	90	100	1 15/16 x3 5/16 x1¾	6.90
C-11X	6	110	160	2 9/32 x3 1/16 x2	8.67
C-10X	9	125	250	2 9/32 x3 1/16 x2	8.78
C-12X	6	160	165	2 9/32 x3 1/16 x2 1/8	9.00
C-12A	6	160	165	2 25/32 x2 1/32 x2 1/2	14.17
C-13X	3	160	75	2 9/32 x3 1/16 x2 1/8	8.83
C-14X	6	200	150	2 19/32 x4 x2 1/4	10.72
C-14A	6	200	150	3 3/16 x2 1/32 x2 5/8	16.00
C-16A	10	200	150	3 1/2 x2 3 1/32 x3 1/2	20.60
C-21X	1.5	225	65	1 15/16 x3 5/16 x1¾	7.05
C-15X	4	250	100	2 19/32 x4 x2 1/4	10.40
C-15A	4	250	100	3 3/16 x2 1/32 x2 5/8	15.72
C-23X	1.2	260	45	1 15/16 x3 5/16 x2	8.33
C-24X	1	240	50	1⅝ x2 13/16 x1½	5.64
C-27X	.7	290	30	1⅝ x2 13/16 x1½	5.41
C-36X	.5	300	30	1⅜ x2⅜ x1½	5.17
C-17X	1.5	300	40	2 9/32 x3 1/16 x2	8.12
C-18A	8	300	90	3⅞ x3 3/32 x3⅞	25.71
C-19A	10	300	105	4¼ x3 3/32 x4 1/8	33.12
C-34X	.6	350	35	1⅝ x2 13/16 x1½	5.59
C-28X	1	350	35	1 15/16 x3 5/16 x2	7.19
C-29X	1.5	375	50	2 9/32 x3 1/16 x2	8.14
C-20A	6	400	60	4⅝ x3 15/16 x4½	37.52
C-45AL	10	500	65	5 5/16 x4½ x5⅛	69.74
C-40X	.32	600	10	1 15/16 x3 5/16 x2	7.10
C-47U	.3/.075†	1A/2A	3/0.75	3½ x2⅞ x3 3/16	21.40
C-56U	.035	2A	.75	2¼ x2⅝ x2	12.22
C-48U	.08/.02†	2.5A/5A	.61/.155	3 1/16 x3 1/16 x3 9/16	25.29
C-57U	.025	4A	.55	3⅛ x3⅛ x2¼	16.88
C-49U	.032/.008†	5A/10A	.19/.05	4¼ x3½ x3⅝	41.09
C-58U	.01	8A	.15	3⅛ x3¼ x3⅛	24.97
C-59U	.01	12.5A	.10	3½ x4⅛ x3	29.26
C-80U	.024/.006†	20A/40A	.1/.025	5 5/16 x4 9/16 x5½	112.55
C-60U	.005	22.5A	.06	3¾ x4½ x4 3/16	52.14

*Inductance tolerance, −20% +50%. †Split winding.

Power Transformers

POWER SUPPLY, CONTROL AND FILAMENT TRANSFORMERS

Triad No.	Secondary Volts	Secondary Amps	Test Volts	Case Size, Ins. H. x W. x D.	Wt. Lbs.	Net Each
SINGLE SECONDARY PRIMARY 115 VOLTS—50-60 Hz.						
F-50X‡#	6.3/5	2	5000	1 15/16 x 3 5/16 x 2	1.2	$14.24
F-1X#	2.5 CT	3	1500	1 5/8 x 2 13/16 x 1 5/8	.68	7.79
F-72Z#	2.5 CT	5	7500	2 23/32 x 3 1/8 x 2 1/8	1.7	15.14
F-6X#	2.5 CT	6	2500	1 15/16 x 3 5/16 x 1 3/4	1	8.90
F-3X#	2.5 CT	10	3000	2 5/16 x 3 3/4 x 2 3/8	1.7	13.05
F-5U	2.5 CT	10	7500	3 1/16 x 2 1/2 x 2 7/16	2.2	16.55
F-7X	5 CT	3	1500	1 15/16 x 3 5/16 x 2	1.3	9.76
F-8X	5 CT	6	1500	2 9/32 x 3 3/4 x 2 1/8	1.7	12.31
F-12X	5 CT	8	2500	2 19/32 x 4 x 2 1/4	2.5	14.90
F-10U#	5 CT	14	10000	3 13/16 x 3 5/16 x 3 1/4	4.75	26.81
F-15U#	5 CT	15	3000	3 1/2 x 2 7/8 x 2 11/16	3.25	22.91
F-9U	5.2 CT	13	1500	3 7/16 x 2 13/16 x 3 1/4	4	24.34
F-11U	5.2 CT	24	1500	3 13/16 x 3 5/16 x 3 1/8	6.75	29.55
F-13X	6.3	.6	1500	1 5/8 x 2 3/8 x 1 3/8	.37	5.59
R-84K†	6.3	.6	3500	2 1/4 x 2 1/4 x 2 11/16	1.5	15.64
F-14X#	6.3 CT	1.2	2500	1 5/8 x 2 13/16 x 1 5/8	.7	6.64
F-14Z	6.3 CT	1.2	2500	1 15/16 x 2 3/8 x 1 5/8	.7	7.52
F-52X†	6.3	1.2	5000	1 15/16 x 3 5/16 x 1 3/4	1	10.72
F-51X#†	6.3/5	2	5000	1 15/16 x 3 5/16 x 2	1.25	11.90
F-53X	6.3	4	5000	2 19/32 x 4 x 2 1/4	2.1	12.64
F-43X#	6.3	4	1500	1 15/16 x 3 5/16 x 2	1.25	8.12
F-16X	6.3 CT	3	2500	1 15/16 x 3 5/16 x 2	1.3	9.83
F-18X	6.3 CT	6	1500	2 11/16 x 4 x 2 1/4	2.3	12.43
F-18A	6.3 CT	6	1500	3 1/16 x 2 21/32 x 2 5/8	2.5	16.21
F-69X	6.3 CT	8	1500	2 5/16 x 4 x 2 1/4	2.3	15.60
F-21A	6.3 CT	10	1500	3 11/16 x 2 31/32 x 3 1/8	3.8	24.97
F-20U*	6.3/6 CT	11	3000	3 1/2 x 2 7/8 x 3	4	25.21
F-17U#	6.3 CT	15	10000	4 1/4 x 3 1/2 x 3 3/4	7.5	34.86
F-22A	6.3 CT	20	2000	3 7/8 x 3 9/32 x 4 1/8	7	34.43
F-24U*	7.5/6.3 CT	8	3000	3 1/2 x 2 7/8 x 2 13/16	3.65	21.55
F-28U*	7.5/ 6.3 CT	25	3000	4 5/8 x 3 15/16 x 3 5/8	7.5	47.38
F-180X	10 CT	1	1500	1 15/16 x 3 5/16 x 1 3/4	.9	10.52
F-31X	10 CT	3	2000	2 5/16 x 3 3/4 x 2 1/8	1.7	11.57
F-95X	10 CT	4	1500	2 5/8 x 4 x 2 1/8	2.1	15.47
F-33U	10 CT	5	2000	3 x 2 1/2 x 2 5/8	3	18.28
F-96U	10 CT	6	1500	3 x 2 1/2 x 2 3/4	2.1	17.53
F-23U	10 CT	7	1500	3 1/2 x 2 7/8 x 2 13/16	3.9	22.41
F-97U	10 CT	8	1500	3 7/16 x 2 13/16 x 3	4.0	22.33
F-35U	10 CT	10	2000	4 1/8 x 4 1/2 x 3 1/4	9.1	30.53
F-113X	12	.15	1500	1 5/8 x 2 3/8 x 1 3/8	.4	6.26
F-216X#	12	.35	1500	1 3/8 x 2 3/8 x 1 3/8	.37	8.67
F-114X	12	.7	1500	1 5/8 x 2 15/16 x 1 5/8	.8	9.38
F-217X#	12	1.2	1500	2 x 3 1/4 x 1 3/4	1.0	10.38
F-218X#	12	2	1500	2 x 3 1/4 x 1 7/8	1.13	9.24
F-219X#	12	4	1500	2 5/16 x 4 x 2 1/4	2.3	13.59
F-220U#	12	6	1500	3 7/16 x 2 13/16 x 2 1/2	3.5	10.21
F-221U#	12	8	1500	3 13/16 x 3 1/8 x 2 5/8	4.0	21.19
F-29U*	12 CT/ 11 CT/ 10 CT	11	3000	4 5/8 x 3 1/2 x 3 3/8	6.5	33.24
F-70X	12.6 CT	1	1500	1 15/16 x 3 5/16 x 1 3/4	1.3	9.16
F-25X	12.6 CT	1.5	1500	1 15/16 x 3 5/16 x 2	1.3	7.95
F-44X#	12.6 CT	2	1500	1 15/16 x 3 5/16 x 2	1.25	8.84
F-26X#	12.6 CT	2.5	1500	2 5/16 x 3 11/16 x 2	1.55	9.19
F-224X#	12.6	3	1500	2 1/4 x 3 3/4 x 2 1/8	1.6	12.12
F-225X#	12.6	4	1500	2 5/8 x 4 x 2 1/16	2.3	13.59
F-181U	12.6 CT	4	1500	3 1/16 x 2 5/16 x 2 3/16	2.3	17.66
F-182U	12.6 CT	6	1500	3 5/8 x 2 11/16 x 2 7/16	3.8	21.17
F-183U	12.6 CT	8	1500	3 13/16 x 3 5/16 x 2 11/16	5	24.97
F-112X	14 CT	.25	1500	1 5/8 x 2 3/8 x 1 3/8	.4	7.36
F-250X	14 CT	1	1500	1 15/16 x 3 1/4 x 1 3/4	1.2	9.81
F-251X	14 CT	2	1500	2 1/4 x 3 11/16 x 1 15/16	1.5	10.72
F-252U	14 CT	4	1500	3 x 2 1/2 x 2 7/16	3	16.21
F-253U	14 CT	6	1500	3 3/8 x 2 13/16 x 2 7/8	4	19.09
F-254X	20 CT	1	1500	2 1/4 x 3 11/16 x 1 15/16	1.5	10.91
F-255X	20 CT	2	1500	2 1/4 x 4 x 2 1/4	2.5	21.26
F-256U	20 CT	4	1500	3 5/8 x 2 13/16 x 2 7/8	4	19.88
F-257U	20 CT	6	1500	3 3/4 x 3 1/2 x 3 1/8	5.7	24.34
F-258U	20 CT	8	1500	3 3/4 x 3 1/2 x 3 1/2	6.4	28.60
F-259U	20 CT	10	1500	4 1/2 x 3 7/16 x 3 1/2	7.4	32.76
F-115X	24 CT	.085	1500	1 3/16 x 2 1/16 x 1 3/8	.3	7.66
F-116X	24 CT	.2	1500	1 3/8 x 2 3/8 x 1 1/2	.45	8.45
F-117X	24 CT	.4	1500	1 5/8 x 2 11/16 x 1 5/8	.8	8.17
F-118X	24 CT	.7	1500	1 15/16 x 3 1/4 x 2	1.3	8.21
F-45X#	24 CT	1	1500	1 15/16 x 3 5/16 x 2	1.3	8.50
F-46X#	24	1	1500	1 15/16 x 3 1/4 x 2 1/8	1.4	8.50
F-192X	24 CT	2	1500	2 1/4 x 4 x 2 1/4	2.3	12.93
F-193U	24 CT	4	1500	3 1/4 x 3 1/4 x 2 13/16	4	20.91
F-260U	24 CT	6	1500	3 3/4 x 3 1/2 x 3 1/2	6.4	28.66
F-261U	24 CT	8	1500	4 1/2 x 3 7/16 x 3 1/2	7.4	32.93
F-401U	24 CT	10	1500	4 1/2 x 3 7/16 x 3 3/4	8.0	40.24
F-226U	24 CT	12	1500	4 5/16 x 3 3/4 x 4 1/8	10.4	43.79
F-57X	25.2 CT	1	1500	1 15/16 x 3 5/16 x 2	1.5	8.62
F-41X#	25.2 CT	2	1500	2 19/32 x 4 x 2 1/4	2.2	11.78
F-56X	25.2 CT	2.8	1500	2 31/32 x 4 x 2 1/4	2.5	14.57
F-119X	26.8 CT	.15	1500	1 5/8 x 2 3/8 x 1 1/2	.45	9.84
F-120X	26.8 CT	.5	1500	1 15/16 x 3 1/4 x 2	1.3	9.07
F-40X#	26.8 CT	1	1500	1 15/16 x 3 5/16 x 2	1.3	8.10
F-55X	26.8 CT	1.7	1500	2 19/32 x 4 x 2 1/4	2.3	12.22
F-121X	28 CT	0.085	1500	1 3/16 x 2 1/16 x 1 3/8	.25	9.24
F-122X	28 CT	0.175	1500	1 3/8 x 2 3/8 x 1 1/2	.35	7.38

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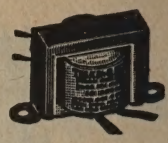
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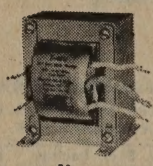
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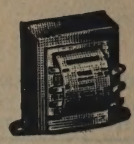
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Triad No.	Secondary Volts	Secondary Amps	Test Volts	Case Size, Ins. H. x W. x D.	Wt. Lbs.	Net Each
F-123X	28 CT	0.300	1500	1 5/8 x 2 13/16 x 1 5/8	.6	$11.03
F-124X	28 CT	0.800	1500	1 15/16 x 3 1/4 x 2	1.0	9.43
F-184X	28 CT	1	1500	2 5/16 x 3 11/16 x 2 1/4	1.4	11.33
F-185U	28 CT	2	1500	3 1/8 x 2 1/2 x 2 1/8	2.9	16.21
F-187U	28 CT	4	1500	3 1/2 x 2 7/8 x 3 1/8	5.3	22.26
F-262X	30 CT	1	1500	2 1/4 x 3 11/16 x 1 15/16	1.5	10.62
F-210X	30 CT	1.7	1500	2 19/32 x 4 x 2 1/4	1.55	12.76
F-263U	30 CT	2	1500	3 x 2 1/2 x 2 1/8	3.2	16.38
F-264U	30 CT	4	1500	3 3/4 x 3 1/8 x 3 1/8	5.7	24.17
F-265U	30 CT	6	1500	4 1/8 x 3 1/8 x 3 1/2	7.4	30.05
F-266U	30 CT	8	1500	4 1/2 x 3 3/4 x 4	10	41.71
F-227X‡	35 CT	.065	1500	1 3/16 x 2 1/16 x 1 5/16	.3	9.48
F-188X	35 CT	.1	1500	1 5/8 x 2 15/16 x 1 1/8	.35	8.34
F-228X‡	35 CT	.3	1500	1 5/8 x 2 13/16 x 1 5/8	.6	10.47
F-189X	35 CT	.5	1500	2 1/16 x 3 11/16 x 1 15/16	1	11.16
F-54X	35 CT	1.5	1500	2 1/16 x 4 x 2 1/4	2.2	13.14
F-190U	35 CT	2	1500	3 3/8 x 2 13/16 x 2 3/4	3.5	18.67
F-191U	35 CT	4	1500	3 13/16 x 3 5/16 x 3 1/16	6	25.16
F-267U	35 CT	6	1500	4 1/8 x 3 7/16 x 3 1/2	7.4	31.36
F-268U	35 CT	8	1500	4 1/2 x 3 3/4 x 4 3/4	11	43.10
F-269U	35 CT	10	1500	5 1/4 x 4 3/8 x 4 3/8	12	50.86
F-270X	40 CT	1	1500	2 1/16 x 4 x 2 1/4	2.6	12.76
F-271U	40 CT	2	1500	3 3/8 x 2 13/16 x 2 7/8	4	17.98
F-272U	40 CT	4	1500	3 3/4 x 3 1/2 x 3 1/2	6.4	25.62
F-273U	40 CT	6	1500	4 1/2 x 3 3/4 x 4	10	38.17
F-274U	40 CT	8	1500	4 1/2 x 3 3/4 x 4 3/4	10.5	49.34
F-275U	40 CT	10	1500	5 1/4 x 4 3/8 x 4 3/8	14.5	57.84
F-276X	50 CT	1	1500	2 1/16 x 4 x 2 1/4	2.4	12.43
F-277U	50 CT	2	1500	3 3/4 x 3 1/2 x 2 7/8	4.7	21.22
F-278U	50 CT	4	1500	4 1/8 x 3 7/16 x 3 1/2	7.4	29.79
F-58A	50 CT	5	1500	4 5/8 x 3 15/16 x 4 1/2	10	45.00
F-59X	60 CT	.4	1500	1 15/16 x 3 5/16 x 2	1.3	9.45
F-279U	60 CT	1	1500	3 x 2 1/2 x 2 5/8	3.4	16.21
F-280U	60 CT	2	1500	3 3/4 x 3 1/2 x 3 1/2	5.6	23.03
F-281U	60 CT	4	1500	4 1/2 x 3 3/4 x 4	10	37.34
F-282U	60 CT	6	1500	5 1/4 x 4 3/8 x 4 3/4	12.5	49.83
F-283U	70 CT	1	1500	3 3/8 x 2 13/16 x 2 5/8	4	17.69
F-284U	70 CT	2	1500	3 3/4 x 3 1/2 x 3 1/2	6	25.29
PRIMARY 115/230 VOLTS—50/60 Hz						
F-301X	2.5 CT	3	1500	1 5/8 x 2 13/16 x 1 5/8	.68	$ 9.76
F-306X	2.5 CT	6	2500	1 15/16 x 3 5/16 x 1 3/4	1	12.43
F-313X	6.3	.6	1500	1 3/8 x 2 3/8 x 1 3/8	.37	9.84
F-314X	6.3 CT	1.2	2500	1 5/8 x 2 13/16 x 1 5/8	.7	9.48
F-316X	6.3 CT	3	2500	1 15/16 x 3 5/16 x 2	1.3	11.62
F-318X	6.3 CT	6	1500	2 19/32 x 4 x 2 1/4	2.3	17.40
F-325X	12.6 CT	1.5	1500	1 15/16 x 3 5/16 x 2	1.3	10.38
F-344X	12.6 CT	2	1500	1 15/16 x 3 5/16 x 2	1.25	12.55
F-326X	12.6 CT	2.5	1500	2 9/32 x 3 11/16 x 2	1.55	12.78
F-3181U	12.6 CT	4	1500	3 1/16 x 2 5/16 x 2 3/16	2.3	20.53
F-3112X	14 CT	.25	1500	1 3/8 x 2 3/8 x 1 1/2	.3	11.98
F-3115X	24 CT	.085	1500	1 3/16 x 2 1/16 x 1 3/8	.3	12.12
F-3116X	24 CT	.2	1500	1 3/8 x 2 3/8 x 1 1/2	.45	9.28
F-3117X	24 CT	.4	1500	1 5/8 x 2 13/16 x 1 1/2	.75	10.52
F-3118X	24 CT	.7	1500	1 15/16 x 3 1/4 x 2	1.3	11.90
F-345X	24 CT	1	1500	1 15/16 x 3 5/16 x 2	1.3	10.02
F-346X	24	1	1500	1 15/16 x 3 1/4 x 2 1/8	1.4	11.16
F-357X	25.2 CT	1	1500	1 15/16 x 3 5/16 x 2	1.5	11.90
F-341X	25.2 CT	2	1500	2 19/32 x 4 x 2 1/4	2.2	16.41
F-340X	26.8 CT	1	1500	1 15/16 x 3 5/16 x 2	1.3	13.21
F-355X	26.8 CT	1.7	1500	2 19/32 x 4 x 2 1/4	2.3	14.09
F-3185U	28 CT	2	1500	3 1/16 x 2 1/2 x 2 7/16	2.9	21.76
F-354X	35 CT	1.5	1500	2 19/32 x 4 x 2 1/4	2.2	15.93
PRIMARY 440 VOLTS—50-60 Hz.						
F-246X#	24 CT	.5	1500	2 x 3 1/4 x 1 5/8	.8	$10.50
F-230X	24 CT	1	2000	2 1/4 x 3 11/16 x 1 15/16	1.7	10.83
F-231X	24 CT	2	2000	2 1/4 x 4 x 2 1/4	2.4	13.29
F-232U	24 CT	4	2000	3 3/4 x 3 1/8 x 2 1/8	4.6	20.60

*Tapped primary to produce lower voltages. †Static shield. #60 Hz. operation. ‡Filament line matching transformer; primary 6.3/5 volts.

PRICES LISTED ARE FOR GUIDANCE ONLY

Power Transformers

A

X

Z

XP

LOW-VOLTAGE, LOW-CURRENT, PLUG-IN PRINTED CIRCUIT POWER TRANSFORMERS

Primary 115 volts, 50/60 Hz.

Triad No.	Output Watts	Secondary Series Conn.	Secondary Parallel Conn.	Net Each
PRIMARY 115 VOLTS—50-60 Hz.				
F-131P	1½	8 V CT at .188 A	4 V at .376 A	$ 9.93
F-139P	1½	12.6 V CT at .12 A	6.3 V at .24 A	10.71
F-132P	1½	15 V CT at .10 A	7.5 V at .20 A	9.90
F-150P	1½	17 V CT at .085 A	8.5 V at .17 A	9.33
F-138P	1½	25.2 V CT at .06 A	12.6 V at .12 A	10.78
F-133P	1½	30 V CT at .05 A	15 V at .10 A	10.47
F-160P	1½	34 V CT at .045 A	17 V at .09 A	10.98
F-137P	1½	40 V CT at .038 A	20 V at .076 A	12.07
F-134P	1½	54 V CT at .028 A	27 V at .056 A	11.17
F-135P	1½	76 V CT at .02 A	38 V at .04 A	11.91
F-136P	1½	116 V CT at .013 A	58 V at .026 A	13.29
F-141XP	4½	8 V CT at .562 A	4 V at 1.124 A	7.81
F-149XP	4½	12.6 V CT at .35 A	6.3 V at .70 A	7.81
F-142XP	4½	15 V CT at .30 A	7.5 V at .60 A	7.81
F-161XP	4½	17 V CT at .264 A	8.5 V at .528 A	7.81
F-148XP	4½	25.2 V CT at .178 A	12.6 V at .356 A	7.93
F-143XP	4½	30 V CT at .15 A	15 V at .30 A	7.81
F-162XP	4½	34 V CT at .132 A	17 V at .264 A	7.81
F-147XP	4½	40 V CT at .112 A	20 V at .224 A	8.19
F-144XP	4½	54 V CT at .084 A	27 V at .168 A	7.81
F-145XP	4½	76 V CT at .060 A	38 V at .120 A	7.29
F-146XP	4½	116 V CT at .033 A	58 V at .066 A	7.81
F-151XP	7½	8 V CT at .940 A	4 V at 1.880 A	9.22
F-159XP	7½	12.6 V CT at .60 A	6.3 V at 1.2 A	9.22
F-152XP	7½	15 V CT at .50 A	7.5 V at 1.00 A	9.40
F-163XP	7½	17 V CT at .441 A	8.5 V at .882 A	9.28
F-158XP	7½	25.2 V CT at .30 A	12.6 V at .60 A	9.22
F-153XP	7½	30 V CT at .25 A	15 V at .50 A	9.22
F-164XP	7½	34 V CT at .22 A	17 V at .44 A	9.28
F-157XP	7½	40 V CT at .188 A	20 V at .376 A	9.22
F-154XP	7½	54 V CT at .14 A	27 V at .28 A	9.40
F-155XP	7½	76 V CT at .100 A	38 V at .200 A	9.40
F-156XP	7½	116 V CT at .065 A	58 V at .130 A	10.00
PRIMARY 115/230 VOLTS—50-60 Hz.				
F-3132P	1½	15 V CT at .1 A	7.5 V at .2 A	$ 6.55
F-333P	1½	30 V CT at .05 A	15 V at .10 A	8.28
F-348XP	4½	12.6 V CT at .350 A	6.3 V at .700 A	8.14
F-3142XP	4½	15 V CT at .3 A	7.5 V at .6 A	7.62
F-349XP	4½	16 V CT at .28 A	8 V at .56 A	9.40
F-350XP	4½	24 V CT at .180 A	12 V at .360 A	9.40
F-358XP	4½	20 V CT at .225 A	10 V at .450 A	9.40
F-3143XP	4½	30 V CT at .15 A	15 V at .3 A	7.62
F-363XP	7½	230 V CT at .020 A	115 V at .040 A	10.34
F-3152XP	7½	15 V CT at .5 A	7.5 V at 1.0 A	7.98
F-3153XP	7½	30 V CT at .25 A	15 V at .5 A	7.98
F-359XP	10	24 V CT at .45 A	12 V at .90 A	10.43
F-362XP	10	20 V CT at .500 A	10 V at 1.0 A	10.40
F-365XP	10	12.6 V CT at .800 A	6.3 V at 1.6 A	10.43
F-366XP	10	16 V CT at .640 A	8 V at 1.28 A	10.43

TRIPLE OUTPUT SECONDARIES FOR ±15 VDC AND +5 VDC

Triad No.	Watts	Sec. No. 1	Sec. No. 2	Net Each
F-165P	1½	24 V CT at .025 A	9 V CT at .100 A	$11.36
F-167P	1½	32 V CT at .020 A	15 V CT at .060 A	11.71
F-168XP	4½	32 V CT at .050 A	15 V CT at .195 A	7.84
F-166XP	7½	24 V CT at .125 A	9 V CT at .500 A	9.57
F-169XP	7½	32 V CT at .100 A	15 V CT at .287 A	9.74

UNIVERSAL RECTIFIER POWER

Triad No.	Primary 50/60 Hz	Secondary No. 1 VAC	Secondary ADC CT†	Secondary ADC Bridge	Net Each
F-200A	117 V	13/18 at .9 ADC*	.....	.....	$18.16
F-202U	117 V	11.0–29.5	2.0	1.25	19.95
F-203U	117 V	12.0–30.0	4.0	2.0	21.52
F-204U	117 V	11.5–29.0	8.0	4.0	33.53
F-205U	117 V	12.0–29.5	12.0	6.0	45.53
F-206U	117 V	12.1–29.2	15.0	8.0	72.47
F-207U	117 V	12.2–29.0	22.5	12.0	92.53

*Sec. No. 2, same. †Full wave.

CONTROL TRANSFORMERS

Multiple usage with relays, solenoids, electronic tubes, recording devices and similar applications. All use 115/230 VAC, 50/60 Hz. and have lug type connections.

Triad No.	Secondary Parallel	Secondary Series CT	VA Rtg.	Size, Inches H.	Size, Inches Base	Net Each
F-105Z	6 V at 2 A	12 V at 1 A	12	2⅜	2⅛ x 1¾	$ 9.45
F-106Z	6 V at 4 A	12 V at 2 A	24	2¾	3⅛ x 2	12.43
F-107Z	12 V at 4 A	24 V at 2 A	48	3⅛	3⅝ x 2⅜	13.17
F-398U	12 V at 6 A	24 V at 3 A	72	3 1/32	2 1/16 x 2 1/16	23.07
F-108U	12 V at 8 A	24 V at 4 A	96	3½	2⅞ x 3	27.22
F-399U	12 V at 12 A	24 V at 6 A	144	3¾	3⅛ x 3½	29.93
F-109U	12 V at 16 A	24 V at 8 A	192	4⅛	3¾ x 3½	51.57
F-211Z	24 V at .5 A	48 V at .25 A	12	2 5/16	2 1/16 x 1½	14.36
F-212Z	24 V at 1 A	48 V at .5 A	24	2¾	3⅛ x 2¼	14.66
F-213Z	24 V at 2 A	48 V at 1 A	48	3 1/16	3⅝ x 2⅜	14.55
F-214U	24 V at 4 A	48 V at 2 A	96	3 1/32	3⅜ x 2 1/16	23.33
F-400U	24 V at 6 A	48 V at 3 A	144	3¾	3⅛ x 3½	30.91
F-215U	24 V at 8 A	48 V at 4 A	192	4 5/32	3¾ x 3 7/16	39.16

LOW VOLTAGE RECTIFIER TRANSFORMERS

All use 115 volt tapped primary. Used to supply transistor DC voltage, 15 half-wave or 30 in bridge circuit.

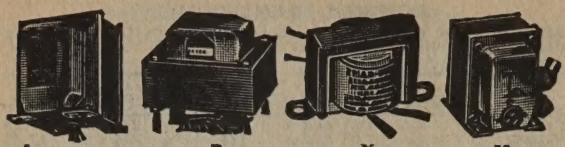
Triad No.	Secondary Volts	Secondary Amps	Test Volts	Size, Inches H. x W. x D.	Net Each
F-94X	10–20 CT–40 CT	.035	1500	1⅜ x 2⅜ x 1⅜	$ 7.69
F-90X	10–20 CT–40 CT	.1	1500	1⅝ x 2 1/16 x 1⅝	9.36
F-91X	10–20 CT–40 CT	.3	1500	2 9/32 x 3 1/16 x 2	12.07
F-93X	10–20 CT–40 CT	.75	1500	2 19/32 x 4 x 2¼	15.16
F-92A	10–20 CT–40 CT	1.0	1500	3 1/16 x 2 1/32 x 3	20.07
PRIMARY, 230 OR 277 V, 50/60 Hz					
F-394X	10–20 CT–40 CT	.035	1500	1⅜ x 2⅜ x 1⅜	$14.09
F-390X	10–20 CT–40 CT	.1	1500	1⅝ x 2 1/16 x 1⅝	12.76
F-391X	10–20 CT–40 CT	.3	1500	2 9/32 x 3 1/16 x 2	14.29
F-393X	10–20 CT–40 CT	.75	1500	2 19/32 x 4 x 2¼	18.28
F-392A	10–20 CT–40 CT	1.0	1500	3 1/16 x 2 1/32 x 3	25.50

UNIVERSAL RECTIFIER TRANSFORMERS (PRI. 50-60 Hz)

Triad No.	Pri. Volts	Secondary AC Volts	Secondary Amps rms	DC Volts Half Wave	DC Volts Full Wave	Case Size, Inches H. x W. x D.	Net Each
F-47U	115	17-18	3	6-7	13-14	3x2½x2¾	$17.21
F-347U	115/230	17-18	3	6-7	13-14	3x2½x2¾	18.72
F-48U	115	17-18	6	6-7	13-14	3 13/16x3 3/16x3 3/16	24.97
F-49U	115	36† 36†	3 3	13 13	26 26	4⅝x3 1/16x3¼	43.07
F-60U	115	6.5-13-19.5-26	3	9	18	3⅜x2 1/16x2⅝	18.67
F-360U	115/230	6.5-13-19.5-26	3	9	18	3⅜x2 1/16x2⅝	19.71
F-61U	115	24-27-30-33-36	3	13	26	3¾x3⅛x3¼	28.74
F-361U	115/230	24-27-30-33-36	3	13	26	3¾x3⅛x3¼	31.00
F-67U‡	110/120	24-27-30-33-36	8	13	26	4⅝x3 1/16x4⅜	53.72
F-63U	115	8-9† 8-9†	2 2	....	6-7 6-7	3x2½x2½	18.55
F-64U	115	7-8-9	7	....	5-6-7	3⅜x2 1/16x2¾	22.29
F-364U	115/230	7-8-9	7	....	5-6-7	3⅜x2 1/16x2¾	22.86
F-62U‡	105/115/125	9† 9† 9† 9†	10 10 10 10	....	7 7 7 7	4⅝x3 1/16x5¼	51.26
F-68U‡	115	9 CT† 9† 9† 9†	3.5 3.5 3.5 3.5	....	7 7 7 7	3 1/16x3 3/16x3 5/16	30.29
F-65U	110/120	140-150-160	.75	60	115	3 1/16x3 3/16x3⅜	27.97
F-74U	117	28 CT† 28 CT†	2 2	....	....	3 1/16x3 1/16x3¼	25.53
F-75U	117	28 CT† 28 CT†	4 4	....	....	4⅛x3 7/16x4⅜	41.22
F-79U‡	115	24-26-28-30	15	11.4	22.8	3 1/16x4 5/8x5½	78.81
F-80U‡	115*	12-13.5-15-16.5-18† 12-13.5-15-16.5-18†	20 20	....	13 13	5 3/8x4 7/16x5½	136.33
F-84-AC‡	230/115§	12 CT† 12 CT†	10 10	....	8.5 8.5	4⅝x3 1/16x5⅛	69.95
F-85U	115*	5-7.5† 5-7.5†	20 20	....	8-12.5	4½x3¾x4½	65.43

*Tapped. †Windings in series or parallel. ‡60 Hz. §Split winding.

Power Transformers



INSTRUMENT POWER SUPPLY TRANSFORMERS
PRIMARY 115 VOLTS,* FOR PREAMPS, VTVM, ETC.

Triad No.	Plate Supply AC Volts	Plate Supply mA DC	Filament Windings Volts and Amps	Size, Inches H. x W. x D.	Wt., Lbs.	Net Each
R-68A‡	800CT	30	5v.-2a., 6.3†-1.2a., 6.3†-1.2 a.	3½ x2²¹⁄₃₂x3⅜	3	$22.76
R-23B‡	250CT	22	6.3 v.-.8 a. 15.5/12.6 v.-.6 a.	1⅞ x2⅝ x2²¹⁄₃₂	1¾	18.83
R-2C‡	135	15	6.3 v.-.9 a.	1¾ x1⅞ x1²¹⁄₃₂	1	14.67
R-3A‡	500CT	20	6.3 CT-2 a.	2¹⁵⁄₃₂x2¹¹⁄₃₂x2½	1¾	16.95
R-53Z	500CT	25	6.3-1A.	2⅝₆x2⅞x2	1	11.07
R-55Z	250CT	25	6.3v.-1a.	2⅝₆ x2⅞ x1¾	1	12.40
R-29A‡	230CT	40	6.3 CT-1.5 a.	2¹⁵⁄₃₂x2¹¹⁄₃₂x2⅜	1¾	15.09
R-30X‡	135	50	6.3 v.-1.5 a.	2¹⁄₃₂ x3¾ x2⅛	1½	12.86
R-54X‡	115	15	6.3 v.-.6 a.	1⅝ x2¹³⁄₃₂x1⅝	1	8.53
R-54Z‡	115	15	6.3v.-.6a.	1¹⁵⁄₁₆x2⅞ x1⅝	1	9.43
R-56A‡	130	20	0/15/22.5/30-.6 a.	2¹⁵⁄₃₂x2¹¹⁄₃₂x2¾	2	16.40

*50–60 Hz (R-54X, R-55Z, 60 Hz). †Series or parallel. ‡Static shield.

FOR CATHODE RAY TUBES (115 V 50-60 Hz)

Triad No.	Plate Supply AC Volts	Plate Supply mA DC	Filament Windings Volts and Amps	Case Size, Inches H. x W. x D.	Net Each
R-41C	440-0-440-1250	125 5	5 v.-3 a., 2.5 v.†-1.75 a., 2.5 v.†-1.75 a., 6.3 v.-.6 a.	3¼x4¹⁄₃₂ x3½	$44.29
R-45C	400-0-400-800	30 5	5 v.†-2 a., 5 v.†-2 a., 6.3 v.-.6 a., 6.3 CT-3 a., 6.3 v.-1 a.	2⅝x3¾ x3⅛	34.40
R-43C	1600	3	6.3/5/2.5/0 v.-1 a. 6.3/5/2.5/0 v.-3 a.	2⅜x3¹⁄₃₂ x2¹⁄₃₂	34.45
R-84K	.....	.....	6.3-.6 a.	2¾x2¼ x2¾	15.64

†Windings may be connected in series or parallel.

FOR REGULATED POWER SUPPLIES
All have static shield; 115 volts, 50–60 Hz.

Triad No.	Plate Supply AC Volts	Plate Supply mA DC	Filament Windings Volts and Amps	Case Size, Inches H. x W. x D.	Net Each
R-70A	880†	75	6.3 v.-.6 a., 6.3 v.-.9 a., 6.3 v.-.3 a., 6.3 v.-3 a.	3¹⁵⁄₃₂x3⅜x3⅜	$31.59
R-26A	880-720†	200	6.3†-8 a., 6.3 v.-3 a., 6.3 v.-1 a., 5 v.-3 a.	4⅝x3¹⁵⁄₃₂x4⅝	55.29

†Center tapped.

ISOLATION TRANSFORMERS—50-60 Hz
All units have static shield.

Triad No.	VA Output	Input Volts	Output Volts	Case Size, In. H. x W. x D.	Net Each
N-48X	15	115	115	1¹⁵⁄₁₆ x 3⅝ x 2	$ 8.45
N-49X	35	115	57.5-115‡	2¾ x 3¹¹⁄₁₆ x 2⅛	11.69
N-51X	35	115	115	2¾ x 3¹¹⁄₁₆ x 2⅛	11.12
N-68X	50	115/230‡	115	2¾ x 3¹¹⁄₁₆ x 2⅛	14.16
N-53M#	85	115	115	3¹⁹⁄₃₂ x 2³¹⁄₃₂ x 3⅝	25.69
N-54M#	150	115	115	3⅞ x 3¹⁹⁄₃₂ x 4¼	35.17
N-73A	150	115	115/230‡	3⅞ x 3¹⁹⁄₃₂ x 3⅝	29.64
N-74A	150	115	57.5/115‡	3⅞ x 3¹⁹⁄₃₂ x 3⅞	31.12
N-67A	150	115/230‡	115	3⅞ x 3¹⁹⁄₃₂ x 3⅞	29.22
N-55M#^	250	115	115	4⅝ x 3¹⁵⁄₁₆ x 5	54.84
N-66A	250	115/230‡	115	4⅝ x 3¹⁵⁄₁₆ x 4⅝	47.29
N-57M#^	500	115	115	5⅝ x 4½ x 6¼	146.60
N-59M#^	1000	115	115	5⅝ x 4½ x 8	153.33
N-52M*	350	95–130§	115	4⅝ x 3¹⁵⁄₁₆ x 7¾	152.50
N-469A†	50	220/440‡	115	3⅜ x 2²¹⁄₃₂ x 2½	17.40
N-470A†	150	220/440‡	115	3⅞ x 3¹⁹⁄₃₂ x 3⅝	26.36
N-471A†	300	220/440‡	115	4⅝ x 3¹⁵⁄₁₆ x 4⅜	45.64

*With cord, switch and meter for primary voltage control. †60 Hz. ‡Split winding. §5-volt steps. #Also available with 3-wire cord, plug, socket. ^230 volt primary (MG).

UNIVERSAL ISOLATING AUTOFORMERS
For 50/60 Hz voltage control use. Four 115 V windings.

Triad No.	Output Watts (VA) Isolation	Output Watts (VA) Auto-former	rms Test Voltage	Size, Inches H. x W. x D.	Net Each
N-64AC	500	1000	1500	5⅝x4½x5½	$ 88.38
N-62U	1000	2000	1500	6½x5½x5	180.98
N-60SC	2000	4000	2500	4¾x8½x13½	343.07

COMBINED PLATE AND FILAMENT TRANSFORMERS
Static Shield; Primary 115 Volts—50–60 Hz

Triad No.	Secondary AC Volts	Secondary mA DC	Rect. Fil. V	Rect. Fil. A	Other Filament Volts	Other Filament A	Wt. Lbs.	Net Each
R-22A*	380/320 CT	70	...	...	6.3 6.3 CT	.6 3	2¾	$21.41
R-4A	500 CT	40	...	...	6.3 CT	2	1¾	16.36
R-5A	600 CT	65	...	...	6.3 CT	2.7	2¾	19.29
R-6A	480 CT	50	5	2	6.3 CT	2	2¾	20.69
R-7A*	600 CT	50	5	2	6.3 CT	2	2¾	20.52
R-8A	500 CT	75	5	2	6.3 CT	2.5	3	23.14
R-9A	600 CT	75	5	2	6.3 CT	3	3½	24.93
R-10A	525 CT	90	5	2	6.3 CT	5	4½	25.24
R-11A	700 CT	90	5	3	6.3 CT	3.5	4½	26.78
R-11B	700 CT	90	5	3	6.3 CT	3.5	4½	26.40
R-12A	550 CT	110	5	2	6.3 CT	5	4½	26.67
R-14A	700 CT	125	5	3	6.3 CT	4.5	6	31.00
R-14B	700 CT	125	5	3	6.3 CT	4.5	6	29.72
R-16A	700 CT	160	5	3	6.3 CT	5	7	34.90
R-20A	700 CT	200	5	3	6.3 CT	8	9¼	41.38
R-20B	700 CT	200	5	3	6.3 CT	8	9¼	40.12
R-72A*	800 CT	140	5	3	6.3 CT	4	5¾	31.71
R-21B	800 CT	200	5	3	6.3 CT	6	9¼	43.48
R-24A*	800 CT	300	5	6	6.3 CT	6	14	49.66
R-25A	800 CT	500	5	6	6.3 CT 6.3	7 3	19	104.91
R-71A*	900 CT	250	5	4	6.3 CT 6.3	2 4	12	48.69

*60 Hz.

COMBINED PLATE AND FILAMENT
Primary 115 Volts—60 Hz

"Climatite" treated coils and cores for protection against moisture and for elimination of lamination chatter. Small in size, yet loss is at a minimum. Temperature rise design is 55° C. Copper foil static shields grounded to case and core.

Triad No.	Secondary AC Volts	Secondary mA DC	Rect. Fil. V	Rect. Fil. A	Other Filament Volts	Other Filament A	Wt., Lbs.	Net Each
R-104A	500 CT	40	...	...	6.3 CT	2	1.55	$15.78
R-104B	500 CT	40	...	...	6.3 CT	2	1.55	15.47
R-105A	600 CT	65	...	...	6.3 CT	2.7	2	18.05
R-105B	600 CT	65	...	...	6.3 CT	2.7	2	17.59
R-106A	480 CT	50	5	2	6.3 CT	2	2.1	19.47
R-108A	500 CT	75	5	2	6.3 CT	2.5	2.4	19.69
R-109A	600 CT	75	5	2	6.3 CT	3	2.9	19.97
R-110A	525 CT	90	5	2	6.3 CT	5	3.25	22.95
R-110B	525 CT	90	5	2	6.3 CT	5	3.25	22.76
R-111A	700 CT	90	5	3	6.3 CT	3.5	3.25	24.38
R-111B	700 CT	90	5	3	6.3 CT	3.5	3.25	24.10
R-112A	550 CT	110	5	2	6.3 CT	5	3.7	24.22
R-112B	550 CT	110	5	2	6.3 CT	5	3.7	24.64
R-114A	700 CT	125	5	3	6.3 CT	4.5	4.7	25.95
R-115A	680 CT	70	5	2	6.3 CT	2.5	3.5	22.17
R-116A	700 CT	160	5	3	6.3 CT	5	5.65	29.45
R-118B	750 CT	175	5	3	6.3 CT	8	7.45	42.10
R-120A	700 CT	200	5	3	6.3 CT	8	8.25	35.07
R-121A	800 CT	200	5	3	6.3 CT	6	8.25	39.36

PLATE POWER TRANSFORMERS
Static Shield; Primary 115 Volts—50/60 Hz

Triad No.	Secondary Volts AC§	Secondary Volts DC	Secondary mADC CCS	Secondary mADC ICAS	Rect. Fil.	Wt. Lbs.	Net Each
P-1A	440/220 CT	180/90	160	192	5V-3A	4	$ 30.45
P-3A	600/300 CT	250/125	300	360	5V-4A	6.25	36.90
P-5A#	1100 CT	400	250	300	5V-4A	8	48.48
P-7A#	1235 CT	500	250	300	5V-4A	9	52.21
P-11A#	1455 CT	600	250	300	.....	8.5	46.83
P-14A	1780 CT‡	750/600	250	300	.....	13.5	73.45
P-215AL	2340 CT*†	1000	250	300	.....	13.5	70.03
P-217AL	2880 CT*†	1250	250	300	.....	14.8	76.95
PR-21AL#	3300 CT*†	1500	500	600	.....	29	151.93

*Primary, 115/230 VAC. †Plate leads outside of case for rectifiers. ‡Also 1425 VAC CT. §Secondary CT must be grounded. #60 Hz operation.

SOLID STATE RECTIFIER POWER TRANSFORMERS
Pri., 117 V, 50/60 Hz. Fil. 2 and 3 are 6.3 V.

Triad No.	Sec. Volts	DC A	Fil. 2, 3	Net Each	Triad No.	Sec. Volts	DC A	Fil. 2, 3	Net Each
R-200A	400 CT	0.4	3a	$42.29	R-208A	80 CT	1.2	.....	$19.22
R-201A	300 CT	0.6	2.5a	37.31	R-204A	80 CT	2.0	1.5a	38.60
R-202A	200 CT	0.8	2a	40.84	R-209B	60 CT	3.0	.....	26.78
R-203A	100 CT	1.6	1.5a	35.95	R-205A	60 CT	2.5	1.5a	32.47
R-82B	70 CT	3.0	.....	35.48	R-206B	54 CT	1.25	.....	18.71

SIGNALING TRANSFORMERS

Triad No.	Primary Volts	Secondary Volts, AC	Amps	Size, Inches H. x W. x D.	Net Each
F-102X	115	4/8/12/16/20/24	2	2¹⁵⁄₃₂x3¹¹⁄₃₂x2½	$12.31
F-104U	115	4/8/12/16/20/24	4	3½x2¼ x2⅛	22.21

PRICES LISTED ARE FOR GUIDANCE ONLY

DURACELL® Batteries

DURACELL® MERCURY BATTERIES

Duracell Mercury batteries offer more power per unit of volume than any other type. Sizes range from the RM312, which is aspirin tablet size, up thru the Power-Pak types. Voltage stability is excellent, as is storage life. Types with **R** in the suffix are rated at 1.35 volts per cell; all others rated 1.4 V. All have flat terminals unless otherwise noted.

Number	Volts	mAH	Use	Size, Inches	Oz.	Net
MP401H	1.4	1000	Paging	29/64 dia. x 1 1/8	0.4	$1.00
MP675H	1.4	220	Calculator	29/64 dia. x 7/32	0.07	.38
RM1	1.4	1000	Phys. hndcp.	5/8 dia. x 21/32	0.43	1.48
RM1R	1.35	1000	Electronic	5/8 dia. x 21/32	0.43	1.61
RM4R	1.35	3400	Electronic	1.2 dia. x 21/32	1.6	3.15
RM12	1.4	3600	Tape rcrdr.	5/8 dia. x 1 61/64	2.0	3.02
RM12R	1.35	3600	Tachometer	5/8 dia. x 1 61/64	2.0	3.35
RM13H	1.4	85	Phys. hndcp.	5/16 dia. x 7/32	...	.37
RM41H	1.4	150	Calculator	.455 dia. x .160	...	.38
RM42R	1.35	14000	Elec. "D"	1.2 dia. x 2 3/8	5.9	7.04
RM312H	1.4	45	Phys. hndcp.	5/16 dia. x 9/64	0.02	.38
RM401H	1.4	800	Radio "N"	29/64 dia. x 1 1/8	0.4	.86
RM401R	1.35	800	Electronic	29/64 dia. x 1 1/8	0.4	1.75
RM601R	1.35	1800	Electronic	5/8 dia. x 1 53/32	1.2	2.22

DURACELL® PHOTO BATTERIES

Suffix **B** indicates blister pack. **B2** indicates pack of 2.

Number	Volts	Wt. Oz.	Net Each	Number	Volts	Wt. Oz.	Net Each
PX1B	1.35	0.6	$1.55	PX32B	5.6	1.2	$2.95
PX13B	1.35	0.14	1.34	PX625B	1.35	0.15	1.34
PX14B	2.7	0.3	2.42	PX640B	1.35	0.38	1.48
PX19*‡	4.5	1.2	2.01	PX675B	1.35	0.07	1.34
PX21*‡	4.5	1.2	2.01	PX825*	1.5	0.38	.88
PX23B	5.6	2.0	1.48	PX825B2*	1.5	0.38	1.77
PX24*‡	3.0	1.0	1.95	MN9100	1.5	0.33	.74
PX25B	4.05	0.5	2.95	MN9100B2	1.5	1.17	1.49
PX27B	5.6	1.6	1.48	RM400RB	1.35	0.33	1.34
PX28B†	6.0	0.13	6.64	7R31	4.2	0.67	2.35
PX28LB	6.0	0.83	3.96	7R31B	4.2	0.67	2.36
DL1/3NB	3.0	0.58	2.62	5K65*	9	....	2.62
PX30*	3.0	1.5	1.75	7K67*	6	....	2.15
PX30B	3.0	1.5	1.76	9K62B	3.0	1.0	1.68

*Alkaline; †Silver oxide; all others mercury. ‡Available in single blister pack, add **1c** to price.

DURACELL® SILVER OXIDE GRID BIAS CELLS

Number	Volts	Size, In.	Net Each	Number	Volts	Net Each
MS13H	1.50	.21 x .31	$0.83	MS312H	1.50	$0.73
MS41H	1.50	.16 x .46	.86			
MS76B	1.50	.21 x .46	2.35			
MS76H	1.50	.46 x .21	1.56			

*Standard package, weight, 8 oz.; all others 4 oz.

NICKEL-CADMIUM RECHARGEABLE BATTERIES

Mallory nickel cadmium batteries can be recharged 1000 times or more and deliver constant power during discharge. Safety vent prevents bursting due to internal over-pressure.

Number	Rating AH	Size	Net Each
NC15AA*	0.5	"AA"	$ 2.55
NC14C*	1.0	"C"	2.98
NC13D*	1.2	"D"	2.98
NC169V	0.08	9 V	6.44
BC1	Charger for above		16.47

*Add **B** for blister pack (2).

SMOKE ALARM MERCURY BATTERIES

Number	Volts	mAH	Size, Inches	Net
TR431*	11.2	1,000	1.03 x 2.875	$5.97
304116*	12.6	900	1.03 x 2.875	5.97

*Available in blister pack; add suffix **B** to number and **1c** to price.

DURACELL® ALKALINE BATTERIES

Designed for high drain use such as photoflash, movie cameras, lighting, etc.; up to 10 times longer life than zinc-carbon types.

Number	Volts	Use	Wt. Oz.	Net Each
MN1300	1.5	All purpose "D"	5¼	$0.85
MN1300B2		Pack of 2		1.71
MN1400	1.5	All purpose "C"	2⅓	.85
MN1400B2		Pack of 2		1.71
MN1500	1.5	All purpose "AA"		.65
MN1500B2		Pack of 2		1.31
MN1500B4		Pack of 4		2.48
MN1604	1.5	Radio	1½	1.70
MN1604B		Blister pack		1.71
MN1604B2		Pack of Two		3.10
MN2400	1.5	All purpose "AAA"	.34	.65
MN2400B2		Pack of 2		1.31

Number	Volts	mAH	Use	Size, Inches	Oz.	Net
RM625H	1.4	350	Phys. hndcp.	5/8 dia. x 1/4	0.14	$0.97
RM625R	1.35	250	Electronic	5/8 dia. x 1/4	0.14	1.48
RM630H	1.4	350	Phys. hndcp.	5/8 dia. x 1/4	0.17	1 08
RM640	1.4	500	Radio	5/8 dia. x 7/16	0.26	1.34
RM675H	1.4	160	Phys. hndcp.	29/64 dia. x 13/64	0.07	.37
TR126	8.4	600	Radio	3/4 dia. x 2	1.6	4.36
TR132H	2.8	1000	Paging	21/32 dia. x 15/16	1	2.07
TR132R	2.7	1000	Electronic	21/32 dia. x 15/16	1	2.89
TR133	4.2	1000	Radio, Pag.	21/32 dia. x 2	1.4	3.96
TR133R	4.05	1000	Radio, Pag.	21/32 dia. x 2	1.4	4.23
TR134	5.6	1000	Gar. door	21/32 dia. x 2 39/64	1.9	3.56
TR134R	5.4	1000	Electronic	21/32 dia. x 2 39/64	1.9	4.43
TR135R	6.75	1000	Electronic	21/32 dia. x 3 1/4	2.4	5.36
TR136	8.4	1000	Gar. door	21/32 dia. x 3 29/32	2.9	4.83
TR146X*	8.4	575	Radio	1 x 21/32 x 1 3/4	2.0	3.82
TR164	5.6	500	Radio	21/32 dia. x 1 3/4	1.16	3.35
TR164R	5.40	500	Electronic	21/32 dia. x 1 3/4	1.16	4.23
TR165	7	500	TV tuner	21/32 dia. x 2 3/16	1.45	4.29
TR175	7	160	Radio	31/64 dia. x 1 1/32	0.4	2.95
TR177*	9.8	160	Radio	31/64 dia. x 1 29/32	0.67	3.82
TR286*	8.4	750	Radio	1 dia. x 1 15/16	1.6	5.10
TR289*	12.6	750	CB radio	1 dia. x 2 25/64	3.6	6.77
ZM9	1.4	2400	Radio "AA"	½ dia. x 1 31/32	1	2.01
9R81	1.4	800	Paging	29/64 dia. x 1 1/8	0.4	1.75
303858	16.2	250	Insts.	.....	....	17.69
303996	9.0	575	Medical	.....	....	4.36

*Snap terminals.

DURACELL® WATCH AND CALCULATOR BATTERIES

Number	Volts	mAH	Diam.	Height	Net
D301	1.50	100	.455″	.165″	$2.04
D303	1.50	200	.455″	.220″	2.37
D313*	1.35	220	.455″	.208″	1.23
D323*	1.35	95	.305″	.210″	.96
D325*	1.35	50	.305″	.141″	1.23
D343*	1.35	120	.455″	.137″	.96
D344	1.50	83	.455″	.135″	1.65
D350	1.50	90	.455″	.137″	1.62
D355	1.50	250	.610″	.190″	3.42
D357	1.50	180	.455″	.210″	2.13
D386	1.50	120	.455″	.165″	1.62
D387*	1.35	80	.455″	.137″	1.53
D388*	1.35	62	.348″	.130″	1.23
D389	1.50	70	.455″	.110″	1.47
D391	1.50	35	.455″	.085″	1.59
D392	1.50	38	.305″	.143″	1.02
D393	1.50	70	.305″	.210″	1.23

*Mercury; all others silver-oxide.

ZINC-CARBON BATTERIES

Mallory zinc-carbon batteries are manufactured to rigid quality control standards. Each type is specially engineered to provide the finest operation for its specific use. A wide variety of sizes and voltages are available for use in lighting, radios, toys, games, etc. Standard D and C cells are "Sealed in steel" for maximum protection from leakage.

Number	Nom. V	Use	T*	Size, Inches L. x W. x H.	Wt., Oz.	Net Each
M13F	1.5	Flashlight "D"	b	1 1 1/32 dia. x 2 13/32	3.3	$0.2925
M13FG2†	1.5	2-pack M13F	b	1 1 1/32 dia. x 2 13/32	6.6	.585
M13HD	1.5	"D" heavy duty	b	1 1 29/64 dia. x 2 25/64	3.0	.4025
M13HD2†	1.5	2-pack M13HD	b	1 1 29/64 dia. x 2 25/64	6.0	.815
M14F	1.5	Flashlight "C"	b	1 1 1/32 dia. x 1 15/16	1.5	.2925
M14FG2†	1.5	2-pack M14F	b	1 1 1/32 dia. x 1 15/16	3.0	.585
M14HD	1.5	"C" heavy duty	b	6 13/64 dia. x 1 29/32	1.33	.4025
M14HD2†	1.5	2-pack M14HD	b	6 13/64 dia. x 1 29/32	2.66	.815
M15F	1.5	"AA" penlight	b	5/16 dia. x 1 13/32	0.5	.2275
M15FB2†	1.5	Blister 2-pack	b	5/16 dia. x 1 13/32	1.0	.465
M15HD	1.5	"AA" hvy. duty	b	35/64 dia. x 1 61/64	.833	.3125
M15HD4‡	1.5	4-pack M15HD	b	35/64 dia. x 1 61/64	3.33	1.26
M24F	1.5	"AAA"	b	1 13/32 dia. x 1 3/4	0.4	.2275
M215	22.5	Radio "B"	b	1 1/32 x 5/8 x2	1.4	1.88
M504	15	Photo "B"	b	5/8 x 1 9/32x1 3/8	0.6	2.07
M505	22.5	Photo "B"	b	5/8 x 1 9/32x1 63/64	0.8	2.63
M900	1.5	Small ignition	e	2 5/8 x2 5/8 x4 9/32	24	2.20
M905S	1.5	#6 Ignition	e	2 5/8 dia. x 6 5/8	29	3.72
M908	6	Metal lantern	d	2 1 1/16x2 1 1/16x4 7/16	21	1.83
M910	1.5	Novelties	b	29/64 dia. x 1 1/8	0.4	.195
M915	6	Lighting	e	2 1 1/16x2 1 1/16x4 5/32	21	2.10
M918	6	Lantern	e	5 1 1/32x2 27/32x4 15/16	52	4.96
M926	12	Lantern	e	5 1 1/32x2 27/32x4 15/16	52	6.94
M1604	9	Radio, transis.	c	1 1/32 x 1 1/16x1 29/32	1.3	.64
M1604B2	9	Blister pack	c	1 1/32 x 1 1/16x1 29/32	1.3	1.04
M1604HD	9	Radio, transis.	c	1 1/32 x 1 1/16x1 29/32	1.3	1.00
M1604HD2	9	Blister pack	c	1 1/32 x 1 1/16x1 29/32	1.3	1.49
PF489	225	Elect. flash	a	4 1 1/32x2 1 1/16x4 3/16	76	25.31
PF491	240	Elect. flash	a,b	2 1 9/32x1 5/16 x4 1/2	13	12.24
PF497	510	Elect. flash	b	3 x1 1 9/32x5 5/8	26	21.89

*Terminals: **a**, socket; **b**, flat; **c**, snap; **d**, coil spring; **e**, screw. †Packaged 2 per cardboard display pack. ‡Packaged 4 per cardboard display pack.

Globe Battery Division

JOHNSON CONTROLS

gel/cell® RECHARGEABLE BATTERIES, BATTERY PACKS, CHARGERS

COMPLETELY SEALED, RECHARGEABLE GEL/CELL BATTERIES FOR LONG LIFE, COMPACTNESS, HIGH POWER-TO-SIZE RATIO

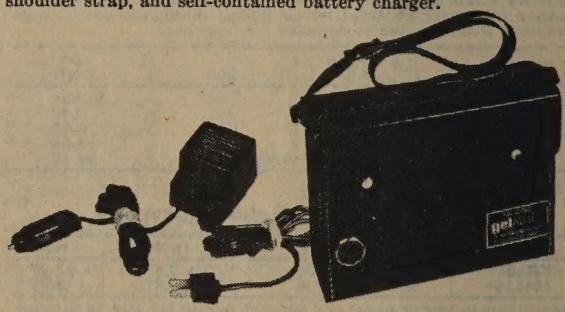
Small, but powerful rechargeable batteries feature exclusive gelled electrolyte held permanently between plates and sealed in polystyrene cases. Compact and long-lasting battery contains no liquid to splash around or ooze out. Can be operated, stored or charged in any position, even upside down. Compact sizes for every application including many mini-sizes with a high power-to-weight ratio. Ideal for building into transportable equipment such as tape recorders, TV sets, medical apparatus and test instruments. Completely maintenance free, install it and forget it. Uniquely suited to operate lighting, security and supervisory systems in the event of commercial power outage. No need to check liquid levels, water or electrolyte is never added. Battery can be recharged again and again, up to 500 or more charge/discharge cycles. If not completely discharged during each cycle, 1000 or more cycles of operation are possible. Special lead-calcium grids assure long shelf life, very little capacity loss when in storage. Self discharge is only 2% to 3% per month. Reliable lead dioxide system eliminates danger of permanent cell reversal and resulting loss of ability to recharge, provides years of dependable service. Protective self-sealing relief valves prevent excessive cell pressure build-up if batteries are accidentally over-charged. Battery is not affected by memory or previous use history, accepts a full charge time after time and delivers full power when you want it. Batteries may be connected in series to obtain any multiple of 2 volts or in parallel for other than standard capacities. Wide operating temperature range. Gel/Cells can be used in tropical or frigid climates. A fully charged Gel/Cell will operate over a temperature range of −76° F to +140° F. Gel/Cells are rated at 77° F. Their capacities increase above 77° F and decrease below 77° F. Durable, high impact, polystyrene case is non-conductive, will not rust or deteriorate.

Globe Part Number*	Nom. Volts	Capacity in Amp Hrs. at 20 Hr. Rate	20 Hr. Rate, mA	Max. Cont. Cur. (Amps) with Std. Terminals	Int. Res., Milliohms	Watt Hours per Lb.	Watt Hours per Cu. Inch	Size, Inches W.	Size, Inches D.	Size, Inches H.	Wt., Lbs.	Net Each
GC280-1	2	7.5	375	80	6	14.9	1.1	2.06	1.97	3.97	1.1	$16.50
GC410-4	4	.9	45	40	60	10.9	.89	1.65	1.36	2.00	.37	14.50
GC426-1	4	2.6	130	60	47	12.1	.92	3.54	1.33	2.63	.86	16.50
GC610-1	6	.9	45	40	90	10.9	.9	2.00	1.65	2.24	.55	16.50
GC620-1	6	1.8	90	80	50	12.4	.94	2.95	2.00	2.36	.97	21.50
GC626-1, 2	6	2.6	130	60	70	12.1	.92	5.28	1.33	2.63	1.34	19.00
GC645-1	6	4.5	225	80	30	11.3	.93	5.92	1.33	3.90	2.4	25.00
GC660-1	6	6.0	300	80	25	14.0	1.1	4.57	1.99	3.81	2.6	27.50
GC665-7	6	6.5	325	50	27	11.5	.80	4.30	2.80	4.20	3.4	21.00
GC680-1	6	7.5	375	80	20	14.5	1.1	5.96	1.97	3.97	3.3	28.00
GC690-7	6	9.0	450	50	18	....	....	4.25	2.78	5.60	4.1	23.50
GC6120-7	6	12.0	600	50	15	13.1	1.10	4.28	2.78	5.60	5.5	29.50
GC6200-5	6	20.0	1,000	200	9	14.1	1.2	7.0	3.42	5.25	8.5	52.00
GC826-1	8	2.6	130	60	70	12.0	.93	7.00	1.31	2.64	1.75	27.50
GC1215-1	12	1.5	75	35	150	12.0	.81	7.02	1.33	2.58	1.5	31.50
GC1245-1	12	4.5	225	80	60	12.0	.96	5.95	2.52	4.02	4.5	35.50
GC1260	12	6.0	300	80	80	12.0	.95	5.96	3.16	3.98	5.7	44.50
GC1290-7	12	9.0	450	50	40	12.3	.81	8.64	2.80	5.55	8.8	48.00
GC12120-7	12	12.0	600	50	30	13.1	1.1	8.64	2.80	5.55	11	60.00
GC12230-6	12	23.0	1,150	200	14	14.5	1.2	6.59	6.94	4.92	19.0	94.00
U128	12	28.0	1,400	500	10	....	....	7.75	5.19	7.36	21.0	79.50
GC12550-3	12	55.0	2,750	800	7	16.9	1.1	10.20	6.75	8.70	39.0	119.50

*Terminal style indicated by last digit:
1 = Dual Purpose—Solder-Lug/Tab Type, .187" w. x .032" thick.
2 = Displaced Flat Button—Interchanges with 4 "D" size batteries.
4 = Solder Lug—.120" w. x .030" thick.
5 = ¼"-20 stud. 7 = .187" Quick Disconnect.
6 = .250 Quick Disconnect

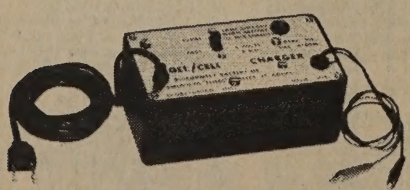
RECHARGEABLE BATTERY PACKS

Rugged, portable power supply provides a great source of power for battery-operated equipment. Gives you dependable electrical power anywhere, indoors or out. Use it on camping, fishing and motor trips to power a portable radio, TV set, tape recorder, depth and fish finders, boat running lights, camp and emergency lights. Provides plenty of power for portable tools, communications equipment, test instruments, public addresses. Operates simply by connecting appliance to the power pack using a standard automobile cigarette lighter appliance plug. Any 12 volt or 14 volt appliance designed to operate from automobile cigarette lighters may be plugged directly into the power pack. Absolutely safe, operates efficiently in any position and is not harmed by extremes of temperature. Battery pack is easily recharged by self-contained charger which inserts into battery pack and plugs into standard wall outlet. Pays for itself many times over by letting you save on batteries. Charging time for 12-volt battery pack is 16–20 hours for complete charge; 18–24 hours for 14-volt battery pack. Temperature range, −76° F to +140° F. With handsome carrying case, shoulder strap, and self-contained battery charger.



Globe Part No.	Nom. Volts	Ampere-Hours (20 Hr. Rating)	Size, Inches W.	Size, Inches D.	Size, Inches H.	Wt., Lbs.	Net Each
PP1245	12	4.5	8¼	2⅞	6½	6	$ 67.00
PP1260	12	6.0	4¼	4¼	6¼	7	76.00
PP1200	12	7.5	6¼	4¼	6¼	8	87.00
PP1290	12	9.0	3¼	9⅜	8¾	11	78.50
PP12120	12	12.0	8¼	3⅞	9	13	90.50
PP1426	14	2.6	6¼	2⅞	6½	4.5	82.50
PP1400	14	7.5	6¼	4¼	6¼	9.2	103.50

BATTERY CHARGERS



Easy to use, low cost charger provides choice of two well regulated output voltages. Panel switch selects "fast" or "float" voltage. In "fast" mode a fully discharged battery is recharged in 12 to 16 hours. or less; in "float" mode, 36 hours, or less. In either model batteries can be brought to 75–80% of full charge in half the time With switch in "float" position, batteries may be left on charge continuously. Indicating lamp stays on during charge, begins to glow dimly and goes out when battery is approximately 90% charged (50% on float setting). Protected from momentary shorts and reversed polarity. Chargers with 350 mA outputs recommended for batteries up to 3 ampere hour rating; 750 mA chargers for larger batteries or when charging smaller batteries in parallel. Black Bakelite* case with aluminum top panel. Size, 5⅞" w. x 3⅛" d. x 2¾" h. Weight, 2 lbs. *Reg. Bakelite Corp. TM.

Globe Part No.	Nom. Output	End of Charge Voltage Fast	End of Charge Voltage Float	For use with Battery Nos.	Net Each
GRC6350M	350 mA	7.2 ±.2 V	6.9 ±.1 V	610, 620, 626	$40.85
GRC6750M	750 mA	7.2 ±.2 V	6.9 ±.1 V	645, 660, 680	40.85
GRC12350M	350 mA	14.6 ±.2 V	13.8 ±.1 V	1215	40.85
GRC12750M	750 mA	14.6 ±.2 V	13.8 ±.1 V	1245	45.80

PRICES LISTED ARE FOR GUIDANCE ONLY

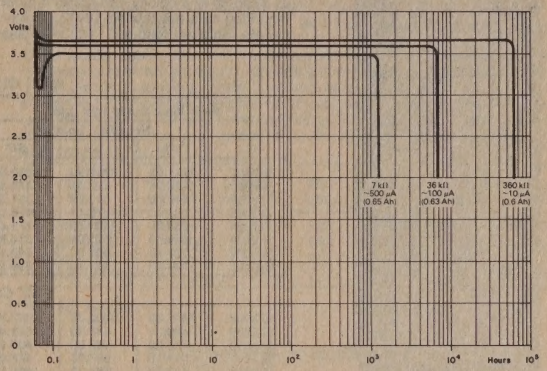
TADIRAN™ Batteries

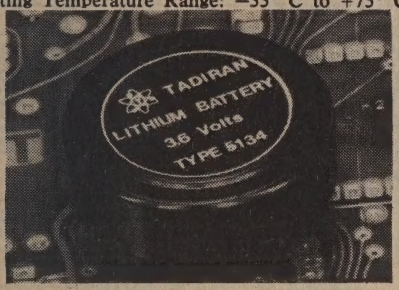
LITHIUM INORGANIC BATTERIES

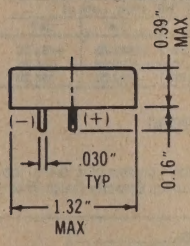
Memory Back-Up Battery TEL

The Tadiran™ lithium inorganic battery is designed for applications where conventional batteries cannot be used. Its long shelf life and flat discharge curve characteristics make it ideal as a standby power source for CMOS memories that store vital information for the new generation of telephones, electronic switchboards, microwave object identification and control systems, in data acquisition and processing systems. Lightweight and safe over a wide range of environmental conditions and reliable for a long period of time, the Tadiran lithium battery can be classed as a permanent component, connected into a circuit, in many cases, for the lifetime of the equipment. The lithium battery is also an ideal power source for such instrumentation as emergency rescue beacon transmitters, marine equipment, and other devices operated in severe environmental conditions. The Tadiran batteries are subjected to stringent environmental testing per applicable requirements of MIL-B-18D, MIL-STD-331, SCS-459, and many other military specifications. Voltage: Open circuit, 3.70 V; under load, 3.40 V. Energy Density: Up to 420 Wh/kg. Shelf Life: 10 years. Operating Temperature Range: −55° C to +75° C.

Performance Data:
(Typical for cells stored at 25°C for one year)







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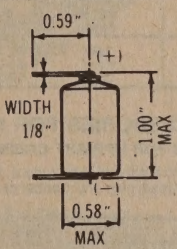

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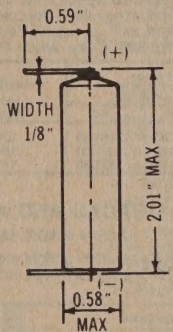

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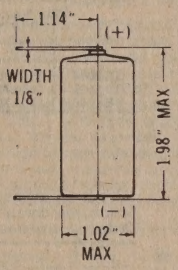
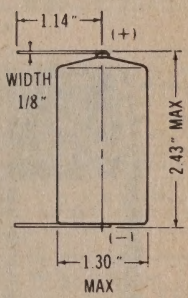


Type C/T

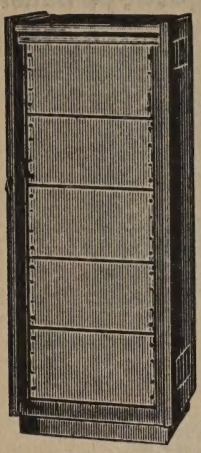


Type DEL/T

Tadiran Number	Designation Series	Designation Type	Max.* Current mA	Capacity mAh	Size, Inches Diam. × Length	Terminals	Net Each, Lots of 1-24	25-49	50-99	100-249	250-499
STANDARD BATTERIES											
15-51-02-210-000	1/2AA	1/2AA/S	15	850	0.58 × 1.00	Flat Contact	$ 9.50	$ 9.20	$ 8.75	$ 8.15	$ 7.40
15-51-02-310-000		1/2AA/T				Flat Strip	9.50	9.20	8.75	8.15	7.40
15-51-02-410-000	TL-2150	1/2AA/P				Wire	9.50	9.20	8.75	8.15	7.40
15-51-03-210-000	AA	AA/S	42	1750	0.58 × 2.01	Flat Contacts	10.50	10.20	9.65	9.00	8.20
15-51-03-310-000		AA/T				Flat Strip	10.50	10.20	9.65	9.00	8.20
15-51-03-410-000	TL-2100	AA/P				Wire	10.50	10.20	9.65	9.00	8.20
15-51-20-210-000	C	C/S	90	5200	1.02 × 1.96	Flat Contact	14.00	13.60	12.90	12.05	10.95
15-51-20-310-000		C/T				Flat Strip	14.00	13.60	12.90	12.05	10.95
15-51-20-410-000	TL-2200	C/P				Wire	14.00	13.60	12.90	12.05	10.95
15-51-30-210-000	D	D/S	135	10,500	1.30 × 2.41	Flat Contact	16.50	16.00	15.20	14.15	12.90
15-51-30-310-000		D/T				Flat Strip	16.50	16.00	15.20	14.15	12.90
15-51-30-410-000	TL-2300	D/P				Wire	16.50	16.00	15.20	14.15	12.90
15-51-21-210-000#	1/3C	1/3C/S	30	2000	1.02 × 0.75	Flat Contact	14.75	14.30	13.60	12.65	11.50
15-51-21-310-000#		1/3T/T				Flat Strip	14.75	14.30	13.60	12.65	11.50
15-51-21-410-000#	TL-5121	1/3P/P				Wire	14.75	14.30	13.60	12.65	11.50
15-51-33-210-000#	1/3D	1/3D/S	42	3700	1.30 × 0.75	Flat Contact	18.30	17.75	16.85	15.70	14.30
15-51-33-310-000#		1/3D/T				Flat Strip	18.30	17.75	16.85	15.70	14.30
15-51-33-410-000#	TL-5133	1/3D/P				Wire	18.30	17.75	16.85	15.70	14.30
MEMORY BACK-UP BATTERIES											
15-51-01-210-000	TEL(1/2AA)	TEL/S	0.5	630	0.58 × 1.00	Flat Contact	8.30	8.05	7.65	7.10	6.45
15-51-01-310-000		TEL/T				Flat Strip	8.30	8.05	7.65	7.10	6.45
15-51-01-410-000	TL-5101	TEL/P				Axial Wire	8.30	8.05	7.65	7.10	6.45
15-51-01-420-000		TEL/A				Radial Wire	8.30	8.05	7.65	7.10	6.45
15-51-04-210-000	AEL(AA)	AEL/S	1.5	1750	0.58 × 2.01	Flat Contact	9.30	9.00	8.55	7.95	7.25
15-51-04-310-000		AEL/T				Flat Strip	9.30	9.00	8.55	7.95	7.25
15-51-04-410-000	TL-5104	AEL/P				Wire	9.30	9.00	8.55	7.95	7.25
15-51-05-210-000	CEL(C)	CEL/S	3.0	5300	1.02 × 1.96	Flat Contact	11.80	11.45	10.85	10.10	9.20
15-51-05-310-000		CEL/T				Flat Strip	11.80	11.45	10.85	10.10	9.20
15-51-05-410-00	TL-5105	CEL/P				Wire	11.80	11.45	10.85	10.10	9.20
15-51-06-210-000	DEL(D)	DEL/S	4.5	10,800	1.30 × 2.41	Flat Contact	14.75	14.30	13.55	12.60	11.45
15-51-06-310-000		DEL/T				Flat Strip	14.75	14.30	13.55	12.60	11.45
15-51-06-410-000	TL-5106	DEL/P				Wire	14.75	14.30	13.55	12.60	11.45
15-51-35-420-000	1/6DEL TL-5135	1/6DEL/P	0.7	1000	1.30 × 0.39	Plug-In	10.10	9.80	9.30	8.65	7.90

*For continuous use. #Available on special order.

Series 2000 Cabinet Racks



Upright Cabinet Rack Panels not Included

SERIES 2000 UPRIGHT CABINET RACKS

Modern track enclosures combine the dramatic appearance of sheer, square lines with rugged Bud construction. Basic frame is all-welded with 14 gauge steel members; 18 gauge steel door, sides and top. "U" braces welded to sides of frame augment its strength and rigidity and act as a mounting for the vertical rails, which can be horizontally adjusted. Front and rear panel mounting rails are tapped 10-32. Caster bracket in base accepts Bud RC-7758 casters. All cabinets accept standard 19" panels. Shipped textured (**RB**) with clear anodized extrusion cowl. **Specify Color When Ordering.**

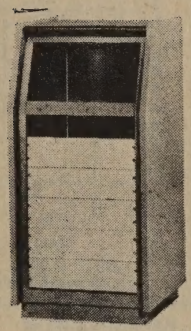
30" deep racks also available; prices on request.

23⅞" OUTSIDE DEPTH—20½" CLEAR INSIDE DEPTH

With Plain Sides and Door				Size, Inches			With Louvered Sides and Door			
Bud No.	Net Each, Lots of 1-2	3-4	5-7	Ht.	Panel Space	Wt., Lbs.	Bud No.	Net Each, Lots of 1-2	3-4	5-7
E-2000	$441.00	$396.90	$352.80	30¼	21	125	E-2016	$453.85	$408.45	$363.10
E-2001	472.95	425.65	378.35	40¾	31½	150	E-2017	501.15	451.05	400.90
E-2002	489.00	440.10	391.20	44¼	35	155	E-2018	519.25	467.35	415.40
E-2003	532.65	479.40	426.10	51¼	42	167	E-2019	569.10	512.20	455.30
E-2004	589.30	530.35	471.45	61¾	52½	205	E-2020	611.95	550.75	489.55
E-2005	644.50	580.05	515.60	70½	61¼	219	E-2021	622.10	595.90	529.70
E-2006	675.15	607.65	540.10	79¼	70	252	E-2022	685.85	617.10	548.50
E-2007	733.20	659.90	586.55	88	78¾	262	E-2023	750.15	675.15	600.10

27⅞" OUTSIDE DEPTH—24" CLEAR INSIDE DEPTH

E-2008	$447.30	$402.55	$357.85	30¼	21	135	E-2024	$464.95	$418.45	$371.95
E-2009	489.30	440.35	391.45	40¾	31½	160	E-2025	511.00	459.90	408.80
E-2010	510.00	459.00	408.00	44¼	35	165	E-2026	529.60	476.65	423.70
E-2011	561.15	505.05	448.90	51¼	42	187	E-2027	576.40	518.75	461.10
E-2012	615.70	554.15	492.55	61¾	52½	222	E-2028	621.30	559.15	497.05
E-2013	666.70	600.05	533.35	70½	61¼	229	E-2029	667.60	600.85	534.10
E-2014	690.15	621.15	522.10	79¼	70	256	E-2030	698.85	628.95	559.10
E-2015	747.90	673.10	598.30	88	78¾	280	E-2031	761.85	685.65	609.50



Inclined Panel Cabinet Rack Panels not Included

SERIES 2000 INCLINED PANEL CABINET RACKS

Same modern styling and rugged construction as upright racks above, with 20° inclined panel for comfortable viewing of mounted instruments. Panel mounting rails in front vertical and inclined panel sections, as well as in the rear, are adjustable front-to-rear. Height 51¼"; width, $24^{3}/_{16}$"; outside depth, 23⅞"; clear inside depth, 20½". Weight, 173 lbs. Available in same textured finishes as above. **Specify Color When Ordering.** **30" deep racks also available; prices on request.**

With Plain Sides and Door				Inclined Panel Space	Vertical Panel Space	With Louvered Sides and Door			
Bud No.	Net Each, Lots of 1-2	3-4	5-7			Bud No.	Net Each, Lots of 1-2	3-4	5-7
SE-2064	$564.75	$508.30	$451.80	10½"	29¾"	SE-2067	$580.30	$522.25	$464.25
SE-2065	564.75	508.30	451.80	15¾"	24½"	SE-2068	580.30	522.25	464.25
SE-2066	564.75	508.30	451.80	17½"	22¾"	SE-2069	580.30	522.25	464.25

ADD-A-RACKS AND ACCESSORIES FOR SERIES 2000

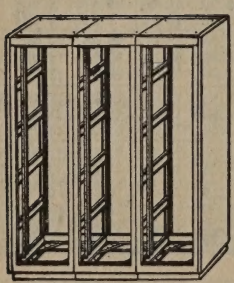
ADD-A-RACK SERIES FOR UPRIGHT CABINETS

Used as an add-on unit to join Series 2000 upright racks into a bank of two or more. Each assembly consists of a frame, top, bottom, rear door and cowlings. One standard rack must be used, plus any number of Add-A-Rack units. **Specify Color When Ordering;** same as above racks.

With Plain Door					With Louvered Door					
Bud No.	For Add-on to Rack	Net Each, Lots of 1-2	3-4	5-7	Bud No.	For Add-on to Rack	Net Each, Lots of 1-2	3-4	5-7	Wt., Lbs.
AE-2032	E-2000	$352.95	$317.65	$282.35	AE-2048	E-2016	$371.80	$334.60	$297.45	90
AE-2033	E-2001	374.40	336.95	299.50	AE-2049	E-2017	402.90	362.60	322.30	110
AE-2034	E-2002	392.95	352.65	314.35	AE-2050	E-2018	423.15	380.85	338.50	113
AE-2035	E-2003	411.10	370.00	328.90	AE-2051	E-2019	447.25	402.55	357.80	115
AE-2036	E-2004	449.25	404.35	359.40	AE-2052	E-2020	473.10	425.80	378.50	145
AE-2037	E-2005	501.40	451.25	401.10	AE-2053	E-2021	517.80	466.00	414.25	148
AE-2038	E-2006	526.20	473.60	420.95	AE-2054	E-2022	541.90	487.70	433.50	512
AE-2039	E-2007	600.30	540.25	480.25	AE-2055	E-2023	628.95	566.05	503.15	158
AE-2040	E-2008	373.30	335.95	298.65	AE-2056	E-2024	390.75	351.70	312.60	120
AE-2041	E-2009	388.50	349.65	310.80	AE-2057	E-2025	419.20	377.30	335.35	130
AE-2042	E-2010	406.75	366.10	325.40	AE-2058	E-2026	432.25	389.05	345.80	135
AE-2043	E-2011	439.30	395.35	351.45	AE-2059	E-2027	473.25	425.95	378.60	138
AE-2044	E-2012	472.85	425.50	378.25	AE-2060	E-2028	496.80	447.10	397.45	142
AE-2045	E-2013	511.90	460.70	409.50	AE-2061	E-2029	541.90	487.70	433.50	164
AE-2046	E-2014	547.35	492.60	437.90	AE-2062	E-2030	582.45	524.20	465.95	168
AE-2047	E-2015	619.05	557.15	495.25	AE-2063	E-2031	649.35	584.40	519.50	172

ADD-A-RACK SERIES FOR INCLINED PANEL CABINETS

ASE-2084	SE-2064	$446.85	$402.15	$357.50	.....	.....	.....	.....	.....	115
ASE-2085	SE-2065	446.85	402.15	357.50	.....	.....	.....	.....	.....	115
ASE-2086	SE-2066	446.85	402.15	357.50	.....	.....	.....	.....	.....	120



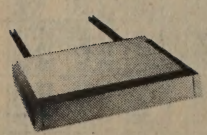
Add-A-Rack

ACCESSORY FRONT DOORS FOR UPRIGHT CABINETS

Plain Type				For Vertical Panel Space of	Wt., Lbs.	Louvered Type			
Bud No.	Net Each, Lots of 1-2	3-4	5-7			Bud No.	Net Each, Lots of 1-2	3-4	5-7
E-9000	$106.20	$ 95.60	$ 84.95	21"	15	E-9020	$121.15	$109.05	$ 96.90
E-9001	118.50	106.65	94.80	31½"	18	E-9021	135.10	121.60	108.10
E-9002	125.20	112.70	100.15	35"	19	E-9022	142.85	128.40	114.10
E-9003	134.40	120.95	107.50	42"	23	E-9023	153.15	137.85	122.50
E-9004	139.75	125.80	111.80	52½"	27	E-9024	158.55	142.70	126.85
E-9005	146.05	131.45	116.85	61¼"	29	E-9025	166.45	149.80	133.15
E-9006	153.10	137.80	122.50	70"	31	E-9026	174.45	157.00	139.55
E-9007	164.80	148.30	131.85	78¾"	33	E-9027	187.90	169.10	150.30

ACCESSORY FRONT DOORS FOR INCLINED PANEL CABINETS

E-9008	$131.55	$118.40	$105.25	29¾"	11	E-9028	$150.15	$135.15	$120.10
E-9009	122.25	110.05	97.80	24½"	10½	E-9029	139.30	125.35	111.45
E-9010	120.40	108.35	96.30	22¾"	9	E-9030	118.50	106.65	94.80



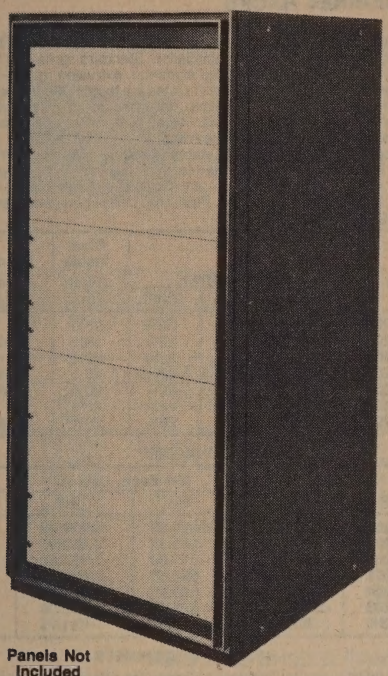
DESK TOPS FOR SERIES 2000 CABINET RACKS

Provides a smooth writing surface or shelf on upright or inclined panel cabinet rack. Two pre-slotted supporting channels bolt to panel mounting rails. Antique white Formica* surface. Supports over 200 lbs. **Size:** $24^{3}/_{16}$" wide, 19½" deep, $3^{1}/_{16}$" high. Specify **GT** for gray textured; **RB** for royal blue textured.

Bud No.	Fits Cabinet with Depth of	Supporting Channel	Wt., Lbs.	Net Each, Lots of 1-2	3-4	5-7
DT-2960	23⅞"	21¼"	29	$129.50	$116.55	$103.60
DT-2962	27⅞"	24¾"	30	133.85	120.45	107.10

*Registered Synthane Corp. trademark.

PRICES LISTED ARE FOR GUIDANCE ONLY



Panels Not Included

CLASSIC II CABINET RACKS

Refined styling, design simplicity, with a subtle brushed aluminum extrusion framing the front—a few reasons why the Classic II sets your products apart from the conventional. Include welded frame, top, bottom, sides, rear door with flush-mounted handle and cam lock, and one pair of panel mounting rails. Lightweight, yet able to support heavier-than-average loads. Size: 22″ w. × 22″ d. Clear inside depth, 21⅛″. 19″ wide panels fit openings. Rear door may be mounted to open to right or left. Adjustable front mounting rails drilled and tapped 10-32 universal spacing. Caster brackets welded to all-steel, extra-rigid frame accept RC-7756 casters. Side panels 18 gauge steel; top and bottom 16 gauge; uprights 14 gauge. Shipped completely assembled. Side panels may be removed from outside for convenient access to interior. Finishes: Royal blue textured **(RB)** and gray textured **(GT)**.

Bud No.	Height, Inches	Panel Ht., In.*	Wt., Lbs.	Net Each, Lots of 1-2	3-4	5-7
AGR-9302	47 5/16	42	126	$435.00	$391.50	$348.00
AGR-9303	57 13/16	52½	149	470.80	423.70	376.65
AGR-9304	66 9/16	61¼	162	506.35	455.70	405.10
AGR-9306	82 5/16	77	191	581.95	523.75	465.55

*On 19″ width.

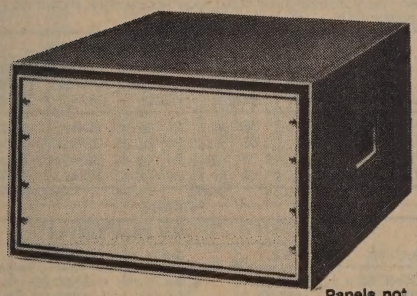
FRONT DOORS FOR CLASSIC II RACKS

Rear doors included with racks. Order in color to match rack.

Bud No.	Fits Rack	Wt., Lbs.	Net Each, Lots of 1-2	3-4	5-7
AGD-932	AGR-9302	19	$101.85	$ 91.65	$81.50
AGD-933	AGR-9303	23	108.45	97.60	86.75
AGD-934	AGR-9304	26	114.30	102.85	91.45
AGD-936	AGR-9306	31	125.25	112.75	100.20

CLASSIC II CABINETS

Whether used independently or as a companion to the Classic II cabinet rack, the design of this distinctive cabinet harmonizes perfectly with the most sophisticated systems. It is a portable enclosure, yet equally effective for permanent installations. Available in 14 sizes, each taking standard 19″ panels. Available ⅛″ aluminum alloy doors attach to mounting rails; stop fits on one rail; hinged door to other rail. Black thermoplastic flush-type latch. Top, bottom, and side panels 0.06″ aluminum; frame 6063-T aluminum extrusions. Clear inside depth, 20 9/16″; overall depth, 21 7/16″. Shipped assembled. Recessed, brushed chrome handles are attached to two steel flanges extending the length of each side of the cabinet. This added support results in assured carrying safety. Two 16 gauge vertically adjustable chassis supports included. Front and rear panel rails, tapped 10-32, not included but are available. Finishes: Royal blue textured **(RB)** or gray textured **(GT)**.

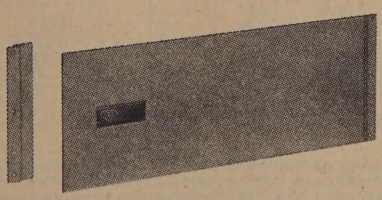


Panels not included

Bud No.	Overall Ht., In.	Panel Space, In.	Wt., Lbs.	Net Each, Lots of 1-2	3-4	5-7
AGC-9267	7 1/16	5¼	29¼	$227.25	$204.55	$181.80
AGC-9268	8 13/16	7	30½	233.50	210.15	186.80
AGC-9269	10 9/16	8⅜	32¼	239.35	215.40	191.50
AGC-9270	12 5/16	10½	33¼	240.30	216.25	192.25
AGC-9271	14 1/16	12¼	34¼	248.40	223.55	198.70
AGC-9272	15 13/16	14	35	254.20	228.80	203.35
AGC-9273	17 9/16	15¾	36	259.20	233.30	207.35
AGC-9274	19 5/16	17½	36¾	264.85	238.35	211.90
AGC-9275	21 1/16	19¼	37¾	267.30	240.55	213.85
AGC-9276	22 13/16	21	38½	271.50	244.35	217.20
AGC-9277	24 9/16	22¾	39½	285.25	256.75	228.20
AGC-9278	26 5/16	24¼	40¼	288.60	259.75	230.90
AGC-9279	28 1/16	26¼	41¼	292.50	263.25	234.00
AGC-9280	29 13/16	28	42	298.50	268.65	238.80

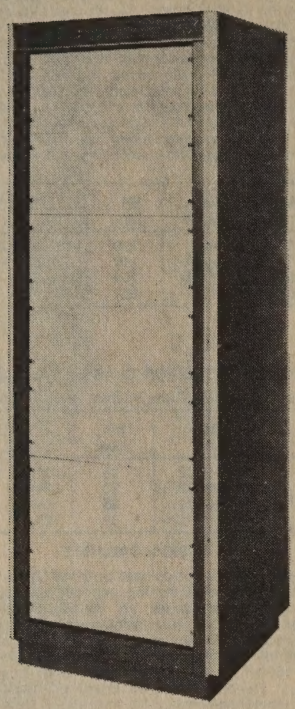
CLASSIC II DOORS 19″ WIDE

Designed for use on Classic II Cabinets; also fit any rack or cabinet with 19″ panel space by attaching to panel mounting rails. Made of ⅛″ aluminum alloy 5005-H36. Stop fits on one panel mounting rail; hinged door attaches to other rail. Equipped with black thermoplastic slide latch. Finish, white textured.



Bud No.	Height, In.	Wt., Lbs.	Net Each, Lots of 1-2	3-4	5-7
AGD-367	5¼	1¾	$27.95	$25.15	$22.35
AGD-368	7	2	33.00	29.70	26.40
AGD-369	8¾	2¾	36.75	33.10	29.40
AGD-370	10½	3	39.85	35.85	31.90
AGD-371	12¼	3½	42.65	38.40	34.10
AGD-372	14	4	48.00	43.20	38.40
AGD-373	15¾	4¾	53.95	48.55	43.15
AGD-374	17½	5	56.10	50.50	44.90
AGD-375	19¼	5½	59.85	53.85	47.90
AGD-376	21	6¼	62.65	56.40	50.10
AGD-377	22¾	6¾	65.40	58.85	52.30
AGD-378	24½	7¼	70.05	63.05	56.05
AGD-379	26¼	7½	72.00	64.80	57.60
AGD-380	28	8	74.30	66.85	59.45

CONCORDE SERIES UPRIGHT CABINET RACKS



Panels not included

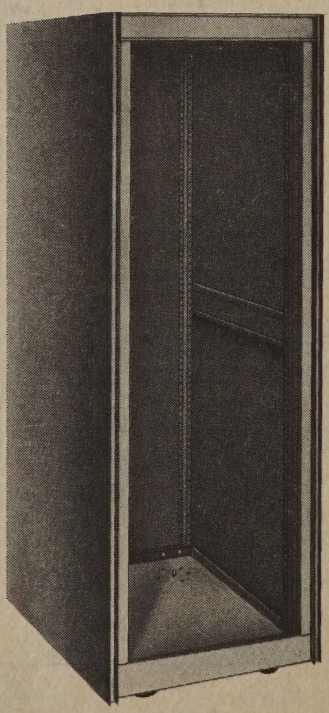
Cabinet racks with a personality all their own; racks that add a unique but highly sophisticated appearance to any installation. Standard racks with custom-quality appearance. Etched, clear anodized aluminum extrusion frames the cabinet. A subtle inset at the top (woodgrain) completes the handsome appearance. Interior accessible from front, rear and sides, for ease of installing and maintaining equipment. "U" braces on all-welded, 14-gauge steel frame assures strength and rigidity; peak stability under the heaviest of loads. Rear door, sides and top constructed of 18-gauge steel. Adjustable 12-gauge panel-mounting rails, tapped to 10-32. Racks accommodate standard 19" panels. Fully adjustable interior mounting system accommodates any module or component. Top opening, $18^{5}/_{16}$" × 17". Shipped assembled. **Finishes:** Units immediately available in gray textured **(GT)** or royal blue **(RB)**.

Bud No.	Outside (Ins.) Height	Width	Depth	Clear Inside Depth (In.)	Panel Space (In.)	Wt., Lbs.
CR-16200	29⅝	$24^{1}/_{16}$	22¼	20½	21	118
CR-16201	40⅛	$24^{1}/_{16}$	22¼	20½	31½	156
CR-16202	50⅝	$24^{1}/_{16}$	22¼	20½	42	173
CR-16203	61⅛	$24^{1}/_{16}$	22¼	20½	52½	197
CR-16204	69⅞	$24^{1}/_{16}$	22¼	20½	61¼	220
CR-16205	78⅝	$24^{1}/_{16}$	22¼	20½	70	235
CR-16206	87⅜	$24^{1}/_{16}$	22¼	20½	78¾	265

PRICING

Bud No.	Net Each, Lots of 1-2	3-4	5-7	8-10
CR-16200	$471.75	$424.60	$377.40	$353.80
CR-16201	513.70	462.35	410.95	385.30
CR-16202	568.65	511.80	454.90	426.50
CR-16203	647.65	582.90	518.10	485.75
CR-16204	698.70	628.85	558.95	524.05
CR-16205	746.25	671.65	597.00	559.70
CR-16206	802.20	722.00	641.75	601.65

SERIES 20 CABINETS



A recent addition on the Designer's Group line offers more value at less cost. Saves on shipping and storage costs since it is shipped knocked down in two cartons. Easily assembled with simple tools. Styling includes decorative anodized aluminum extrusions and nameplate frame. Units have two pairs of adjustable mounting rails tapped 10-32 at universal spacing. Top has two sets of louvers on the top to provide extra ventilation. Six-inch circular knockout in base for cable access or air circulation. Rear door is furnished fitted with flush handle and cam lock. Caster mounting brackets are drilled to accommodate any Bud caster or leveler. Royal blue textured finish. Use Accessories shown elsewhere on these Bud pages.

Bud No.	Dimensions, Inches Panel Height	Outside Height	Outside Width	Outside Depth	Clear Inside Depth	Clear Inside Width
KDR-2752	52½	$58^{3}/_{16}$	$24^{1}/_{16}$	32⅜	29¼	$17^{15}/_{16}$
KDR-2761	61¼	$66^{15}/_{16}$	$24^{1}/_{16}$	32⅜	29¼	$17^{15}/_{16}$
KDR-2770	70	$75^{11}/_{16}$	$24^{1}/_{16}$	32⅜	29¼	$17^{15}/_{16}$
KDR-2778	78¾	$84^{7}/_{16}$	$24^{1}/_{16}$	32⅜	29¼	$17^{15}/_{16}$

PRICING

Bud No.	Net Each, Lots of 1-2	3-4	5-7	8-10
KDR-2752	$438.60	$394.75	$350.90	$328.95
KDR-2761	462.40	416.15	369.90	346.80
KDR-2770	502.35	452.10	401.90	376.75
KDR-2778	535.30	481.75	428.25	401.50

Relay Racks Panels, Boxes, Cases

STANDARD RELAY RACK PANELS

Choice of steel or aluminum relay rack panels, 1/8" or 3/16" thick, in both 19" and 24" widths. Finishes: White textured **(WH)** or luster gray **(LG)**. Aluminum panels 5005 H-36 or 2024 T-3 alloy.

24" WIDE PANELS — **19" WIDE PANELS**

Ht., In.	1/8" 5005 H-36 ALUMINUM Bud No.	Net Each, Lots of 1	2-49	50-99	3/16" 5005 H-36 ALUMINUM Bud No.	Net Each, Lots of 1	2-49	50-99
1¾	PA-2401	$ 9.60	$ 8.00	$ 7.20	PA-3101	$ 9.40	$ 7.85	$ 7.05
3½	PA-2402	12.50	10.45	9.40	PA-3102	13.40	11.20	10.10
5¼	PA-2403	16.80	14.05	12.65	PA-3103	17.70	14.80	13.30
7	PA-2404	19.40	16.20	14.60	PA-3104	21.70	18.10	16.30
8¾	PA-2405	24.30	20.30	18.25	PA-3105	25.70	21.45	19.30
10½	PA-2406	29.50	24.65	22.20	PA-3106	32.60	27.20	24.50
12¼	PA-2407	32.30	27.80	25.00	PA-3107	35.00	31.15	28.05
14	PA-2408	34.75	33.50	30.15	PA-3108	37.50	34.75	31.30
15¾	PA-2409	36.15	36.15	32.55	PA-3109	40.40	40.40	36.35
17½	PA-2410	37.85	37.85	34.05	PA-3110	44.25	44.25	39.85
19¼	PA-2411	41.40	41.40	37.25	PA-3111	48.50	48.50	43.65
21	PA-2412	45.60	45.60	41.05	PA-3112	52.85	52.85	47.55

19" WIDE 1/8" STEEL AND ALUMINUM PANELS

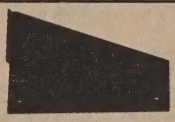
Ht., In.	11 GAUGE STEEL Bud No.	Net Each, Lots of 1	2-49	50-99	1/8" 2024 T-3 ALUMINUM Bud No.	Net Each, Lots of 1	2-49	50-99	1/8" 5005 H-36 ALUMINUM Bud No.	Net Each, Lots of 1	2-49	50-99	Ht., In.
1¾	PS-1250	$ 5.20	$ 4.35	$ 3.90	PA-1131	$ 7.90	$ 6.60	$ 5.95	PA-1101	$ 6.20	$ 5.20	$ 4.70	1¾
3½	PS-1251	6.30	5.25	4.38	PA-1132	11.40	9.50	8.55	PA-1102	8.40	7.00	6.30	3½
5¼	PS-1252	9.90	8.25	7.45	PA-1133	17.30	14.45	13.00	PA-1003	11.30	9.45	8.50	5¼
7	PS-1253	10.80	9.00	8.10	PA-1134	21.80	18.20	16.40	PA-1104	14.20	11.85	10.65	7
8¾	PS-1254	12.30	10.25	9.25	PA-1135	26.00	21.70	19.55	PA-1105	16.80	14.05	12.65	8¾
10½	PS-1255	13.80	11.50	10.35	PA-1136	30.80	25.70	23.15	PA-1106	20.00	16.70	15.05	10½
12¼	PS-1256	15.40	12.85	11.55	PA-1137	35.60	29.75	26.80	PA-1107	23.00	19.20	17.30	12¼
14	PS-1257	18.20	15.20	13.70	PA-1138	36.50	33.90	30.50	PA-1108	26.60	22.20	20.00	14
15¾	PS-1258	19.30	17.80	16.00	PA-1139	37.40	36.40	32.75	PA-1109	29.30	24.45	22.00	15¾
17½	PS-1259	21.30	17.80	16.00	PA-1140	40.90	40.90	36.80	PA-1110	32.10	26.80	24.10	17½
19¼	PS-1260	23.20	21.05	18.95	PA-1141	45.75	45.75	41.20	PA-1111	33.80	29.05	26.15	19¼
21	PS-1261	26.40	22.05	19.85	PA-1142	50.35	50.35	45.30	PA-1112	34.50	32.50	29.25	21

SURFACE SHIELD PANELS

Bright aluminum alloy 5005 H-36 panels have blemish-free mill finish. Covered on front side with sturdy, pressure-sensitive, white paper; protects against damage and useful for marking for drilling, positioning, etc. Standard panel notching.

Ht., In.	1/8" ALUMINUM Bud No.	Net Each, Lots of 1	2-49	50-99	3/16" ALUMINUM Bud No.	Net Each, Lots of 1	2-49	50-99
1¾	SFA-1831	$ 5.40	$ 4.50	$ 4.05	SFA-3161	$10.00	$ 8.35	$ 7.50
3½	SFA-1832	7.80	6.50	5.85	SFA-3162	13.90	11.60	10.45
5¼	SFA-1833	10.00	8.35	7.50	SFA-3163	18.30	15.30	13.75
7	SFA-1834	12.90	10.75	9.70	SFA-3164	23.10	19.30	17.35
8¾	SFA-1835	14.10	11.75	10.60	SFA-3165	27.10	22.65	20.40
10½	SFA-1836	18.30	15.30	13.75	SFA-3166	31.80	26.55	23.90
12¼	SFA-1837	21.20	17.70	15.95	SFA-3167	36.00	33.55	30.20
14	SFA-1838	22.70	18.95	17.05	SFA-3168	38.35	38.35	34.50
15¾	SFA-1839	26.90	22.45	20.20	SFA-3169	42.85	42.85	38.55
17½	SFA-1840	32.90	24.70	22.25	SFA-3170	44.75	44.75	40.30
19¼	SFA-1841	33.90	27.45	24.70	SFA-3171	52.20	52.20	47.00
21	SFA-1842	35.20	30.00	27.00	SFA-3172	56.35	56.35	50.70

CHASSIS MTG. BRACKETS



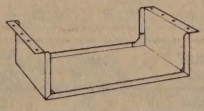
Mounts chassis to panels; supports entire chassis weight. Heavy gauge steel 6½" high, cut away at bottom to mount flush to panel. Black finish.

Bud No.	Depth, In.	Net per Pair, Lots of 1	2-99	100-199
MB-458	8	$ 8.30	$ 6.95	$6.25
MB-448	10	9.70	8.10	7.30
MB-459	11	9.00	7.50	6.75
MB-449	12	10.90	9.10	8.20
MB-460	13	12.40	10.35	9.30
MB-450	10	11.80	9.85	8.85
MB-451*	13	13.10	10.95	9.85

*8½" high for chassis height of 4".

ALUMINUM PANEL CHASSIS

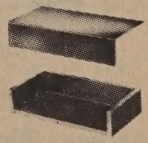
Fastens to mounting rails. Can be used as a vertical chassis where depth is limited or where front service is required. Constructed of .060" aluminum alloy. Natural finish.



Bud No.	Height, Ins.	Weight, Lbs.	Net Each, Lots of 1	2-49	50-99
CB-1370	1¾	¾	$ 9.40	$ 7.85	$ 7.05
CB-1371	3½	1¼	10.50	8.75	7.90
CB-1372	5¼	1½	12.10	10.10	9.10
CB-1373	7	2	14.50	12.10	10.90
CB-1374	8¾	2¼	16.80	14.05	12.65
CB-1375	10½	2¾	19.50	16.30	14.65
CB-1376	12¼	3	21.70	18.10	16.30
CB-1377	14	3¼	24.20	20.20	18.20

CONVERTA-BOXES

Versatile enclosure combines welded base and two-sided cover. Components or controls are easily mounted to any surface of the unit. All contents easily accessible. Cover and base are fastened by self-tapping screws. Rigid 20 ga. cadmium-plated steel.

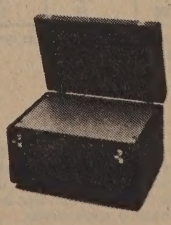


Bud No.	Size, Inches H. × W. × D.	Wt., Lbs.	Net Each, Lots of 1	2-49	50-99
CU-341	1½ × 4 × 3	½	$7.90	$6.60*	$5.95†
CU-452	2 × 5 × 4	¾	8.00	6.70*	6.05†
CU-482	2 × 8 × 4	1¼	8.90	7.45	6.70
CU-592	2½ × 9½ × 5	1¾	9.60	8.00	7.20
CU-622	2½ × 12 × 6	2¼	11.60	9.70	8.70
CU-712	2½ × 15 × 7	3	14.40	12.00	10.80

*Lots of 2-99; †Lots of 100-199.

TRANSICASE PORTABLE INSTRUMENT CASE

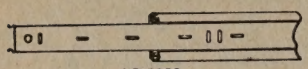
Handsome, portable instrument case with unlimited applications. Contour design fabricated of .040" aluminum with flush-fitting aluminum panel. Lid protects instruments in case; mounted on two slide-off, bright nickel-plated hinges with toggle catches. Rubber feet at both base and back; metal plugs supplied to fill holes if rubber feet are not used. Black plastic handle. **Specify Color:** Add suffix **RB** for royal blue textured; **GT** for gray textured.



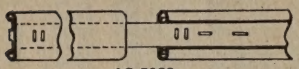
Bud No.	Inside Panel Size, Inches	Clear Internal Space, Inches Below Panel	Above Panel	Internal Aperture, Inches	Overall Size, Inches W. × D. × H.	Wt., Lbs.	Net Each, Lots of 1-14	15-24	25-34
TC-300	9 × 5 15/16	4⅜	1 7/16	8 × 5 31/32	10 1/16 × 7 × 6	2½	$64.30	$57.85	$51.45
TC-301	10 7/16 × 7¼	4⅜	1 7/16	9 7/16 × 7 9/32	11½ × 8¼ × 6	3¼	66.15	59.65	52.90
TC-302	15 7/16 × 7 15/16	5⅞	1 7/16	10 15/16 × 7 31/32	13 × 9 × 7½	4	74.15	66.75	59.30
TC-303	19 1/16 × 7	5⅞	1 7/16	14 7/16 × 7 31/32	16½ × 9 × 7½	4¾	75.05	67.55	60.05
TC-304	19 × 7	7 5/16	1 7/16	18 1/16 × 7 1/32	20⅛ × 8 × 9	6¾	82.90	74.60	66.30

Slides and Blowers

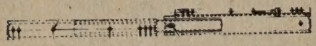
PRECISION SLIDING MECHANISMS



AS-5060



AS-5020



AS-5080

All steel commercial design provides a wide variety of models for a wide range of purposes. Provides smooth, light telescoping movement with unsurpassed reliability and minimal wear. **Specifications:** Slide members and component parts made from work hardened, cold rolled steel; bearings are nickel-plated carburized steel. Electrozinc plate finish; grease is high-low temperature type. **Mounting:** Units require mounting brackets as specified in table below. One pair of front and one pair of rear brackets needed for each slide for attachment of slides to rails. One each NAS-5110 rail bar nut used with each mounting bracket.

2 MEMBER, ¾ EXTENSION FRICTION DISCONNECT

Bud Number	Slide Length, Inches	Slide Travel, Inches	Load Rating, Lbs.	Net per Pair, Lots of 1	2-4	5-9
AS-5000	12	8⅞	140	$21.15	$21.15	$19.05
AS-5001	16	11⅞	120	24.45	24.45	22.00
AS-5002	20	14⅞	92	26.80	26.80	24.10
POSITIVE STOP						
AS-5060	12	8⅞	108	$19.30	$19.30	$17.35
AS-5061	16	11⅞	95	21.00	21.00	18.90
AS-5062	20	14⅞	82	21.90	21.90	19.70
3 MEMBER, FULL EXTENSION POSITIVE STOP						
AS-5020	12	12.88	175	$50.25	$50.25	$45.25
AS-5021	16	16.88	160	55.75	55.75	50.20
AS-5022	20	20.88	142	60.25	60.25	54.25
POSITIVE W/FRONT DISCONNECT, ⅜ SIDE SPACE						
AS-5040	12	11.88	120	$66.45	$66.45	$59.80
AS-5041	16	15.88	108	72.00	72.00	64.80
AS-5042	20	19.88	92	76.90	76.90	69.20

DUAL MEMBER W/DRAWER SECTION, FULL EXTENSION AND LIFT-OFF DISCONNECT

Three-piece slide, recommended for light loads. Positive stop at full extension. Front disconnect allows removal and reinsertion of chassis members without using tools. Full extension. ⅜" side space.

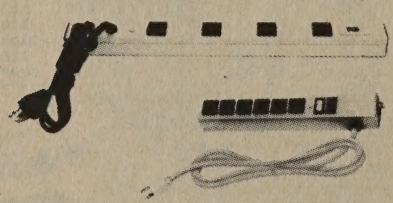
AS-5080-A	12	12.88	120	$62.85	$62.85	$56.55
AS-5081-A	16	16.88	108	64.15	64.15	57.75
AS-5082-A	20	20.88	92	70.50	70.50	63.45

MOUNTING BRACKETS

Bud No.	Description	Net Each, Lots of 1	2-4	5-9	Bud No.	Description	Net Each, Lots of 1	2-4	5-9
BAS-5100	Front bracket*	$3.40	$2.55	$2.30	BAS-5103	Rear bracket**	$3.40	$2.55	$2.30
BAS-5101	Rear bracket*	3.40	2.55	2.30	NAS-5110	Bar nut	3.40	2.55	2.30
BAS-5102	Front bracket**	3.40	2.55	2.30	SB-5107	Adapter kit†	12.70	9.50	8.55

*For use with AS-5000, AS-5060, AS-5020 Series. **For use with AS-5040, AS-5080 Series. †For use with Series 2000, Series 60, Series 20, Classic and Concorde cabinets.

POWER OUTLET STRIPS

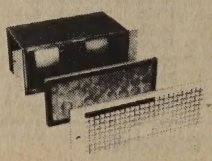


Strips snap into adjustable mounting clips. Grounding type, 15 amp, 125 Volt receptacles. Circuit breaker is 15 amp thermal type with reset. Models 6 and 66 have 14 gauge, 3-wire power cord; others have 12 gauge solid conductor. All have 6-foot cords. All components UL approved. **Surge Suppressor:** When exposed to high energy voltage, the surge suppressor inpedance changes from a high standby value to a very low conducting value, thus clamping the voltage level to a safe value and protecting voltage-sensitive components against damage.

Bud No.	No. of Outlets	Length, Inches	Net Each, Lots of 1-4	15-24	25-34
POS-4	4	17½	$60.70	$54.65	$48.55
POS-6	6	12¼	45.00	40.50	36.00
POS-7	7	48	63.90	57.50	51.10
POS-9	9	60	70.20	63.20	56.15
POS-11	11	72	76.60	68.95	61.30
POS-66*	6	12¼	61.75†	55.60‡	49.40§

*Has surge-supression components. †Lots of 1-49; ‡Lots of 50-99; §Lots of 100-149.

TRANS-AIRE BLOWER



Brings in fresh air or exhausts heated air to cool equipment in an enclosed rack or cabinet. May be mounted to rails of standard rack or cabinet. Use of Bud Chassis Support Angles is recommended. Rubber-mounted motor. Thermal overload protection. Disposable fiberglass filter is removable without disturbing the blower. Guaranteed for 20,000 hours of continuous service.

Bud No.	Size† D. × H.	Air c.f.m. High	Low	Motor Watts	rpm	Filters Bud No.
B-23A	12" × 3½"	125	100	125/100	1450/1250	BF-24
B-25A	14½" × 5¼"	375	200	375/200	1420/1075	BF-26
B-27A	14½" × 7"	550	300	550/350	1350/1150	BF-28
B-50*	$6^{13}/_{32}$" × 3½"	150	.....	80	3150	BF-24
B-52*	$9^{1}/_{32}$" × 5¼"	150	.....	80	3000	BF-53
B-54*	$10^{9}/_{16}$" × 7"	300	.....	60	1550	BF-55

*Brings in fresh air only. †All for standard 19" rack.

TRANS-AIRE BLOWER AND FILTER PRICING

Bud No.	Net Each, Lots of 1-9	10-14	15-19	Bud No.	Net Each, Lots of 2-49	50-99	100-149
B-23A	$211.65	$190.50	$169.30	BF-24	$3.60	$3.25	$2.90
B-25A	241.45	217.30	193.15	BF-26	4.05	3.65	3.25
B-27A	272.05	244.85	217.65	BF-28	3.25	2.95	2.60
B-50	195.75	176.20	156.60	BF-53	2.85	2.55	2.30
B-52	198.15	178.35	158.50	BF-55	3.00	2.70	2.40
B-54	234.90	211.40	187.90				

"TEM-STAT" TEMPERATURE CONTROLS

Prevent shut-downs caused by over-heating of electronic or electrical equipment in enclosures. Unit reacts instantly to gradual or sudden temperature changes. Temperature accuracy, ±8° F. Contacts remain closed until there is a 10° ±5° F drop in temperature. Can also be used for temperature control in convection and radiant heating applications.

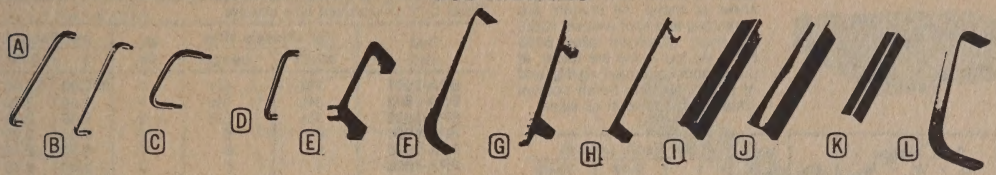
For easy attachment. UL Recognized. Small size, $2^{15}/_{16}$" × 1" w. × $1^{7}/_{32}$" d., suitable for limited space applications. **UL Rating:** 8 amps, full load, 115 VAC (48 amps, locked rotor). 100,000 cycles motor rating; derate 50% for 230 VAC. Full load 13.8 amps 120 VAC (82.8 amps, locked rotor). 6,000 cycles motor rating; derate 50% for 240 VAC. Pilot duty, 125 VA at 115/230 VAC; or, 250 mV or more.

Bud No. TS-15—80°170° F. Net Each..... **$15.70**
Net Each, Lots of: 2-9..... **$11.80**; 10-14..... **$10.60**

PRICES LISTED ARE FOR GUIDANCE ONLY

Cabinet Accessories

BUD HANDLES



Fabricated from steel, brass or cast aluminum. Durable finish provides long wear and attractive appearance. Skin packed in pairs or bulk packed (priced singly) with all necessary mounting hardware. Designed for rugged applications, they have unlimited use in electronic, electrical and other fields.

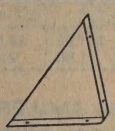
Bud No.	Fig.	Description	Net per Pair, Lots of† 1	2-49	50-99
H-9110	A	3/8" steel rod angular formed, chrome plated; 6" mtg. centers; 1 1/4" hand clearance: two 3/8" × 10-32 screws	$15.30	$11.50	$10.35
H-9111	A	3/8" steel rod, chrome plated, 4" mtg. centers; 1" hand clearance; two 3/8" × 10-32 threaded screws	9.30	7.00	6.30
H-9112	A	6" mtg. center version of H-9111	11.90	8.95	8.05
H-9113	A	8" mtg. center version of H-9111	13.80	10.35	9.30
H-9114	A	1/2" steel rod, chrome plated; 8" mtg. centers; 1 1/2" hand clearance; two 1/2" × 1/4-28 thd. screws	18.30	13.75	12.40
H-9115	B	3/8" steel rod, chrome plated; 4" mtg. centers; 15/16" hand clearance; two 1/4-28 thd. nuts	12.90	9.70	8.75
H-9116	B	Same, but has 6" mtg. centers	14.40	10.80	9.70
H-9149	.....	5 3/4" × 3 13/16" black shell, chrome handle; flip-up and out handle lies flat in frame when not in use; for Classic Series cabinets; four 8-32 × 1/2" countersunk screws with nuts	31.15	31.15	28.05
H-9160	C	Chrome plated 3/8" steel rod; 3 1/2" mtg. centers; 1 11/16" hand clearance; two 1/4"-28 hex nuts	14.80	11.10	10.00
H-9161	C	Same, but with 5 1/4" mounting centers	17.20	12.90	11.60
H-9162	C	Same, but with 7" mounting centers	19.80	14.85	13.35
H-9163	C	Same, but with 8 3/4" mounting centers	16.80	12.60	11.35
H-9164	C	Same, but with 10 1/2" mounting centers	20.10	15.10	13.60
H-9165	C	Same, but with 12 1/4" mounting centers	23.10	17.35	15.60
H-9166	D	Chrome plated 1/4" brass rod; 1 15/16" mtg. centers; 1" hand clearance; two 3/8" × 6-32 thd. screws	6.50	4.90	4.40
H-9168	D	Same, but 3" mtg. centers; two 3/8" × 6-32 thd. screws	7.20	5.40	4.85
H-9170B	E	Rectangular, anodized aluminum: 2 3/4" mtg. centers; 1 1/4" hand clearance; two 8-32 screws	10.40	7.80§	7.00■
H-9174B	F	Anodized aluminum; 4" mtg. centers; 1 1/8" hand clearance; two 8-32 screws	6.50	4.90§	4.40■
H-9176B	G	Anodized aluminum; 3 1/4" mtg. centers; 3/4" hand clearance; two 8-32 screws	7.00	5.25§	4.75■
H-9177B	H	Anodized aluminum; 4 3/8" mtg. centers; 3/4" hand clearance; two 8-32 screws	7.00	5.25§	4.75■
H-9178B	I	Anodized aluminum with black trim; centers; 3/4" hand clearance; two 8-32 screws	8.50	6.40§	5.75■
H-9179B	J	Anodized aluminum; 4" mtg. centers; 5/8" hand clearance; two 8-32 screws	7.70	5.80§	5.20■
H-9180B	K	Anodized aluminum with black trim; 4" mtg. centers; two 8-32 screws	9.00	6.75§	6.10■
H-9183B	L	Anodized aluminum; 4 9/16" mtg. centers; sloping hand clearance, min. 1 1/8"; two 8-32 screws	7.20	5.40§	4.55■
UH-70A	.....	Handle. Formed from aluminum tubing with etched finish. 5 3/8 long with 4 1/8" mtg. ctrs.	2.20	1.65	1.50
UH-71A	.....	Same as UH-70A except 3 1/8" long with 3 1/4" mtg. ctrs.	1.90	1.45	1.30
H-9352	.....	Flush latch of black thermoplastic with stainless steel spring. 2 1/4" × 1 55/64" × 37/64"	3.30	2.75	2.50
H-9350	.....	Same as H-9352, except 2 1/4" × 1 7/64" × 37/64".	2.40	2.00	1.80

†Number shown is for skin packed pairs. *For bulk packed handles (priced singly), add suffix **B** to Bud No. (example: H-9110**B**). §Lots of 2-99; ■Lots of 100-199.

PLASTIC AND RUBBER FEET

No. F-7264-A: Has recessed head with mounting hardware. Plastic portion is 3/4" × 3/4". **No. F-7800-A:** Same as No. F-7264-A, except plastic portion is 7/8" diam. × 1/2" high. **No. F-8038:** A self-adhesive sponge rubber pad 3/4" × 1/8" thick; may be applied to any surface. **No. F-9653:** Press-fit type for 7/8" diam. hole. **No. F-3581:** Self-adhesive rubber feet 1/2" square × 7/32" high. **No. F-3599:** Same as No. F-3581, except 13/16" square × 5/16" high.

Bud No.	Description	Net Each, Lots of 100	101-299	300-499
F-7264-A	High grade black rubber	$44.60	$37.20	$33.50
F-8038	Adhesive pad	11.00	9.00	8.10
F-9653	Press-fit type	20.20	15.20	13.60



TRIANGULAR MOUNTING BRACKETS

Heavy-gauge steel; 3/4" flanges support chassis. Black primer finish. Available in pairs only.

Bud No.	Size, Inches Height	Depth	Wt., Lbs.	Net per Pair, Lots of 1	2-99	100-199
MB-1266	5	5	1/2	$5.40	$4.50	$4.05
MB-1267	7	7	1	6.50	5.45	4.90
MB-1268	9	9	1 1/2	8.10	6.75	6.10

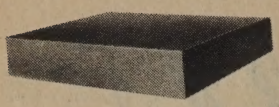
CASTERS AND LEVELERS

Bud No. RC-7760 Caster—Black nylon wheel and hood with steel pin 3/8" × 16 thread. Load rating 110 lbs.
Bud No. RC-7756 Caster—Ball bearing wheels are hard tread composition. Load rating 125 lbs.
Bud No. RC-7758 Caster—Same except load rating of 200 lbs.
Bud No. RL-7765 Leveler—Black nylon construction with steel pin 3/8" × 16 thread. Load rating 110 lbs.
Bud No. RL-7766 Leveler—Steel cap and stem with 3/8" × 16 thread. Load rating 200 lbs. Rubber pad.
Bud No. RL-7767 Leveler—Same except white nylon pad.
Bud No. RC-7775 Caster—Heavy duty double level post swivel caster with 2" ball cushion rubber wheel. Riveted axle. Black steel head 3/8"-16 × 1" steel pin.

Bud No.	Height	Net Each, Lots of 1	2-49	50-99
RC-7760	2 1/2"	$8.30	$6.95	$6.25
RC-7756	2 5/8"	3.60	3.00	2.70
RC-7758	3 1/4"	9.60	8.00	7.20
RL-7765	2 1/2"	4.00	3.35	3.00
RL-7766	3 3/4"	3.30	2.75	2.50
RL-7767	3 1/4"	2.60	2.15	1.95
RC-7775	2 1/2"	7.80	6.50	5.85

Chassis Bases

ALUMINUM CHASSIS BASES



Each chassis is made from a single sheet of metal. All corners are reinforced and spot welded. Natural finish aluminum alloy 5005 H-14. All four sides are folded at the bottom for added rigidity and strength. Natural finish bottom plates available to fit all sizes.

Bud No.	Size, Inches D. × W. × H.	Ga.	Wt., Lbs.	Net Each, Lots of 1	2-49	50-99
AC-1401	2½ × 4½ × 1	18	⅛	$ 4.60	$ 3.85	$ 3.45
AC-1402	3½ × 4½ × 1	18	⅛	4.80	4.00	3.60
AC-1403	3½ × 5½ × 1	18	⅛	4.80	4.00	3.60
AC-1404	4 × 5 × 2	18	¼	5.50	4.60	4.15
AC-1405	4 × 6 × 1½	18	¼	5.00	4.20	3.80
AC-430	4 × 6 × 3	18	⅓	6.30	5.25	4.75
AC-431	4 × 6 × 2	18	¼	5.30	4.45	4.00
AC-1406	4 × 8 × 2	18	¼	6.60	5.50	4.95
AC-432	4 × 17 × 3	16	1	10.50	8.75	7.90
AC-1407	4½ × 8 × 1½	18	¼	6.20	5.20	4.70
AC-402	5 × 7 × 2	18	⅓	5.50	4.60	4.15
AC-429	5 × 7 × 3	18	½	6.60	5.50	4.95
AC-1408	5 × 9 × 1½	18	⅓	6.20	5.20	4.70
AC-1409	5 × 9½ × 1½	18	⅓	6.20	5.20	4.70
AC-403	5 × 9½ × 2	18	½	6.00	5.00	4.50
AC-401	5 × 9½ × 2½	18	½	7.10	5.95	5.35
AC-421	5 × 9½ × 3	18	⅝	7.70	6.45	5.80
AC-404	5 × 10 × 3	18	⅝	7.70	6.45	5.80
AC-422	5 × 13 × 3	18	¾	8.60	7.20	6.50
AC-1410	5 × 13½ × 2½	18	¾	8.10	6.75	6.10
AC-1411	5½ × 5½ × 1	18	1/5	5.40	4.50	4.05
AC-1412	5½ × 9½ × 1½	18	⅓	6.20	5.20	4.70
AC-1413	6 × 8 × 2	18	⅓	6.30	5.25	4.75
AC-1414	6 × 14 × 3	16	1⅛	11.20	9.35	8.40
AC-433	6 × 17 × 3	16	1¼	13.00	10.85	9.75
AC-405	7 × 7 × 2	18	½	6.00	5.00	4.50
AC-406	7 × 9 × 2	18	½	6.50	5.45	4.90
AC-407	7 × 11 × 2	18	⅝	7.60	6.35	5.70
AC-408	7 × 12 × 3	18	⅞	9.30	7.75	7.00
AC-409	7 × 13 × 2	18	¾	7.70	6.45	5.80
AC-1415	7 × 15 × 2	16	1	12.10	10.10	9.10
AC-411	7 × 15 × 3	16	1¼	12.10	10.10	9.10
AC-1416	7 × 17 × 2	16	1⅛	14.40	12.00	10.80
AC-1417	7 × 17 × 2½	16	1¼	14.90	12.45	11.20
AC-423	7 × 17 × 3	16	1½	13.00	10.85	9.75
AC-1418	8 × 10 × 2½	18	1	9.40	7.85	7.05
AC-1419	8 × 12 × 2½	16	1⅛	11.20	10.10	9.10
AC-424	8 × 12 × 3	16	1¼	11.00	9.20	8.30
AC-425	8 × 17 × 2	16	1½	11.40	9.50	8.55
AC-412*	8 × 17 × 3	16	1¾	13.40	11.20	10.10
AC-1420	8½ × 15 × 3	16	1½	12.70	10.60	10.80
AC-1421	9 × 15 × 3	16	1½	14.40	12.00	10.80
AC-413	10 × 12 × 3	16	1¼	13.40	11.20	10.10
AC-414	10 × 14 × 3	16	1½	13.40	11.20	10.10
AC-415*	10 × 17 × 2	16	1½	12.70	10.60	9.55
AC-416*	10 × 17 × 3	16	1¾	13.80	11.50	10.35
AC-427*	10 × 17 × 4	14	2½	20.70	17.30	15.55
AC-1422	10 × 17 × 5	16	2¼	29.40	24.55	22.10
AC-1423	10 × 23 × 3	14	2¾	23.00	19.20	17.30
AC-426*	11 × 17 × 2	14	2	16.30	13.60	12.25
AC-417*	11 × 17 × 3	14	2¼	17.60	14.70	13.25
AC-1424	12 × 12 × 3	16	1½	17.80	14.85	13.35
AC-1425	12 × 17 × 2	16	1⅝	16.80	14.05	12.65
AC-418*	12 × 17 × 3	14	2¼	17.90	14.95	13.45
AC-419*	13 × 17 × 2	14	2⅝	16.60	13.85	12.45
AC-420*	13 × 17 × 3	14	2¾	19.50	16.30	14.65
AC-428*	13 × 17 × 4	14	3¼	23.80	19.85	17.85
AC-1426	13 × 17 × 5	14	3½	33.70	28.15	25.35
AC-1427	14 × 17 × 3	14	2¾	24.50	20.45	18.40
AC-1428	15 × 17 × 4	14	3¼	33.70	28.15	25.35
AC-1429	15 × 17 × 6	14	4⅛	38.85	38.85	34.95
AC-1430	17 × 17 × 3	14	3¼	28.60	23.90	21.50
AC-1431	17 × 17 × 4	14	3⅞	31.90	26.65	24.00

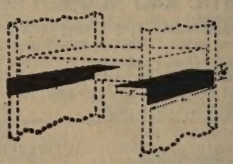
*Punched to accommodate chassis mounting brackets.

CHASSIS BOTTOM PLATES

Protects wiring or components, or use as dust cover on underside of chassis. Sizes to fit all standard size chassis.

Bud No.	For Chassis Size Width	Length	Wt., Oz.	Net Each, Lots of 1	2-99	100-199
BPA-1501	2½	4½	1	$ 2.30	$1.90	$1.70
BPA-1502	3½	4½	1	2.40	2.00	1.80
BPA-1503	3½	5½	2	2.40	2.00	1.80
BPA-1504	4	5	2	2.40	2.00	1.80
BPA-1505	4	6	2	2.60	2.15	1.95
BPA-1506	4	8	2	3.30	2.75	2.50
BPA-1532	4	17	4	3.30	2.75	2.50
BPA-1507	4½	8	3	3.50	2.90	2.60
BPA-1589	5	7	2	2.80	2.35	2.10
BPA-1508	5	9	3	2.70	2.25	2.05
BPA-1590	5	9½	2	2.80	2.35	2.10
BPA-1591	5	10	4	2.80	2.35	2.10
BPA-1509	5	13	4	4.50	3.75	3.40
BPA-1510	5	13½	4	4.50	3.75	3.40
BPA-1511	5½	5½	2	2.70	2.25	2.05
BPA-1512	5½	9½	3	3.30	2.75	2.50
BPA-1513	6	8	3	3.50	2.90	2.60
BPA-1514	6	14	5	4.50	3.75	3.40
BPA-1515	6	17	6	5.40	4.50	4.05
BPA-1592	7	7	3	2.80	2.35	2.10
BPA-1593	7	9	4	3.60	3.00	2.70
BPA-1594	7	11	4	3.70	3.10	2.80
BPA-1595	7	12	5	4.20	3.50	3.15
BPA-1596	7	13	8	4.80	4.00	3.60
BPA-1516	7	15	8	4.80	4.00	3.60
BPA-1517	7	17	8	4.80	4.00	3.60
BPA-1518	8	10	4	4.60	3.85	3.45
BPA-1519	8	12	6	5.80	4.85	4.35
BPA-1520	8	17	8	5.90	4.95	4.45
BPA-1521	8½	15	8	7.00	5.85	5.25
BPA-1522	9	15	8	7.30	6.10	5.50
BPA-1523	10	12	8	5.80	4.85	4.35
BPA-1524	10	14	8	5.80	4.85	4.35
BPA-1597	10	17	10	6.20	5.20	4.70
BPA-1525	10	23	14	8.30	6.95	6.25
BPA-1526	11	17	12	6.00	5.00	4.50
BPA-1527	12	12	10	6.00	5.00	4.50
BPA-1528	12	17	12	7.70	6.45	5.80
BPA-1598	13	17	14	8.50	7.10	6.40
BPA-1529	14	17	15	7.90	6.60	5.95
BPA-1530	15	17	16	10.90	9.10	8.20
BPA-1531	17	17	17	11.00	9.20	8.30

CHASSIS SUPPORTING ANGLES

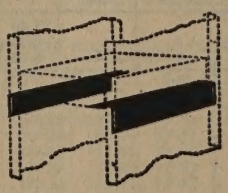


Relieves panels by distributing weight to side of rack. 3" × 1⅜" × 7/64" steel. Black primer finish. Available in pairs only.

Bud No.	Length, Inches	Weight, Lbs.	Net per Pair, Lots of 1	2-49	50-99
SA-1349	14½	3½	$11.90	$9.95	$8.95
SA-1350	12	3	11.90	9.95	8.95

PRESTIGE SUPPORTING ANGLES

Attach to rails in Prestige relay racks. Slotted for vertical adjustment. Extend from front to rear to accept full-depth chassis. Support heaviest loads. Black primer finish. Available in pairs only.



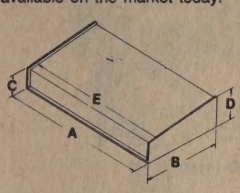
Bud No.	Size, Inches	Weight Lbs.	Net Per pair, Lots of 1	2-49	50-99
CE-2219	21 × 3 × 2¾	6½	$19.30	$16.10	$14.50

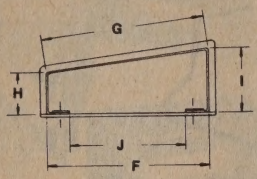
PRICES LISTED ARE FOR GUIDANCE ONLY

Keyboard and Instrument Enclosures

KEYBOARD ENCLOSURES

Lightweight, aluminum enclosures to house the most popular keyboard units available on the market today.



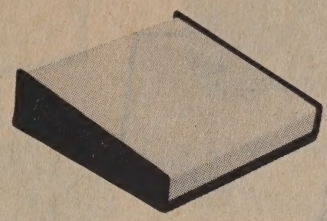


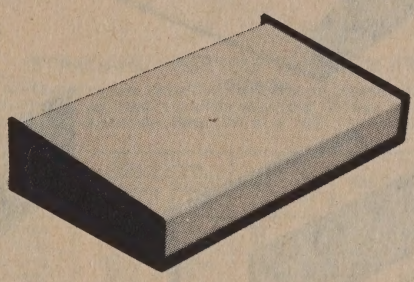
Bud No. KB-13200—Base is .09" aluminum with gray textured enamel finish. Cover is .05" aluminum painted with white enamel. Two rear knockouts are ½" diameter. Angle of operating surface is 7°46'. Four flat, self-adhesive black rubber feet are supplied. Base is fastened to cover with four 6-32 × ⅜" flat head Posidrive® screws (supplied). Net Each..... **$25.40;** Lots of 2-14..... **$21.20;** Lots of 15-24..... **$19.10**

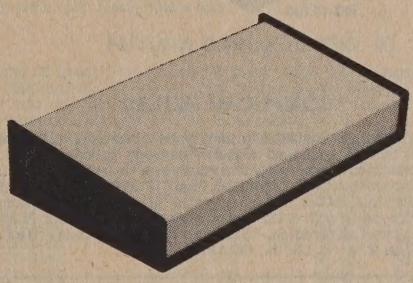
Bud No. KB-13201—Base is .12" aluminum with gray textured enamel finish. Cover is .05" aluminum painted with white enamel. Two rear knockouts are ⅞" diameter. Angle of operating surface is 7° 40'. Four flat, self-adhesive black rubber feet are supplied. Base is fastened to cover with four, 6-32 × ⅜" flat head Posidrive screws (supplied).
Net Each..... **$43.90;**
Lots of 2-14..... **$43.90;** Lots of 15-24..... **$39.50**

Bud No. KB-13202—Base is .12" aluminum with gray textured enamel finish. Cover is .05" aluminum painted with white enamel. Two rear knockouts are ⅞" diameter. Angle of operating surface is 7° 32'. Four flat, adhesive black rubber feet are supplied. Base is fastened to cover with four, 6-32 × ⅜" flat head Posidrive screws (supplied).
Net Each..... **$53.70;**
Lots of 2-14..... **$53.70;** Lots of 15-24..... **$48.35**
®Registered trademark, Phillips Screw Co.

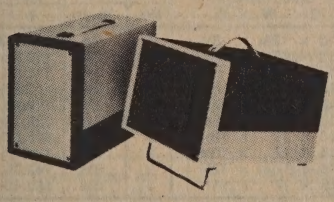
Dimension	Model KB-13200	Model KB-13201	Model KB-13202
A	$7^{7}/_{32}$"	$12^{57}/_{64}$"	$17^{33}/_{64}$"
B	$5^{3}/_{4}$"	7"	9"
C	$1^{23}/_{32}$"	$1^{27}/_{32}$"	$1^{27}/_{32}$"
D	$2^{15}/_{32}$"	2¾"	3"
E	7"	12⅝"	17¼"
F	5½"	6½"	8½"
G	$5^{35}/_{64}$"	$6^{9}/_{16}$"	$8^{37}/_{64}$"
H	1½"	1½"	1½"
I	2¼"	2⅜"	2⅝"
J	4⅝"	4¾"	6¾"







SHOWCASE



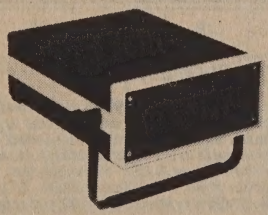
Used as desk top instrument cases, in systems, in racks, as portable enclosures. Lightweight, but sturdy, comes in ten different sizes. Top, sides and bottom are .050" aluminum; front panel is .090" rear panel is .050" aluminum. Strong flexible handle. Two standard color combinations: Black textured **(BT)** body with white frame; royal blue textured **(RB)** body with white frame.

Bud No.	Size, In. W. × D. × H.	Wt., Lbs.	Net Each, Lots of 1-14	15-24	25-34
BB-1800	5½ × 11 × $6^{7}/_{16}$	3¾	$73.55	$66.20	$58.85
BB-1801	$8^{5}/_{16}$ × 11 × $6^{7}/_{16}$	4	76.75	69.10	61.40
BB-1802	5½ × 11 × $8^{3}/_{16}$	3¾	78.15	70.35	62.50
BB-1803	$8^{5}/_{16}$ × 11 × $8^{3}/_{16}$	5½	79.40	71.45	63.50
BB-1804	$11^{1}/_{16}$ × 11 × $8^{3}/_{16}$	5¾	86.65	78.00	69.30
BB-1805	5½ × 11 × $9^{15}/_{16}$	4¾	80.40	72.35	64.30
BB-1806	$8^{5}/_{16}$ × 11 × $9^{15}/_{16}$	5¼	83.75	75.40	67.00
BB-1807	$8^{5}/_{16}$ × 15 × $9^{15}/_{16}$	6¼	89.50	80.55	71.60
BB-1808	$11^{1}/_{16}$ × 11 × $9^{15}/_{16}$	6	87.10	78.40	69.70
BB-1809	$11^{1}/_{16}$ × 15 × $9^{15}/_{16}$	7	92.45	83.20	73.95

ALUMINUM CHASSIS FOR SHOWCASE

Bud No.	Fits	Size, In. W. × D. × H.	Wt., Lbs.	Net Each
BBC-1821	BB-1800-02-05	$4^{15}/_{16}$ × 10 × 2	½	$6.30
BBC-1822	BB-1801-03-06	$7^{11}/_{16}$ × 10 × 2	¾	7.30
BBC-1823	BB-1804-08	10½ × 10 × 2	1	8.90
BBC-1824	BB-1807	$7^{11}/_{16}$ × 14 × 2	1	8.40
BBC-1825	BB-1809	10½ × 14 × 2	1¼	10.30

TR SERIES INSTRUMENT ENCLOSURES



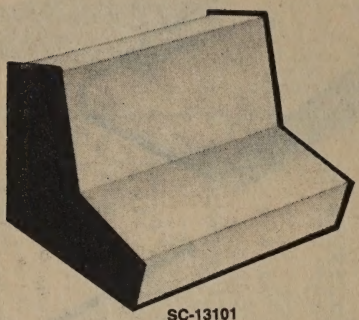
Designed to accommodate an accessory chassis, or $^{1}/_{16}$" thick printed circuit boards. Chassis is reversible, and two configurations are possible with one unit. Top and bottom of instrument enclosure are .050" aluminum; front panel, .090" aluminum. Top and bottom can be removed quickly for easy access to the unit's dust-free interior. Carrying handle is also used as tilting bail. **Finish:** Royal blue textured **(RB)** body with white frame. Enclosure includes front panel, rubber feet and carrying handle. Weight: TR-6100, 4½ lbs.; TR-6101, 5½ lbs.; TR-6102, 7 lbs.; TR-6103, 9½ lbs.

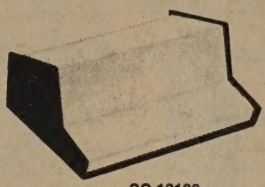
Bud No.	Size, In. W.	D.	H.	Panel Space, In.	Net Each, Lots of 1	2-14	15-24
TR-6100	$8^{5}/_{16}$	10¾	3½	3¼ × $8^{3}/_{64}$	$110.45	$110.45	$99.40
TR-6101	$8^{5}/_{16}$	13¼	5¼	5 × $8^{3}/_{64}$	118.25	118.25	106.45
TR-6102	$11^{1}/_{16}$	13¼	7	6¾ × $10^{53}/_{64}$	135.35	135.35	121.80
TR-6103	12	18¾	8	7¾ × 11¾	163.75	163.75	147.40

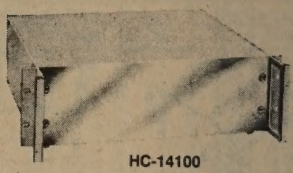
CHASSIS FOR TR SERIES

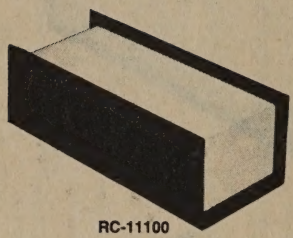
Bud No.	Size, In. Length	Width	Height	Wt., Lbs.	Fits Cabinet	Net Each, Lots of 1	2-14	15-24
TRC-610	10⅛	7¾	1¼	¾	TR-6100	$11.90	$9.95	$8.95
TRC-611	12⅝	7¾	1¾	1	TR-6101	12.50	10.45	9.40
TRC-612	12⅝	10½	1¾	1¼	TR-6102	13.90	10.45	9.40
TRC-613	18⅛	$11^{7}/_{16}$	1¾	1¾	TR-6103	17.70	13.30	11.95

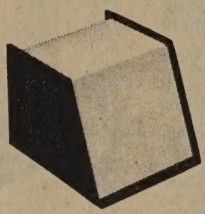
Instrument Cabinets

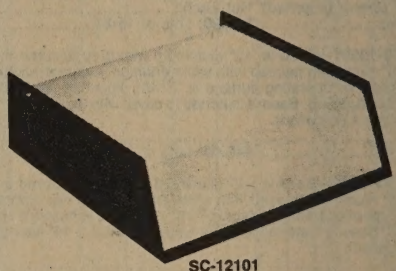

SC-13101


SC-13100


HC-14100


RC-11100


SC-12100


SC-12101

COMPUCAB SERIES

"Now Look" practical and adaptable to many types of instruments. New keyboard look matches today's advanced digital technology concept. All aluminum construction combines beauty, utility and sturdiness. No fasteners are visible on panel area. Shipped assembled. **Material:** Base, ⅛" aluminum; cover and back, 0.057" aluminum; feet, rubber, self-adhesive; 10-32 screws. **Finish:** Base, black textured **(BT)**; cover, smooth white. **Assembled** with 6-32 screws. **Rear Panel:** One ⅞" dia. knockout centered. SC-13100; two ⅞" dia. knockouts and four sets of louvers, each set 2" w. × 1¾" h., SC-13101.

Bud No.	Overall Size, Inches W. × D. × H.	Net Each, Lots of 2-14	15-24	25-34
SC-13100	10 × $8^{11}/_{16}$ × $5^{11}/_{32}$	$34.80	$31.30	$27.85
SC-13101	14 × 10¾ × $9^{61}/_{64}$	71.15	64.05	56.90

SLOPE SERIES

Sloping front enclosures for excellent visibility of panel mounted components. Modern concept in enclosures embodying clean vertical and horizontal lines. Highly desirable where quick access to the interior is needed. One-piece body is easily detached to provide access to interior components. No exposed fasteners. **Material:** Base, ⅛" aluminum; cover, 0.057" aluminum; feet, rubber, self-adhesive. **Finish:** Cover, smooth white; base, black texture **(BT)**. **Assembled** with 6-32 screws. **Rear Panel:** Single knockout, SC-12100; two knockouts, SC-12101. **Front Panel:** 20° Slope.

Bud No.	Overall Size, Inches Size, Inches W. × D. × H.	Top Depth	Net Each, Lots of 1	2-24	25-34
SC-12100	5 × 5 × 4½	$3^{1}/_{16}$	$18.70	$15.60	$14.05
SC-12101	12 × 10 × 3¼	$8^{7}/_{16}$	35.00	32.50	29.25

LINEAR SERIES

Highly practical enclosures offer solutions to the designer of electronic subsystems and instrumentation. Attractive and functional; one-piece body can be removed to expose the entire interior. No visible fasteners. With self-adhesive rubber feet. **Material:** Base, ⅛" aluminum; cover, 0.057" aluminum. **Finish:** Cover, smooth white; base, black texture **(BT)**. **Assembled** with 6-32 screws. **Rear Panel:** Single knockout centered. RC-11100; two knock-outs, RC-11101.

Bud No.	Overall Size, Inches W. × D. × H.	Net Each, Lots of 1	2-24	25-34
RC-11100	5 × 10 × 3¼	$27.50	$22.95	$20.65
RC-11101	12 × 10 × 8	50.50	50.50	45.45

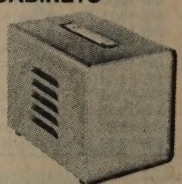
VALU/LINE CABINETS

Classic styling together with innovative engineering result in a ruggedly built enclosure. Completely assembled unit includes two detachable rack mounting brackets and black rubber feet; adhesive paper covering on panels provides an excellent surface for indicating position when drilling or punching, ⅞" dia. knockout in rear. **Material:** Sides and front panel, ⅛" aluminum; base and cover, 0.057" aluminum; outer brackets, #11 gauge steel; inner brackets, 0.090" aluminum; handles, aluminum extrusion. **Finish:** Sides, white textured **(WH)**; rear and top, smooth white. Removable outer brackets for mounting in standard EIA 19" cabinet. Rails available as listed; slides also available.

Bud No.	Size, Inches D. × W. × H.	Handle Cutouts No.	H., In.	Net Each, Lots of 1	2-9	10-14
HC-14100	13 × 12¾ × 3½	1	2¾	$104.55	$104.55	$94.10
HC-14101	13 × 17 × 3½	1	2¾	110.30	110.30	99.25
HC-14102	13 × 12¾ × 5¼	1	3½	113.50	113.50	102.15
HC-14103	13 × 17 × 5¼	1	3½	113.80	113.80	102.40
HC-14104	13 × 17 × 7	1	3½	119.40	119.40	107.45
HC-14105	13 × 17 × 8¾	2	3½	125.15	125.15	112.65
HC-14106	13 × 17 × 10½	2	3½	130.85	130.85	117.75
HC-14107	15 × 17 × 10½	2	3½	136.50	136.50	122.85
HC-14108	15 × 17 × 12¼	2	3½	142.05	142.05	127.85
HC-14109	15 × 17 × 14	3	3½	153.40	153.40	138.05

Bud No.	Description	Net Each, Lots of 1	2-9	10-14
BC-14210	Rail, 10" long	$8.20	$6.85	$6.15
BC-14215	Rail, 15" long	10.00	8.35	7.50

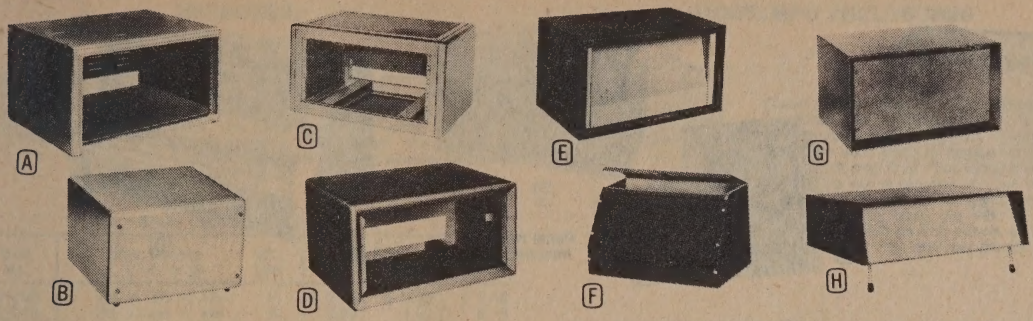
PORTACAB INSTRUMENT CABINETS



Attractive, versatile cabinets desirable as housings for instrumentation requiring highly stylized appearance. Custom, quality look achieved in standard porduction models. Made entirely of aluminum Flexible recessed handle. Well louvered for adequate ventilation. Louvers point inward, permitting side-to-side placement of cabinets without space loss. Aluminum front panel recessed ½". Welded back has opening. Has four detachable rubber feet. Luster gray **(LG)** finish only.

Bud No.	Size, Inches W. × D. × H.	Wt., Lbs.	Bud Chassis	Net Each, Lots of 1-24	25-49	50-74
WA1540	6⅛ × 8 × 8	2	AC-402	$27.95	$25.15	$22.35
WA1541	8⅛ × 12 × 9	3½	AC-407	38.50	34.65	30.80
WA1542	10⅛ × 8 × 8	3¾	AC-406	32.75	29.50	26.20
WA1543	11⅛ × 18 × 11	5½	AC-416	47.60	42.85	38.10
WA1544	14⅛ × 18 × 12	8	AC-420	60.20	54.20	48.15

PRICES LISTED ARE FOR GUIDANCE ONLY



STYLIST SERIES CABINET (FIG. A)

Highly modern cabinet designed to give you the style and construction advantages. Square-corner design, aluminum extrusion framing of front panel lends a contemporary dimension to the appearance of your product. Full width flanges along top and bottom of cabinet and strength. No tilt, no sway when cabinet is loaded. Load bearing capacity is 500 lbs. Constructed of 16 gauge cold rolled steel. Structure is self-supporting, no internal framework. Has 16 gauge steel louvered rear panel, 1¾" high opening for cable accessories. Front and rear openings accept either 19" panels or Stylist Series doors. Self-adhesive rubber feet furnished. Specify suffix for color: **RB**, royal blue; **GT**, gray textured. Example: S-1640**RB**. **Size:** $20^{13}/_{16}$" w. × 15¼" d., overall.

Bud No.	Size, Inches: Overall Height	Size, Inches: Panel Space	Wt., Lbs.	Net Each, Lots of: 1-9	Net Each, Lots of: 10-14
S-1640	$8^{13}/_{16}$	7	26¾	$108.65	$ 97.80
S-1641	$10^{9}/_{16}$	8¾	29	113.80	102.40
S-1642	$12^{5}/_{16}$	10½	31	119.80	107.80
S-1643	$14^{1}/_{16}$	12¼	33	124.85	112.35
S-1644	$15^{13}/_{16}$	12	35¼	130.10	170.10
S-1645	$17^{9}/_{16}$	15¾	37¼	144.35	129.90

FRONT DOORS FOR STYLIST SERIES CABINETS

Overall width, 19". Specify color by suffix, **RB**, royal blue; **GT**, gray textured. Example: SD-540**RB**.

Bud No.	Height, In.	Wt., Lbs.	Fits Cabinet	Net Each, Lots of: 1	Net Each, Lots of: 2-9
SD-540	7	4¾	S-1640	$32.10	$26.80
SD-541	8¾	5½	S-1641	34.50	28.80
SD-542	10½	6¼	S-1642	36.10	30.15
SD-543	12¼	7	S-1643	37.00	30.90
SD-544	14	7¾	S-1644	39.50	33.00
SD-545	15¾	8½	S-1645	41.90	35.00

CONTOUR UTILITY CABINETS (FIG. B)

Constructed of 20 gauge steel. Both front and rear panels are removable; the front panel is solid while the rear panel is louvered for proper ventilation. Four rubber feet, attached to base. Body is royal blue textured (**RB**) or gray textured (**GT**) with white textured panels.

Bud No.	Overall Size, In. W. × D. × H.	Net Each, Lots of: 1	Net Each, Lots of: 2-49	Net Each, Lots of: 50-99
CU-463	6¼ × 3¾ × 4¼	$18.10	$15.10	$13.60
CU-465	6¼ × 5¾ × 4¼	20.80	17.35	15.60
CU-585	8¼ × 5¾ × 5¼	26.70	22.30	20.05
CU-587	8¼ × 7¾ × 5¼	29.40	24.55	22.10
CU-7125	12¼ × 5¾ × 7¼	28.40	23.70*	21.35†
CU-7127	12¼ × 7¾ × 7¼	30.00	25.05*	22.55†

*Net Each, Lots of 2-24. †Net Each, Lots of 25-49.

PRESTIGE VERSA-CABINETS (FIG. C)

Balled corner, welded steel framework; sides top and bottom easily attached. Standard 19" panels used to enclose front or top. Has removable channels for shelf or chassis. Opening at back, 1¾" × $17^{15}/_{16}$". Cabinets may be attached side-to-side or stacked vertically. Perforated top panels and side handles available. Luster gray (**LG**). **Size:** $23^{3}/_{16}$" w. × 15¾" d., overall. Weight, 27 to 35 lbs.

Bud No.	Size, Inches: Overall Height	Size, Inches: Panel Space	Size, Inches: Panel Rear	Net Each, Lots of: 1-14	Net Each, Lots of: 15-24	Net Each, Lots of: 25-34
PC-1700	8¾	5¼	3½	$125.15	$112.65	$100.10
PC-1701	10½	7	5¼	132.35	119.10	105.90
PC-1702	12¼	8¾	7	135.95	122.35	108.75
PC-1703	14	10½	8¾	140.05	126.05	112.05
PC-1704	15¾	12¼	10½	148.45	133.60	118.75
PC-1710	Perforated steel top plate, 12¼ × 19			15.30*	12.80†	11.50‡

*Lots of 1; †Lots of 2-14; ‡Lots of 15-24.

STANDARD PRESTIGE CABINETS (FIG. D)

Has two supporting rails, laterally movable to fit any chassis width, and shielded handle slots. Finger holes in cover for easy lifting. Of 16 gauge steel. Takes 19" panels. With embossed feet. **Size:** 21⅝" w. × 14¾" d. overall. Luster gray finish. **(LG).**

Bud No.	Size, Inches: Overall Height	Size, Inches: Panel Space	Wt., Lbs.	Net Each, Lots of: 1-14	Net Each, Lots of: 15-24	Net Each, Lots of: 25-34
C-1440	$9^{9}/_{16}$	7	25	$118.75	$106.90	$ 95.00
C-1441	$11^{5}/_{16}$	8¾	26	125.00	112.50	100.00
C-1442	$13^{1}/_{16}$	10½	28½	130.45	117.40	104.35
C-1550*	$9^{9}/_{16}$	7	23½	118.75	106.90	95.00
C-1551*	$11^{5}/_{16}$	8¾	25	123.65	111.30	98.90
C-1552*	$13^{1}/_{16}$	10½	27½	130.70	117.65	104.55

*With perforated cover; others solid.

FUTURA CABINETS (FIG. E)

Handsome housing of 20 and 18 gauge steel. Four rubber feet. Numbers MD-1960 thru MD-1962 have vertical front panel; all others (Fig. E) have inclined front panel rising 2" vertically, then inclining 15°. Specify color by suffix: **RB**, royal blue textured body with white textured panels. **(WH).**

Bud No.	Overall Size, In. W. × H. × D.	Net Each, Lots of: 1-24	Net Each, Lots of: 25-34	Net Each, Lots of: 35-49
MD-1960	13 × 8 × 7	$28.80	$25.90	$23.05
MD-1961	14 × 9 × 8	32.55	29.30	26.05
MD-1962	16 × 9 × 8	34.75	31.30	27.80
MD-1963	13 × 8 × 7	29.25	26.35	23.40
MD-1964	14 × 9 × 8	33.40	30.05	26.70
MD-1965	16 × 9 × 8	35.50	31.95	28.40

SLOPING PANEL CABINETS (FIG. F)

Hinged top for easy access; front panel also removable. Available in luster gray finish. **(LG)**

Bud No.	Size, Inches H. × W. × D.	Wt., Lbs.	Net Each, Lots of: 1	Net Each, Lots of: 2-24	Net Each, Lots of: 25-49
C-1584	6½ × $7^{1}/_{16}$ × $7^{5}/_{16}$	2¾	$17.50	$14.60	$13.15
C-1587	8 × $8^{1}/_{16}$ × 8	4	21.80	18.20	16.40
C-1585	6½ × $9^{1}/_{16}$ × $7^{5}/_{16}$	2½	19.10	15.95	14.35
C-1588	8 × $10^{1}/_{16}$ × 8	4½	23.20	19.35	17.40
C-1586	6½ × $11^{1}/_{16}$ × $7^{5}/_{16}$	3¾	22.40	18.70	16.85
C-1894	8 × $14^{1}/_{16}$ × 8	6	21.30	21.30	19.15
C-1892	8 × $13^{1}/_{16}$ × 8½	5½	25.70	25.70	23.15
C-1896	9 × $18^{1}/_{16}$ × $8^{3}/_{16}$	9¾	32.55	32.55	29.30
C-1893	10 × $18^{1}/_{16}$ × 10½	12½	33.30	33.30	29.95

SHADOW CABINETS (FIG. G)

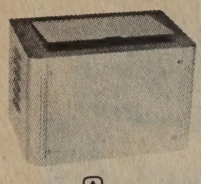
Front panel recessed 1". Front edge of body is beveled. Body of 18 gauge and panels of 16 gauge steel. Four rubber feet. Available in luster gray finish only **(LG).**

Bud No.	Overall Size, In. W. × H. × D.	Uses Bud Chassis AC-	Uses Bud Chassis AC-	Net Each, Lots of: 1	Net Each, Lots of: 2-24	Net Each, Lots of: 25-49
SB-2140	14¼ × 8 × 10	424	1419	$34.90	$34.90	$31.40
SB-2141	13¼ × 7½ × 9	407	408	31.30	31.30	28.15
SB-2142	17 × 9½ × 11	411	1415	42.15	42.15	37.95
SB-2143	15½ × 6 × 9	409	408	30.80	30.80	27.70

"TILT-A-VIEW" CABINETS (FIG. H)

Designed to present variable viewing angles. Two-piece, 18-ga. steel. Fast, easy access to interior. Two 2" high legs, detachable for changed viewing angle, have rubber feet. Can be mounted on desk, cabinet or wall. Hooded top. No screws in panels. **Finish:** Gray textured cover **(GT)** with white textured body. **(WH).**

Bud No.	Size, Inches W. × D. × H.	Net Each, Lots of: 1	Net Each, Lots of: 2-24	Net Each, Lots of: 25-49
TV-2155	15 × 10 × 4½	$33.20	$27.70	$24.95
TV-2156	16 × 12 × 6½	37.50	33.90	30.50
TV-2157	17 × 14 × 8½	42.40	42.40	38.15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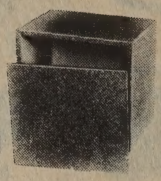
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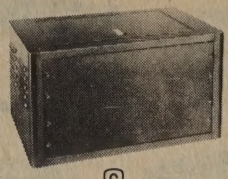
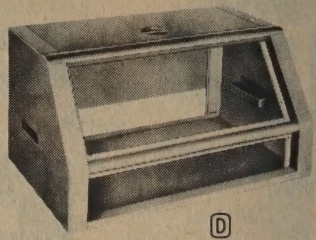

Ⓒ

Panel not included


Ⓓ

STREAMLINED CABINETS (FIG. A)

Ideal for housing devices not requiring excessive depth. Recessed, hinged cover with convenient finger lift for access. Panels fit flush with embossed, rounded corner fronts. Back opening 3½" h. provides for cables or rear controls; louvered sides provide ample ventilation. **Size:** 8¼" d. × 8" h. overall. Luster gray finish only.

Bud No.	Size, Inches Overall Width	Size, Inches Panel Space	Wt., Lbs.	Net Each, Lots of 1-24	25-49	50-99
CD-1480	10½	8 × 8	6¼	$26.05	$23.45	$20.85
CD-1481	12½	8 × 10	6¾	26.70	24.05	21.35
CD-1482	14½	8 × 12	7½	28.55	25.70	22.85
CD-1483	16½	8 × 14	7¾	30.05	27.05	24.05
CD-1484	18½	8 × 16	9¼	31.05	28.35	25.20
CD-1485*	20⅝	12 × 18	17½	59.60	53.65	47.70

*Depth is 12".

METAL UTILITY CABINETS (FIG. B)

Highly useful housing for all types of electronic equipment. Both font and back panels are removable for easy accessibility.

STEEL CABINETS

Finishes: **"CU"** prefix—steel with luster gray **(LG)**. **"AU"** prefix—Aluminum alloy in natural or luster gray **(LG)**.

Bud No.	Size, Inches D. × W. × H.	Wt., Lbs.	Net Each, Lots of 1	2-49	50-99
CU-883	2 × 4 × 4	¾	$ 5.90	$ 4.95	$ 4.45
CU-728	3 × 5 × 4	1	6.50	5.45	4.90
CU-729	4 × 5 × 6	1¾	8.00	6.70	6.05
CU-1098	6 × 6 × 6	2¼	12.40	10.35	9.30
CU-1099	5 × 6 × 9	3	13.60	11.35	10.20
CU-879	7 × 8 × 10	3¼	20.00	16.70	15.05
CU-1124	6 × 7 × 12	5	17.50	14.60	13.15
CU-880	8 × 10 × 10	6¼	21.70	18.10	16.30
CU-881	8 × 11 × 12	8½	26.50	22.15	19.95
CU-882	7 × 9 × 15	8¼	27.30	22.80	20.50

NATURAL FINISH ALUMINUM CABINETS*

Bud No.	Size, Inches D. × W. × H.	Wt., Lbs.	Net Each, Lots of 1	2-49	50-99
AU-1083	2 × 4 × 4	¼	$ 6.30	$5.25	$4.75
AU-1028	3 × 5 × 4	½	6.50	5.45	4.90
AU-1029	4 × 5 × 6	¾	7.30	6.10	5.50
AU-1039	6 × 6 × 6	1	11.30	9.45	8.50
AU-1040	5 × 6 × 9	1½	12.50	10.45	9.40

LUSTER GRAY ALUMINUM CABINETS*

AU-1083LG	2 × 4 × 4	¼	$ 7.70	$ 6.45	$ 5.80
AU-1028LG	3 × 5 × 4	½	8.30	6.95	6.25
AU-1029LG	4 × 5 × 6	¾	9.50	7.95	7.15
AU-1039LG	6 × 6 × 6	1	14.30	11.95	10.75
AU-1040LG	5 × 6 × 9	1½	16.10	13.45	12.10

*Aluminum alloy 5005 H-14.

UNIVERSAL SLOPING PANEL CABINETS

Fully enclosed and shielded housing with one-piece detachable back and sides fastened to body with four self-tapping screws. Components may be mounted on back, bottom, sides or front. Luster gray finish **(LG)**.

ALUMINUM MODELS

Aluminum alloy 5005 H-14.

Bud No.	Size, Inches W. × D. × H.	Wt., Lbs.	Net Each, Lots of 1	2-99	100-199
AC-1610	4 × 4 × $4^{3}/_{16}$	⅜	$8.00	$6.70	$6.05
AC-1611	5 × 4 × $4^{3}/_{16}$	½	8.30	6.95	6.25
AC-1612	6 × 4 × $4^{3}/_{16}$	$^{9}/_{16}$	8.50	7.10	6.40
AC-1613	7 × 4 × $4^{3}/_{16}$	⅝	9.40	7.85	7.05

DELUXE CABINET RACKS (FIG. C)

Heavy-gauge steel racks with recessed hinged door on top and black thermoplastic slide latch; rounded corners. The five large sizes have hinged rear doors; others, welded rear panels. Louvered sides. Embossed metal feet. Available in luster gray finish **(LG)**. **Size:** 14¾" × 22" w. Fits 19" panels.

Bud No.	Size, Inches Overall Height	Size, Inches Panel Space	Wt., Lbs.	Net Each, Lots of 1-9	10-14	15-19
CR-1726	$8^{13}/_{16}$	7	28	$ 77.00	$ 69.30	$ 61.60
CR-1741	$10^{9}/_{16}$	8¾	30	84.65	76.20	67.70
CR-1740	$12^{5}/_{16}$	10½	34	86.90	78.20	69.50
CR-1742	$14^{1}/_{16}$	12¼	37	93.45	84.10	74.75
CR-1739	$15^{13}/_{16}$	14	40	121.60	109.45	97.30
CR-1743*	$19^{5}/_{16}$	17½	47	124.35	111.90	99.50
CR-1727*	$22^{13}/_{16}$	21	51	133.35	120.00	106.70
CR-1744*	$28^{1}/_{16}$	26¼	58	137.25	123.55	109.80
CR-1728*	$33^{5}/_{16}$	31½	68	146.40	131.75	117.10
CR-1745*	$36^{13}/_{16}$	35	78	153.40	138.05	122.70

*These sizes have both top and rear doors.

HEAVY DUTY CABINET RACKS

Similar to above units with Add-A-Cab feature (similar to Add-A-Rack) for continuously expanding systems. Panel mounting rails are integral part of the sides. Removable rear door. Louvered sides and 2½" × 17⅞" opening in the bottom of the back assure adequate ventilation. Made of 16 ga. steel. **Size:** 17⅛" d. × 22" w. Luster gray finish **(LG)**.

Bud No.	Size, Inches Overall Height	Size, Inches Panel Space	Wt., Lbs.	Net Each, Lots of 1-9	10-14	15-19
CR-1736	24½	19¼	47	$125.25	$112.75	$100.20
CR-1737	31½	26¼	56	134.45	121.00	107.55
CR-1738	40¼	35	67	159.65	143.70	127.70

PRESTIGE SLOPING PANEL CABINETS (FIG. D)

Ventilated top opens completely. Removable panel trim bar permits installation or removal of panels with chassis attached. Top panel is swept back for easy viewing. Takes standard 19" panels. Shielded lifting handles. Rear opening 2½" × 18" for controls, etc.; panel recess 1¼"; bottom panel 3½" high. **Size:** 22" w. × 9¼" top depth. Luster gray finish **(LG)**. Weight, 25, 27 and 30 lbs.

Bud No.	Size, In. H. × D.	Slope H., In.	Net Each, Lots of 1-14	15-24	25-34
C-1555	11⅞ × 14⅜	7	$104.20	$ 93.80	$83.35
C-1556	13¼ × 15⅛	8¾	110.95	99.85	88.75
C-1557	14¾ × 16⅛	10½	118.90	107.00	95.10

UNIVERSAL METER CASES

Center hole punched for 2" meters, plus easily removed knock-out ring to provide fit for 3" meters. Single piece detachable back and sides fastened to case with self-tapping screws for easy installation and servicing. Two ⅜" knock-out holes in top provide for installation of feed-through insulators, switches, volume controls, etc. Luster gray finish only **(LG)**.

Size: $4^{5}/_{16}$" h. × 4" w. × $4^{1}/_{16}$" d.

Bud No.	Construction	Wt., Lbs.	Net Each, Lots of 1	2-49	50-99
CM-1935	Steel	¾	$6.50	$5.45	$4.90
CMA-1936	Aluminum	¼	7.80	6.50	5.85

WIDE UNIVERSAL METER CASE

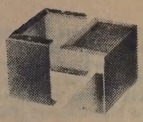
Same as above, except extra wide to permit installation of small components along with a meter or accommodate a 4" meter. Made of 5005 H-14 aluminum. **Size:** $4^{5}/_{16}$" h. × 6" w. × $4^{1}/_{16}$" d.

Bud No.	Construction	Wt., Lbs.	Net Each, Lots of 1	2-49	50-99
CMA-1930	Aluminum	½	$12.30	$10.25	$9.25

PRICES LISTED ARE FOR GUIDANCE ONLY

Boxes and Cases

MINIBOXES,



Design of this box permits installation of more components than would be possible in the conventionally designed boxes the same size. Two-piece construction. **Either snap-lock or screw type.** The flange type construction assures adequate shielding. Made from heavy .040 ga. aluminum. Available in natural aluminum finish and light gray finish.

GRAY ENAMEL MINIBOXES

Bud No.	Size, Inches L. × H. × W.	Wt., Lbs.	Net Each, Lots of 1	2-99	100-199
CU-2100B	2¾ × 2⅛ × 1⅝	¼	$ 2.80	$ 2.35	$ 2.10
CU-2101B	3¼ × 2⅛ × 1⅝	¼	2.90	2.40	2.15
CU-2102B	4 × 2⅛ × 1⅝	¼	3.10	2.60	2.35
CU-2103B	4 × 2¼ × 2¼	¼	3.20	2.65	2.40
CU-2104B	5 × 2¼ × 2¼	¼	3.70	3.10	2.80
CU-2105B	5 × 4 × 3	½	4.60	3.85	3.45
CU-2106B	5¼ × 3 × 2⅛	¼	4.50	3.15	2.85
CU-2107B	6 × 5 × 4	¾	6.40	5.35	4.80
CU-2108B*	7 × 5 × 3	¾	5.90	4.95	4.45
CU-2109B*	8 × 6 × 3½	1	12.40	10.35	9.30
CU-2110B*	10 × 6 × 3½	1¼	13.20	11.00	9.90
CU-2111B*	12 × 7 × 4	1¾	17.40	14.55	13.10
CU-2112B*	17 × 5 × 4	2¼	18.40	15.35	13.80
CU-2113B*	10 × 2 × 1⅝	½	6.10	5.10	4.60
CU-2114B*	12 × 2½ × 2¼	¾	9.00	7.50	6.75
CU-2115B*	4 × 2 × 2¾	¼	4.40	3.65	3.30
CU-2116B	4¼ × 2¼ × 1½	¼	3.60	3.00	2.70
CU-2117B	3¼ × 2⅛ × 1⅛	¼	3.00	2.50	2.25

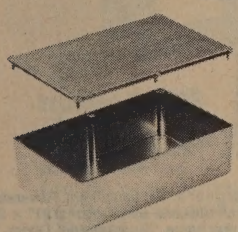
*.050" aluminum.

NATURAL FINISH MINIBOXES

Bud No.	Size, Inches L. × H. × W.	Wt., Lbs.	Net Each, Lots of 1	2-99	100-199
CU-3000A	2¾ × 2⅛ × 1⅝	¼	$ 2.00	$ 1.65	$ 1.50
CU-3001A	3¼ × 2⅛ × 1⅝	¼	2.60	1.75	4.45
CU-3002A	4 × 2⅛ × 1⅝	¼	2.20	1.85	1.65
CU-3003A	4 × 2¼ × 2¼	¼	2.60	2.15	1.95
CU-3004A	5 × 2¼ × 2¼	¼	2.80	2.35	2.10
CU-3005A	5 × 4 × 3	½	4.00	3.35	3.00
CU-3006A	5¼ × 3 × 2⅛	¼	3.30	2.75	2.50
CU-3007A	6 × 5 × 4	¾	5.90	4.95	4.45
CU-3008A*	7 × 5 × 3	¾	5.30	4.45	4.00
CU-3009A*	8 × 6 × 3½	1	8.20	6.85	6.15
CU-3010A*	10 × 6 × 3½	1¼	10.40	8.70	7.85
CU-3011A*	12 × 7 × 4	1¾	13.20	11.00	9.90
CU-3012A*	17 × 5 × 4	2¼	13.90	11.60	10.45
CU-3013A*	10 × 2 × 1⅝	½	4.60	3.85	3.45
CU-3014A*	12 × 2½ × 2¼	¾	6.50	5.45	4.90
CU-3015A	4 × 2 × 2¾	¼	3.20	2.65	2.40
CU-3016A	4¼ × 2¼ × 1½	¼	2.80	2.35	2.10
CU-3017A	3¼ × 2⅛ × 1⅛	¼	2.40	2.00	1.80

*.050" aluminum.

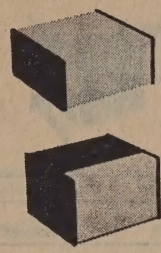
DIECAST BOXES



The low cost, cast aluminum enclosure for almost anything. Close fitting, flanged lids fasten to bosses in the body by means of screws. This, plus the thickness of the aluminum alloy (LM-380), offers excellent screening properties. Boxes are light weight and easily machined. Cover and body of CU-247 and CU-347 are fastened together with 6 screws; the others use 4 screws. Hardware is furnished. Height given includes cover.

Bud No.	Size, Inches W. × D. × H.	Net Each, Lots of 1	2-99	100-199
CU-123	1½ × 3⅜ × $1^{7}/_{32}$	$ 4.20	$ 3.50	$3.15
CU-124	2⅜ × 4⅜ × $1^{7}/_{32}$	4.80	4.00	3.60
CU-234	$3^{11}/_{16}$ × $4^{11}/_{16}$ × $2^{7}/_{32}$	7.90	6.60	5.95
CU-247	$4^{45}/_{64}$ × $7^{25}/_{64}$ × $2^{7}/_{32}$	12.70	10.60	9.55
CU-347	$4^{45}/_{64}$ × $7^{25}/_{64}$ × $3^{7}/_{32}$	13.20	11.00	9.90

CONTEMPO ENCLOSURES



Clean contemporary design—versatile, highly functional, .062" aluminum top and body. Molded .160" cycolac plastic end panels. Twenty-two sizes with either wood grain and eggshell or black pebble and smooth gray finish. Top slides into grooves in end panels and is secured with two screws. The letter **B** in the Bud Model No. designates black end panels with gray body; the letter **W** designates wood grain finish on end panels and body with eggshell body, front and rear panels.

Bud No.	Inside Dimen., Inches* H. × W. × D.	Net Each, Lots of 1	2-49	50-99
JB-1650	2⅛ × 3⅝ × 5⅝	$14.80	$12.35	$11.10
JB-1651	2⅛ × $4^{15}/_{16}$ × 5⅝	15.60	13.05	12.75
JB-1652	2⅛ × $5^{15}/_{16}$ × 5⅝	16.40	13.70	12.35
JB-1653	2⅛ × $6^{15}/_{16}$ × 5⅝	17.60	14.70	13.25
JB-1654	2⅛ × 8 × 5⅝	19.80	16.55	14.90
JB-1655	2⅛ × 10⅛ × 5⅝	25.10	20.95	18.85
JW-3200	2⅛ × 3⅞ × 5⅝	15.00	12.55	11.30
JW-3201	2⅛ × $4^{15}/_{16}$ × 5⅝	15.80	13.20	11.90
JW-3202	2⅛ × $5^{15}/_{16}$ × 5⅝	16.70	13.95	12.55
JW-3203	2⅛ × $6^{15}/_{16}$ × 5⅝	18.90	15.80	14.20
JW-3204	2⅛ × 8 × 5⅝	18.90	17.80	16.00
JW-3205	2⅛ × 10⅛ × 5⅝	27.50	22.95	20.65

*Add $^{5}/_{16}$" to H., ¼" to W. and $^{5}/_{16}$" to D. to obtain outside dimensions.

Bud No.	Inside Dimen., Inches* H. × W. × D.	Net Each, Lots of 1	2-49	50-99
LB-1660	$2^{15}/_{16}$ × 3⅞ × 6¾	$15.80	$13.20	$11.90
LB-1661	$2^{15}/_{16}$ × $4^{15}/_{16}$ × 6¾	16.40	13.70	12.35
LB-1662	$2^{15}/_{16}$ × $5^{15}/_{16}$ × 6¾	18.20	15.10	13.60
LB-1663	$2^{15}/_{16}$ × $6^{15}/_{16}$ × 6¾	21.10	17.60	15.85
LB-1664	$2^{15}/_{16}$ × 8 × 6¾	23.50	19.60	17.65
LB-1665	$2^{15}/_{16}$ × 10⅛ × 6¾	29.40	24.55	22.10
LW-3210	$2^{15}/_{16}$ × 3⅞ × 6¾	15.80	13.20	11.90
LW-3211	$2^{15}/_{16}$ × $4^{15}/_{16}$ × 6¾	17.50	14.60	13.15
LW-3212	$2^{15}/_{16}$ × $5^{15}/_{16}$ × 6¾	20.10	16.80	15.10
LW-3213	$2^{15}/_{16}$ × $6^{15}/_{16}$ × 6¾	22.70	18.95	17.05
LW-3214	$2^{15}/_{16}$ × 8 × 6¾	25.90	21.65	19.50
LW-3215	$2^{15}/_{16}$ × 10⅛ × 6¾	31.00	25.90	23.30

*Add ¼" to H., ¼" to W. and ¼" to D. to obtain outside dimensions.

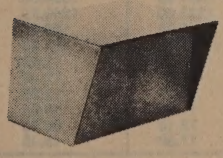
Bud No.	Inside Dimen., Inches* H. × W. × D.	Net Each, Lots of 1	2-49	50-99
MB-1670	$4^{3}/_{16}$ × $4^{15}/_{16}$ × $6^{5}/_{16}$	$16.70	$13.95	$12.55
MB-1671	$4^{3}/_{16}$ × $5^{15}/_{16}$ × $6^{5}/_{16}$	18.00	15.05	13.55
MB-1672	$4^{3}/_{16}$ × $6^{15}/_{16}$ × $6^{5}/_{16}$	20.75	17.35	15.60
MB-1673	$4^{3}/_{16}$ × 8 × $6^{5}/_{16}$	23.50	19.60	17.65
MB-1674	$4^{3}/_{16}$ × 10⅛ × $6^{5}/_{16}$	29.60	24.70	22.25
MB-1675	$4^{3}/_{16}$ × 12⅛ × $6^{5}/_{16}$	36.60	30.55	27.50
MW-3220	$4^{3}/_{16}$ × $4^{15}/_{16}$ × $6^{5}/_{16}$	17.40	14.55	13.10
MW-3221	$4^{3}/_{16}$ × $5^{15}/_{16}$ × $6^{5}/_{16}$	19.90	16.60	14.95
MW-3222	$4^{3}/_{16}$ × $6^{15}/_{16}$ × $6^{5}/_{16}$	22.70	18.95	17.05
MW-3223	$4^{3}/_{16}$ × 8 × $6^{5}/_{16}$	25.80	21.55	19.40
MW-3224	$4^{3}/_{16}$ × 10⅛ × $6^{5}/_{16}$	31.00	25.90	23.30
MW-3225	$4^{3}/_{16}$ × 12⅛ × $6^{5}/_{16}$	34.00	30.80	27.70

*Add ¼" to H., ¼" to W. and ¼" to D. to obtain outside dimensions.

Bud No.	Inside Dimen., Inches* H. × W. × D.	Net Each, Lots of 1	2-24	25-34
DB-1680	$4^{3}/_{16}$ × 8 × $10^{9}/_{32}$	$38.30	$32.00	$28.80
DB-1681	$4^{3}/_{16}$ × 10 × $10^{9}/_{32}$	40.80	34.05	30.65
DB-1682	$4^{3}/_{16}$ × 12 × $10^{9}/_{32}$	41.50	37.30	33.55
DB-1683	$4^{3}/_{16}$ × 14 × $10^{9}/_{32}$	42.00	40.35	36.30
DW-3230	$4^{3}/_{16}$ × 8 × $10^{9}/_{32}$	35.65	35.65	32.10
DW-3231	$4^{3}/_{16}$ × 10 × $10^{9}/_{32}$	39.00	39.00	35.10
DW-3232	$4^{3}/_{16}$ × 12 × $10^{9}/_{32}$	43.15	43.15	38.85
DW-3233	$4^{3}/_{16}$ × 14 × $10^{9}/_{32}$	49.85	49.85	44.85

*Add ¼" to H., $^{11}/_{32}$" to W. and $^{7}/_{32}$" to D. to obtain outside dimensions.

COWL-TYPE MINIBOXES

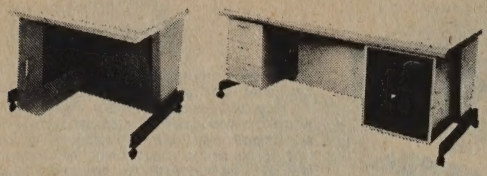


The cowl-type Minibox has a projecting cover to reduce glare on the panel from overhead lighting. It also provides protection for controls and dials. Cover has two box braces to which bottom is attached with sheet metal screws. When assembled, this type of construction results in a sturdy, rigid housing. Consturcted of .040" aluminum and available in natural or luster gray finish **(LG)**.

Bud No.	Overall Size, In. H. × W. × D.	Net Each, Lots of 1	2-99	100-199
SC-2130*	6 × 10 × 7	$23.90	$19.95	$17.95
SC-2131*	7 × 12 × 8	26.20	21.90	19.70
SC-2132*	3 × 8 × 5	13.70	11.45	10.30
SC-2133*	5 × 5 × 5	14.10	11.75	10.60
SC-3030†	6 × 10 × 7	17.50	14.60	13.15
SC-3031†	7 × 12 × 8	18.80	15.70	14.15
SC-3032†	3 × 8 × 5	9.90	8.25	7.45
SC-3033†	5 × 5 × 5	10.50	8.75	7.90

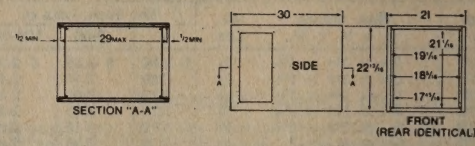
*Painted luster gray. †Natural aluminum finish.

BUD COMMANDER MODULAR WORK STATIONS

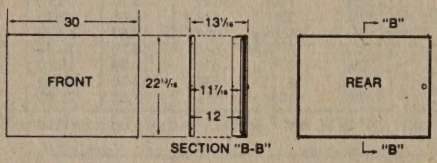


Contemporary styling, ruggedly built work stations to provide maximum efficiency and flexibility. Nine standard one-, two- or three-bay units—all with rear compartment—three-drawer pedestals or shelves to house electronic equipment or for storage. Frame and pylons are 14 gauge steel; struts are 11 gauge steel; top is particle board with wood grain finish. Convenient cable access and excellent cable management. Shipped assembled. **Finish:** Royal blue textured **(RB)** or gray textured **(GT)**.

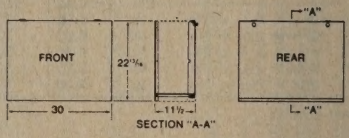
Bud No.	No. Bays	Type Rear Unit	No. Cabinets
CD-16000	1	St. 1 bay	.....
CD-16001	1	Deluxe 1 bay	.....
CD-16002	2	St. 1 bay	1
CD-16003	2	Deluxe 1 bay	1
CD-16004	2	Deluxe 2 bay	.....
CD-16005	3	St. 1 bay	2
CD-16006	3	Deluxe 1 bay	2
CD-16007	3	Deluxe 2 bay	1
CD-16008	3	Deluxe 3 bay	.....



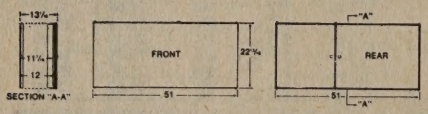
CABINET—Can be mounted on right or left side of two- or three-bay desk framework. Front and rear adjustable mounting rails tapped 10-32 on E.I.A. spacing. Solid bottom panel supplied. Perforated bottom panel and doors optional. 16 gauge steel.



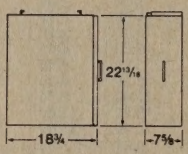
ONE-BAY DELUXE REAR UNIT—For storage, cable routing and/or mounting 19" × 21" equipment. Reversible rear door affixed with pin hinges along one side; locking bar and magnetic latch on opposite side. Optional 30" shelves, mounting rails and divider panels available. Modesty panel and rear frame, 16 gauge steel. Door, 18 gauge steel. Door mounting strips, 11 gauge steel.



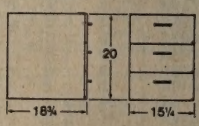
STANDARD REAR UNIT—For storage and/or cable routing. Rear quick-disconnect panel secured by two ¼-turn fasteners at top and two open slots at bottom. Optional 30" shelf. Modesty panel and shelf, 16 gauge steel. Rear panel, 20 gauge steel. Knobs, black plastic.



TWO-BAY DELUXE REAR UNIT—For storage, cable routing and/or mounting 19" × 21" equipment. Reversible rear doors affixed with pin hinges along one side; locking bar and magnetic latch on opposite side. Optional 21" and 30" shelves, mounting rails and divider panels available. Modesty panel and rear frame, 16 gauge steel. Doors, 18 gauge steel. Door mounting strips, 11 gauge steel.



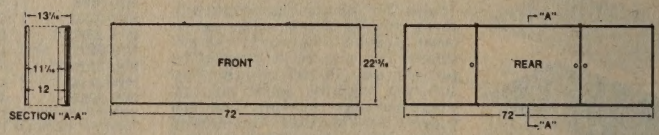
VERTICAL DRAWER—Mounts on either side of desk frame or next to a cabinet. Two ball-bearing telescoping slides. Pencil tray at top; divider panel at bottom, 20 gauge steel.



THREE-DRAWER PEDESTAL—Mounts on either side of desk frame. Telescoping slides with ball bearings. One movable divider per drawer, 20 gauge steel.

CD-16009	Vertical drawer
CD-16010	3 drawer pedestal
CD-16011	Mounting rail, pair
CD-16012	30" shelf
CD-16013	21" shelf
CD-16014	Divider panel
CD-16015	21" door
CD-16016	Perforated bottom panel

USE BUD RC-7775 CASTERS OR RL-7766 LEVELERS



THREE-BAY DELUXE UNIT—For storage, cable routing and/or mounting 19" × 21" equipment. Reversible rear doors affixed hinges along one side; locking bar and magnetic latch on opposite side. Optional 21" × 30" shelves, mounting rails and divider panels available. Modesty panel and rear frame, 16 gauge steel. Doors, 18 gauge steel. Door mounting strips, 11 gauge steel.

Bud No.	Net Each, Lots of 1-2	3-4	5-7	8-10
CD-16000	$ 918.65	$ 826.80	$ 734.90	$ 689.00
CD-16001	951.60	856.45	761.30	713.70
CD-16002	1168.00	1051.20	934.40	876.00
CD-16003	1341.60	1207.45	1073.30	1006.20
CD-16004	1299.00	1169.10	1039.20	974.25
CD-16005	1485.75	1337.20	1188.60	1114.30
CD-16006	1617.45	1455.70	1293.95	1213.10
CD-16007	1739.40	1565.45	1391.50	1304.55
CD-16008	1666.60	1499.95	1333.30	1249.95
CD-16009	146.20	131.60	116.95	109.65
CD-16010	259.00	233.10	207.20	194.25
CD-16011	20.75*	14.00†	12.45†	11.65†
CD-16012	§	20.95	18.60	17.45
CD-16013	‡	16.00	14.25	13.35
CD-16014	▲	16.60	14.75	13.85
CD-16015	91.35	82.20	73.10	68.50
CD-16016	††	19.70	17.50	16.45

*Price per one pair; two pairs, $15.55, per pair. †Price per pair. §$31.00 each; $23.25 each per two. ‡$23.75 each; $17.80 each per two. ▲$24.60 each; $18.45 each per two. ††$29.20 each, $21.90 each per two.

Rotron Fans and Blowers

Muffin® Fan

The dependable, low cost, largest selling fan for commercial cooling applications.

- 105 cfm (49.6 L/Sec) free delivery
- 4.71″ sq. x 1.50″ depth (119.6 mm x 38.1 mm)
- weight: 17.2 oz. (0.49 kg)
- acoustical rating as low as NC-43
- famous Muffin motor reliability
- impedance protected
- for ambients to 70°C
- UL yellow card recognized and CSA certified

Catalog Sheet COM 040

Whisper® Fan

The quiet one-for efficient cooling where low acoustical disturbance is a must.

- 57 to 72 cfm (26.9 to 34.0 L/Sec) free air delivery
- 4.71″ sq. x 1.50″ depth (119.6 mm x 38.1 mm)
- weight: 17.2 oz. (0.49 kg)
- acoustical rating as low as NC-27
- famous Muffin motor reliability
- impedance protected
- for ambients to 70°C
- UL yellow card recognized and CSA certified

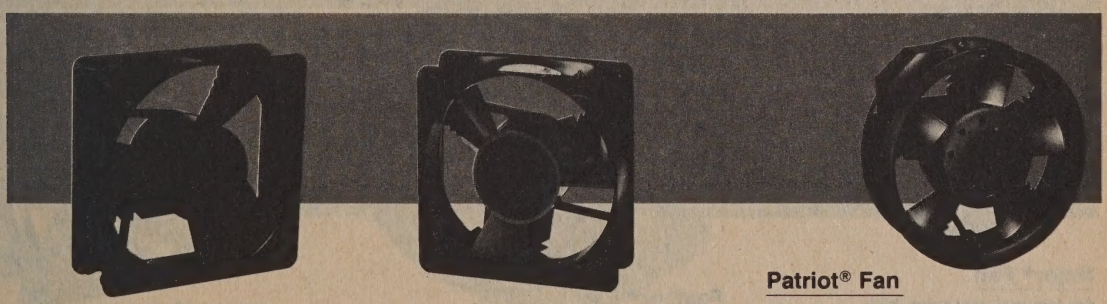
Catalog Sheet COM 050

Muffin® DC Fan (Brushless)

Electronically commutated airmovers that contain all their necessary solid state circuitry within an extremely compact motor housing.

- 55 to 120 cfm (26 to 56.6 L/Sec)
- 12, 24 and 48 VDC (nominal)
- solid state brushless motor
- made by Rotron in the U.S.A.
- low power consumption
- size: 4 11/16″ square x 1.5″ deep (119.13 mm x 39.12 mm)
- weight: 21.5 oz. (0.61 kg)
- polarity protected
- terminal or leadwire versions
- all-metal housing
- maximum operating temperature 70°C

Catalog Sheet COM 041



Muffin® XL Fan

High performance and low noise level, with Muffin reliability. Sturdy one-piece metal venturi.

- 115 cfm (54.3 L/Sec) free air delivery
- 4.69″ sq. x 1.54″ depth (119.1 mm x 39.1 mm)
- weight: 21 oz. (0.61 kg.)
- convenient ground lug bosses
- Feathered Edge™ airfoil blades for quietest operation
- available in two flow directions, air over struts or air over blades first
- impedance protected
- for ambients to 70°C
- UL yellow card recognized and CSA certified

Whisper® XL Fan

High performance and low noise level, with Muffin reliability. Sturdy one-piece metal venturi.

- 50 to 85 cfm (23.6 to 40.12 L/Sec) free air delivery
- 4.69″ sq. x 1.54″ depth (119.1 mm x 39.1 mm)
- weight: 21 oz. (0.61 kg.)
- convenient ground lug bosses
- Feathered Edge™ airfoil blades for quietest operation
- impedance protected
- for ambients to 70°C
- UL yellow card recognized and CSA certified

Patriot® Fan

Quiet high pressure performance in a compact rugged fan.

- 240 cfm (113.3 L/Sec) free air delivery
- 6.75″ dia. x 2″ depth (171.5 mm x 50.8 mm)
- weight: 1.84 lbs. (0.84 kg)
- acoustical rating as low as NC-47
- one-piece die-cast aluminum housing
- long life ball bearings
- permanent split capacitor motor, capacitor provided
- for ambients to 70°C
- UL yellow card recognized and CSA certified
- Available with fan performance sensor. Senses and reacts to speed reduction, voltage reduction, open winding, non-start. No customer-supplied electronics necessary.

Rotron Fans and Blowers

Sprite® Fan

A smaller size fan that delivers relatively high pressures at close-to-maximum air delivery.

- 21 to 35 cfm (9.9 to 16.5 L/Sec) free air delivery
- 3.14″ sq. x 1.64″ depth (79.2 mm x 41.7 mm)
- weight: 18 oz. (.51 kg)
- famous Muffin motor reliability
- acoustical rating as low as NC-28
- rugged die-cast zinc housing
- impedance protected
- for ambients to 70°C
- UL yellow card recognized and CSA certified
- Lead wire and terminal models

Catalog Sheet COM 030

Wafer Fan

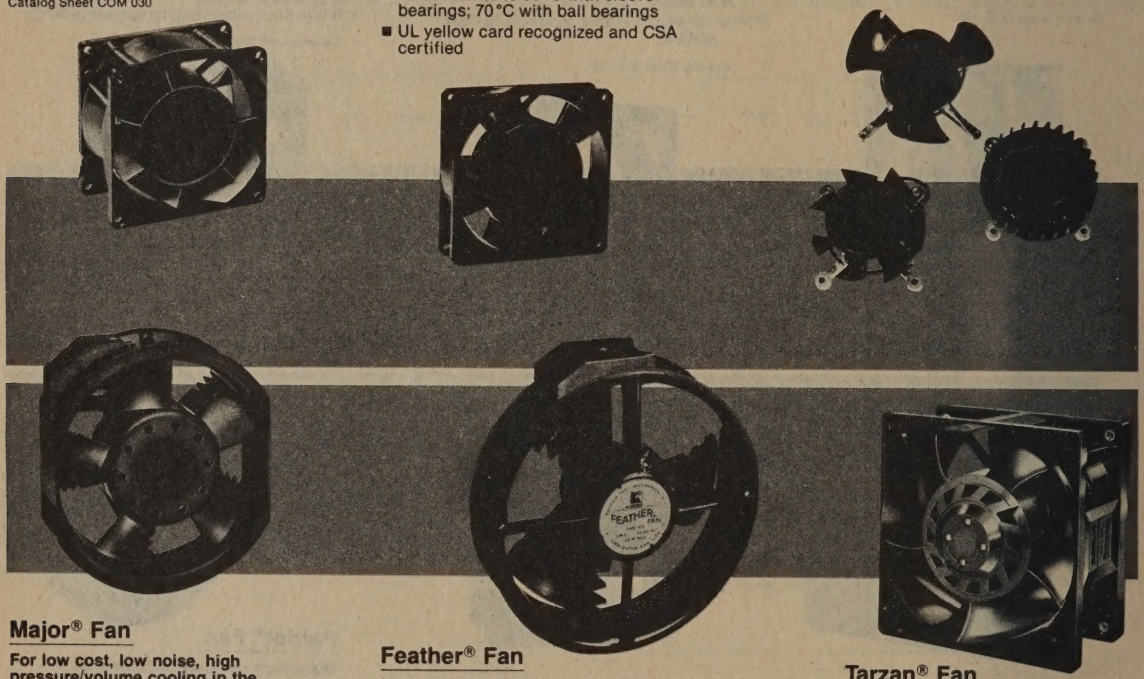
1″ (25.4 mm) thickness and low noise level for cooling applications in tight spots in equipment used near operators.

- 27 to 35 cfm (12.7 to 16.5 L/Sec) free air delivery
- 3.63″ x 1″ depth (92.2 mm x 25.4 mm)
- weight: 10 oz. (0.28 kg)
- acoustical rating as low as NC-41
- one-piece die-cast zinc housing
- impedance protected
- for ambients to 55°C with sleeve bearings; 70°C with ball bearings
- UL yellow card recognized and CSA certified

Scout™ Fan

Versatile, compact line of fans for applications demanding packaging in the tightest spots. Available with 3 impeller options, for use with customer designed air passages.

- 25 to 105 (11.8 to 49.6 L/Sec) free air delivery
- 1.6″ (40.64 mm) depth, impeller dia. 2.93″ to 4.19″ (74.42 to 106.4 mm)
- weight: 12 oz. (0.34 kg)
- acoustical rating dependent on application, maximum NC-45
- famous Muffin motor reliability
- impedance protected
- for ambients to 70°C
- UL yellow card recognized and CSA certified



Major® Fan

For low cost, low noise, high pressure/volume cooling in the tightest of spaces.

- 240 cfm (113.3 L/Sec) free air delivery
- 6.75″ x 5.92″ x 2.00″ depth (171.5 mm x 150.4 mm x 50.8 mm)
- weight: 1.84 lbs. (0.84 kg)
- acoustical rating as low as NC-60
- one-piece die-cast aluminum housing
- long life ball bearings
- thermally protected
- for ambients to 70°C
- permanent split capacitor motor, capacitor provided
- UL yellow card recognized and CSA certified
- Available with fan performance sensor. Senses and reacts to speed reduction, voltage reduction, open winding, non-start. No customer-supplied electronics necessary.

Feather® Fan

High volume air performance where space is severely limited, particularly in depth.

- 245 cfm (115.6 L/Sec) free air delivery
- 7″ dia. x 2.47″ depth (177.8 mm x 62.7 mm)
- weight: 1.5 lbs. (0.68 kg)
- exclusive new Feathered Edge™ blade is extra quiet at free delivery, NC-45
- permanently lubricated ball bearings
- permanent split capacitor motor, capacitor provided
- for ambients to 65°C
- UL yellow card recognized

Catalog Sheet COM 090

Tarzan® Fan

High air volume and pressure combined, for tightly packed cabinets and chassis.

- 340 cfm (160.5 L/Sec) free air delivery
- 6.91″ sq. x 4.34″ depth (175.5 mm x 110.2 mm)
- weight: 5 lbs. (2.26 kg)
- acoustical rating as low as NC-57
- ball bearing thermally protected motor
- for ambients to 55°C
- centrifugal blower performance in a compact axial flow fan
- UL yellow card recognized and CSA certified.

Catalog Sheet COM 120

Commercial Products Safety Agency Acceptances

1. UL component recognition file no. E 31293
2. CSA Certification file no. LR 20495
3. Plug & Cord accessories listed under UL file no. E 42397
4. All models 100% tested to meet 1500 VAC dielectric strength for one minute (production line equivalent 1800 VAC for 1 second)

PRICES LISTED ARE FOR GUIDANCE ONLY

Rotron Fans and Blowers

Biscuit® Blower

The only air moving device that fits inside a 1¾" rack panel mounted instrument.

- 22 cfm (10.4 L/Sec free air delivery
- high pressure capability
- built around famous Muffin fan features
- 4.75" sq. x 1.56" depth (120.65 mm x 39.7 mm)
- weight: 19 oz. (.54 kg)
- acoustical rating as low as NC-42
- for ambients to 70°C
- UL yellow card recognized

Catalog Sheet COM 130

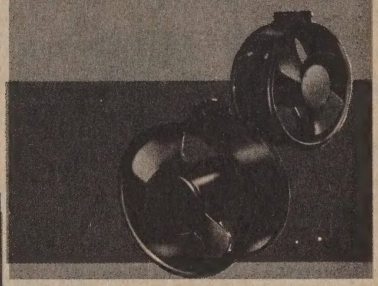
Propimax® 2, 3 & 3B

Large volume and high pressure air movers for airborne equipment.

- free air delivery from 22 to 225 cfm (10.3 to 106.2 L/Sec)
- offer pressures as high as 7" (177.8 mm) H_2O at cut-off
- optional Altivar® motors automatically increase speed with altitude
- life expectancies of 10,000 hours at 72°C, at 22,000 RPM
- withstand ambients up to 257°F (125°C)
- size/weight: 3¼" x 1½" (82.5 mm x 38.1 mm) and 6.5 oz (184.3 g) for Propimax 2, 3¾" x 2" (95.3 mm x 50.8 mm) and 15.2 oz. (431 g) for Propimax 3 & 3B
- meet all applicable military specs (MS connectors available)

Models for 115 VAC, 1 phase, 400 Hz; 200 VAC, 3 phase, 400 Hz; 115 VAC, 1 phase, 60 Hz

See Custom Division Catalog



Caravel® Fan

Maximum air volume, from a narrow fan, for flushing large racks and cabinets.

- 550 cfm (259.6 L/Sec) free air delivery
- 10" dia. x 3.5" depth (254 mm x 88.9 mm)
- weight: 4.4 lbs. (1.99 kg)
- ball bearing thermally protected slow speed motor
- exclusive new Feathered Edge™ blade for low noise level operation
- acoustical rating as low as NC-45
- for ambients to 60°C
- UL yellow card recognized and CSA certified

Modulair® Cabinet Blowers

Special air moving packages incorporate proven Rotron fans and blowers to maximize airflow and simplify installation.

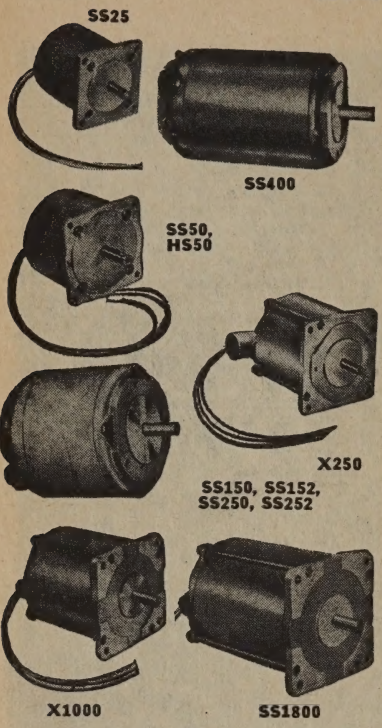
- fit standard 19" (483 mm) relay racks and cabinets
- incorporate washable filters, and grilles for attractive appearance.

MODEL	HEIGHT	FLOW	AIRMOVERS
MB 5100	5¼" (133 mm)	400 CFM (189 L/Sec)	2 Feather Fans
MB 7400	7" (178 mm)	300 CFM (140 L/Sec)	1 Duplex
MB 7500	7" (178 mm)	240 CFM (113 L/Sec)	Centrifugal
MB 8400	8¾" (222 mm)	500 CFM (236 L/Sec)	Blower
MB 9100	5¼" (133 mm)	240 CFM (113 L/Sec)	3 Muffin Fans
MB 9200	8¾" (222 mm)	400 CFM (189 L/Sec)	2 Feather Fans
MB 9300	7" (178 mm)	400 CFM (189 L/Sec)	2 Major Fans

Cabinet blowers requiring other flows and dimensions available on request.

Superior Electric Slo-Syn Motors

SLO-SYN® SYNCHRONOUS/STEPPING MOTORS



Units may be used as DC stepping motors and start at full-rated torque. Slo-Syn synchronous motors are permanent magnet types (AC) having instant start, stop and reverse characteristics and a basic shaft speed of 72 rpm with 60 Hz applied. Adaptable for use as a DC stepping motor or incremental positioning device that can be stepped 200 times per revolution of the motor shaft. Negligible overshoot; no ratchets or detents are used. Single-pole, three-position switch gives complete forward, reverse and "off" control because motor has only three leads. Starts or stops in less than 0.025 second or, approximately 1.5 Hz. No need for mechanical or electrical braking; stops in less than 5° of motor shaft rotation. Starting and operating currents nearly identical; no excessive inrush current when motor is turned on. Lubricated-for-life, sealed ball-bearings. Types with **X** in number are explosion-proof and UL Approved for Class 1, Group D service.

SPECIAL DUTY TYPES available. Request latest SLO-SYN literature covering:

Double End: Have output shafts projecting from both ends. Types available in all cataloged torque ratings. Those with 50, 150, 250 and 400 oz.-in. ratings can also include planetary gear assemblies if desired.
200 RPM: Types TS25, TS50 and TS52 are similar to standard models, but operate at a synchronous speed of 200 rpm and take 5° steps when used for DC stepping.
28.8 RPM: Type LS50 runs at 28.8 rpm at 60 Hz without stepdown gearing. Makes 500 steps/rev as a DC stepping motor. Torque rating, 60 oz.-in. Stops with 25 msec.

MOTOR UNITS

Specifications at 50/60 Hz, one phase, 72 rpm at 60 Hz.

Superior Type	Torque (Oz.-In.)	V	Max. Amps	Resistor, Ohms	Capacitor, μF	Shpg., Lbs.	Net Each
•SS25	25	120	0.1	500 ±5%, 5 W	0.75 ±6%, 330 VAC	1.5	$ 96.00
•SS50†	50	120	0.3	250 ±5%, 25 W	2.6 ±6%, 330 VAC	3.5	91.00
•SS150‡	150	120	0.4	250 ±5%, 25 W	3.75 ±6%, 330 VAC	8	111.00
SS152§	150	240	0.2	1000 ±5%, 25 W	1.0 ±6%, 660 VAC	8	127.00
•SS250	250	120	0.6	150 ±5%, 50 W	6.5 ±6%, 330 VAC	8	156.00
•X250	250	120	0.6	150 ±5%, 50 W	6.5 ±6%, 330 VAC	9	262.00
SS252	250	240	0.3	750 ±5%, 50 W	1.75 ±6%, 660 VAC	8	167.00
X1000*	1000	120	3.0	65 ±5%, 160 W	30.0 ±5%, 330 VAC	33	620.00
X1500	1500	120	3.0	50 ±5%, 375 W	30.0 ±6%, 330 VAC	40	620.00
SS1800*	1800	120	4.0	40 ±5%, 280 W	60.0 ±6%, 330 VAC	50	774.00

*For 60 Hz operation only. ††§Available with resistor-capacitor integrally mounted on end of motor, add suffix **RC** to number. Prices slightly higher.

PLANETARY GEAR TYPES

Planetary Assembly Suffix	Gear Ratio	Approx. Speed* rpm	Output Torque			
			SS50	SS150, SS152	SS250, SS252, SS400	X250
P1	4-⅓	16.6	120 oz.-in.	400 oz.-in.	650 oz.-in.	650 oz.-in.
P2	21-⅔	3.32	600 oz.-in.	2000 oz.-in.	.....	2000 oz.-in.
P3	108-⅓	0.665	2000 oz.-in.	2000 oz.-in.	.....	2000 oz.-in.

*Exact speed may be calculated from basic motor speed of 72 rpm and given ratio.

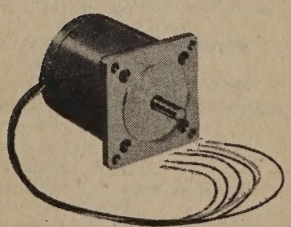
PLANETARY GEAR ASSEMBLIES

Standard types of Slo-Syn synchronous/stepping motors with special gear planetary assemblies are available. Speed reduction assembly is completely enclosed in dust-proof housing mounted on shaft end of motor. Load is evenly distributed over three special nylon gears. Planetary gear shaft is ball-bearing mounted; self lubricated nylon gears. To order, basic type number must be suffixed with the desired planetary gear assembly number. For example, SS50-**P1.** See tables at right for specifications of planetary gear types and price schedule.

PRICE SCHEDULE FOR PLANETARY GEAR ASSEMBLIES

Plan. Assem. Suffix	Net Each Planetary Gear Assemblies for Motor Types				
	SS50	SS150	SS152	SS250	SS252
P1	$88.00	$73.00	$73.00	$73.00	$73.00
P2	88.00	71.00	71.00	71.00	71.00
P3	95.00	88.00	88.00	88.00	88.00

M SERIES SLO-SYN® STEPPING MOTORS



M Series SLO-SYN motors are permanent magnet stepping motors and are available in a wide range of torque ratings and size configurations. They provide high torque per pound and torque to inertia ratios and can be driven at rates above 20,000 steps per second with low power input. Standard drives available for rates to 10,000 steps per second. Higher rates can be supplied on special order. Motors have Class B insulation; may be operated at ambient temperature range of −40° C to +65° C. Continuous duty temperature rise is 65° C. Stepping increment is 1.8° with accuracies of ±5% or ±3% available as standard. An eight-step switching sequence gives a stepping increment of 0.9°.

Superior Type	Accuracy	DC Volts	Amps per Winding	Min. Holding Torque* Oz.-In.	Min. Residual Torque† Oz.-In.	Shaft Dia. Inches	Approx. Shpg. Wt. Lbs.	Net Each
M061-FC08	±3%	1.3	3.9	53	5	.250	1½	$126.00
•M061-FD08	±5%							113.00
M062-FC09	±3%	1.7	4.7	100	8	.250	2½	152.00
•M062-FD09	±5%							139.00
M063-FC09	±3%	2.2	4.6	150	10	.250	3¼	196.00
•M063-FD09	±5%							182.00
M063-FC06	±3%	3.4	2.9	150	10	.250	3¼	196.00
•M063-FD06	±5%							182.00
M091-FC09	±3%	1.8	4.8	150	5	.375	4	125.00
•M091-FD09	±5%							110.00
M091-FC06	±3%	2.9	3.05	150	5	.375	4	125.00
•M091-FD06	±5%							110.00
M092-FC09	±3%	2.5	4.6	300	10	.375	6¼	143.00
•M092-FD09	±5%							129.00
M093-FC11	±3%	2.8	5.5	450	15	.375	9	195.00
•M093-FD11	±5%							180.00
M092-FD310	±5%	1.65	6.8	300	4	.375	6¼	166.00
M093-FD301	±5%	1.5	11.0	450	7	.375	9.0	216.00
M111-FD12	±5%	2.3	6.1	625	15	.375	9¼	226.00
•M112-FJ12	±5%	3.6	6.1	1125	30	.625	16¼	383.00
M112-FJ326	±5%	1.45	15.2	1125	12	.625	16¼	383.00
M112-FJ327	±5%	2.1	9.2	1125	12	.625	16¼	383.00

*Both windings energized at rated current. †Approximate value with neither coil energized.

•AVAILABLE OFF-THE-SHELF FROM STOCK.

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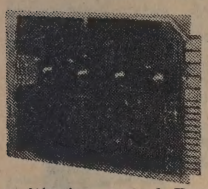
SLO-SYN TRANSLATOR STM101

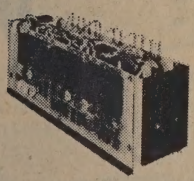


1000 Steps/Second: Translator module is printed circuit board providing sequencing and switching logic for bidirectional control of SLO-SYN stepping motors. Converts pulses from a minicomputer, microprocessor or other external logic source into necessary stepping sequence. External logic controls step rate, direction and number of steps taken. Internal oscillator with 0-1000 pulse/sec range provided for "off-line" or manual positioning control. Requires an external 24 VDC, 6 amp. power source such as MPS1000 and MPS1000X listed. **External Pulse Requirements:** High level 2.4-5.5 VDC, low level 0-0.4 VDC. Dim. 4¼″ x 6½″. For use with M061-F(C)(D)08, M062-F(C)(D)03, M063-F(C)(D)06, M091-F(C)(D)06, M092-F(C)(D)08, M093-F(C)(D)07, M112-F(D)(J)08 motors.
Superior Type STM101—Net Each.....**$157.00**

SLO-SYN TRANSLATOR STM103

3000Steps/Second: Similar to STM101 but with rates to 3000 full-steps (1.8°) or 6000 half-steps (0.9°) per second. Operation in the half-step mode permits finer system resolution with no loss of positioning speed. Adjustable acceleration and deceleration circuitry increases load handling capability. STM103 requires an external 24 VDC, 10 amp. power supply such as MPS3000 or MPS3000X listed. Internal oscillator range 0–6000 pulse/sec. **External Pulse Requirements:** High level 2–5.24 VDC, low level 0–0.8 VDC. Dim. 5¾″ x 11″. For use with M061-F(C)(D)08, M062-F(C)(D)09, M063-F(C)(D)09, M091-F(C)(D)09, M092-F(C)(D)09, M093-F(C)(D)11, M111-FD12, M112-F(D)(J)12 motors.
Superior Type STM103—Net Each.....**$250.00**

SLO-SYN TRANSLATOR TBM105



5000 Steps/Second: Open chassis unit incorporating a d-c power supply and the sequencing and switching logic needed for bidirectional control of SLO-SYN motors. Operates in either half-step (0.9°) or full-step (1.8°) mode. **Power Input:** 120/220/240 VAC, 50/60 Hz, 5 amp max. Internal oscillator range 0–1000 pulses/sec base speed, 200–10,000 pulse/sec high speed. **External Pulse Requirements:** 2–5.25 VDC high level, 0–0.5 VDC low level. Dim: 21″ L x 7″ W x 8″ H. Factory adjusted for optimum performance with M062-F(C)(D)09, M063-F(C)(D)09, M092-FD310, M093-FD301, M112-FJ32(6)(7) motors.
Superior Type TBM105—Net Each.....**$1300.00**

SLO-SYN POWER SUPPLIES MPS1000/MPS1000X

For use with STM101 translator modules or PIM151 preset indexer modules which have compatible voltage and current ratings and which can be integrally mounted. Terminal strips for all a-c input, d-c output and motor connections. **Output:** 24 VDC; 5 VDC. **Power Input:** MPS1000 120 VAC, 60 Hz, 3 amp; MPS1000X 220/240 VAC, 60 Hz, 1.5 amp. Dim. 17″ L x 8″ W x 8″ H.
Superior Type MPS1000/MPS1000X—.....Consult Factory

SLO-SYN POWER SUPPLIES MPS3000/MPS3000X

For use with STM103 translator modules or PIM153 preset indexer modules which have compatible voltage and current ratings and which can be integrally mounted. Have terminals for all a-c input, d-c output and motor connections. **Output:** 24 VDC; 5 VDC. **Power Input:** MPS3000 120 VAC, 60 Hz, 5 amp; MPS3000X 220/240 VAC, 60 Hz, 3 amp. Dim. 17″ L x 8″ W x 8″ H.
Superior Type MPS3000/MPS3000X—Net Each.....**$592.00**

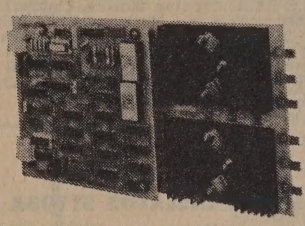
SLO-SYN PRESET INDEXER PIM151

1000 Steps/Second: Provides translator functions of sequencing and switching logic and internal oscillator and pulse counting circuitry for complete control of stepping rate, direction and number of steps taken. Count insertion via external BCD logic switches. Requires external 24 VDC, 6 amps/5 VDC, 1 amp power supply such as MPS1000 and MPS1000X listed. **Internal Oscillator Range:** 4–1000 pulses/sec. **External Function:** Index start, run, jog clear and count complete. Max. count 99,999 motor steps. Dim. 5¾″ x 11″. Use with M061-F(C)(D)08, M062-F(C)(D)03, M063-F(C)(D)06, M091-F(C)(D)06, M092-F(C)(D)08, M093-F(C)(D)07, M112-F(D)(J)08 motors.
Superior Type PIM151—Net Each.....**$493.00**

SLO-SYN TRANSLATOR CARD SET TC600

10,000 Steps/Second: Includes two switching driver circuit boards and one sequencing/supervisory logic circuit board plus connecting ribbon cables. Requires external power supply (not included). Stepping rates to 10,000 full steps (1.8°) or half-steps (0.9°) per second. Provides up to 0.8 HP at the motor shaft. **Power Input:** +75 VDC, 15 amps. max.; +17 VDC, 2.5 amps. max.; −17 VDC, 4 amps. max. Both TTL and RS232C input/output signals provided. Operates M092-FD310, M093-FD301, M112-FJ326, M172-FD306 or M172-FD308 motor.
Superior Type TC600—Net Each.....**$1394.00**

SLO-SYN PRESET INDEXER PIM153

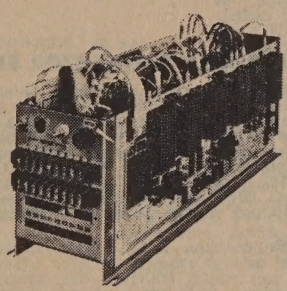


3000 Steps/Second: Similar to PIM151 but with rates to 3000 full-steps (1.8°) or 6000 half-steps (0.9°) per second. Has adjustable acceleration and deceleration. PIM153 requires an external power supply capable of providing 24 VDC, 10 amp/5 VDC, 1 amp such as MPS3000 and MPS3000X listed. **Internal Oscillator Range:** 0–6000 pulses/sec. **External Functions:** Index start, run, jog, high speed, count complete and clear. Count insertion by external BCD logic switches or voltage levels. Maximum count 99,999 motor steps. Dim. 5¾″ x 11″. Used with M061-F(C)(D)08, M062-F(C)(D)09, M063-F(C)(D)09, M091-F(C)(D)09, M092-F(C)(D)09, M093-F(C)(D)11, M111-FD12, M112-F(D)(J)12 motors.
Superior Type PIM153—Net Each.....**$699.00**

SLO-SYN PRESET INDEXER TBM155

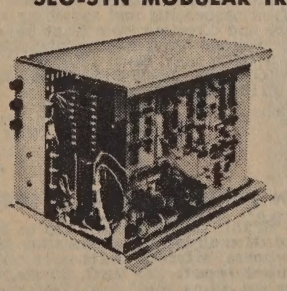
5000 Steps/Sec: Can provide indexing motions up to 99,999 motor steps, controlled from external BCD logic switches or from a computer or microprocessor. Adjustable acceleration and deceleration. Operates in either the half-step (0.9°) or full-step (1.8°) mode. External functions: index, run, jog, high speed, close and clear signals. **Power Input:** 120/220/240 VAC, 50/60 Hz. **Internal oscillator range:** base speed 0–1000 pulses/sec; high speed 200–5000 pulse/sec. Dim. 21″ L x 7″ W x 8″ H. Factory adjusted for optimum performance with M062-F(C)(D)09, M063-F(C)(D)09, M092-FD310, M093-FD301, M112-FJ32(6)(7) motors.
Superior Type TBM155—Net Each.....**$1739.00**

SLO-SYN BUFFERED TRANSLATOR BUF105



5000 Steps/Second: Accepts pulses from a fixed pulse rate source, automatically ramping the pulse rate to accelerate or decelerate the motor. Drives motor at rates to 5000 full steps (1.8°) or 10,000 half-steps per second. **Power Input:** 120/220/240 VAC, 50/60 Hz. **External Pulse Requirement:** Open circuit +10 to +20% VDC high level. 0 to 1.7 VDC low level. Dim: 21″ L x 7″ W x 8″ H. Factory adjusted for optimum performance with M062-F(C)(D)09, M063-F(C)(D)09, M092-FD310, M093-FD301, M112-FJ32 (6) (7) motors.
Superior Type BUF105—Net Each.....**$1715.00**

SLO-SYN MODULAR TRANSLATOR TM600



10,000 Steps/Second: Open-chassis unit incorporating d-c power components together with sequencing logic and switching driver stages for bidirectional control of SLO-SYN motors. Rates to 10,000 full steps (1.8°) or 20,000 half-steps (0.9°) per second. Unit is intended for base mounting. **Power Input:** 120, 220 or 240 volt, 50/60 Hz, 12 amps. max. Both TTL and RS232C input/output signals provided. Operates M092-FD310, M093-FD301, M112-FJ326, M172-FD306 or M172-FD308 motor.
Superior Type TM600—Net Each.....**$2281.00**

SERIES RESISTORS

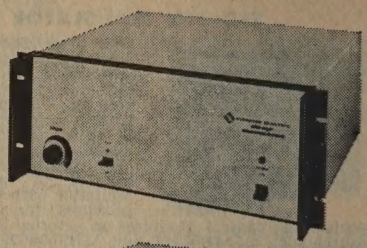
For use with 1000 and 3000 steps/second translator and preset indexer modules.

Superior Type	Ohms	Net Each
102088-014	11 ±5%, 50 W	$19.00
132278-006	3.5 ±5%, 75 W	22.00
133832-009	4 ±5%, 160 W	19.00
103788-009	6 ±5%, 100 W	24.00
103788-014	6.5 ±5%, 100 W	24.00
103788-015	7 ±5%, 100 W	24.00
103788-016	7.5 ±5%, 100 W	24.00

PACKAGED CONTROLS

All modular translators and preset indexers described are available as 19-inch rack/bench top units. Write or telephone for additional information.

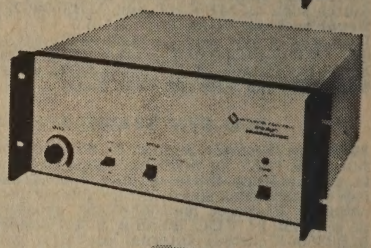
SLO-SYN TRANSLATOR ST101A



1000 Steps/Second: Cabinet type unit incorporating the power circuits and logic elements for bidirectional control of SLO-SYN stepping motors. Convert pulses from minicomputers, microprocessors and other sources into the switching sequence needed for driving SLO-SYN motors in steps. An internal oscillator provides pulses for manual or off-line positioning. **Power Input:** 120 volt, 60 Hz, 3 amps. max. **Dim:** 17½" w. x 16½" d. x 7" h. **External Pulse Requirements:** 2 to 5.5 VDC high level, 0 to 0.4 VDC low level. For use with M061-F(C)(D)08, M062-F(C)(D)03, M063-F(C)(D)06, M091-F(C)(D)06, M092-F(C)(D)08, M093-F(C)(D)07, M112-F(D)(J)08 motors.

Superior Type ST101A—Net Each.....**$935.00**

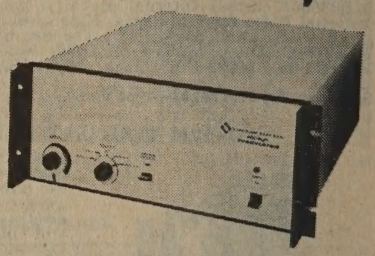
SLO-SYN TRANSLATOR ST103A



3000 Steps/Second: Provides rates to 3000 full steps (1.8°) or 6000 half-steps (0.9°) per second. Accepts pulses from a minicomputer, microprocessor or similar source and drives the motor one step for each pulse received. Internal oscillator provides pulses for manual or off-line positioning. **Power Input:** 120 volt, 60 Hz, 5 amps. max. **Dim:** 16½" d. x 17½" w. x 7" h. **External Pulse Requirement:** 2 to 5.25 VDC high level, 0 to 0.8 VDC low level. For use with M061-F(C)(D)08, M062-F(C)(D)09, M063-F(C)(D)09, M091-F(C)(D)09, M092-F(C)(D)09, M093-F(C)(D)11, M111-FD12, M112-F(D)(J)12 motors.

Superior Type ST103A—Net Each.....**$1214.00**

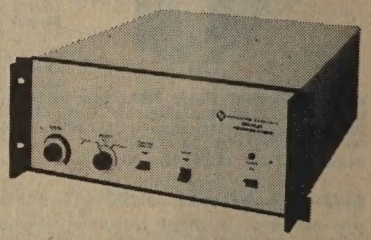
SLO-SYN TRANSLATOR ST105



5000 Steps/Second: Packaged unit providing stepping rates to 5000 full steps (1.8°) or 10,000 half-steps per second. Operates from pulses supplied by minicomputers, microprocessors, etc. Drives motor one step for each pulse received. Factory adjusted for optimum performance with a specific motor. Available for use with M062-F(C)(D)09, M063-F(C)(D)09, M091-F(C)(D)09, M092-FD310, M093-FD301, M112-FJ326, M112-FJ327 motors. **Power Input:** 120/220/240 VAC, 50/60 Hz, 5 amps. max. **Dim:** 24" l. x 19" w. x 8" h. **External Pulse Requirement:** Open circuit, 10 to 24 VDC high level; 0 to 1.7 VDC low level.

Superior Type ST105—Net Each.....**$1773.00**

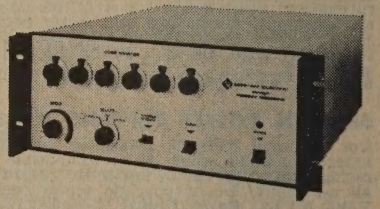
SLO-SYN BUFFERED TRANSLATOR SB105



5000 Steps/Second: Allows a SLO-SYN stepping motor to be controlled by pulses from a fixed or a random pulse rate source. The buffered translator automatically ramps the pulse rate to the motor to provide the needed acceleration and deceleration. The motor is driven one step for each pulse received at rates to 5000 full steps (1.8°) or 10,000 half-steps (0.9°) per second. Calibrated at the factory for optimum performance with a specific motor model. Available for use with M062-F(C)(D)09, M063-F(C)(D)09, M091-F(C)(D)09, M092-FD310, M093-FD301, M112-FJ326, M112-FJ327 motors. **Power Input:** 120/220/240 VAC, 50/60 Hz, 5 amps. max. **Dim:** 24" l. x 19" w. x 8" h. **External Pulse Requirements:** Open circuit, 10 to 20 VDC high level; 0 to 1.7 VDC low level.

Superior Type SB105—Net Each.....**$2035.00**

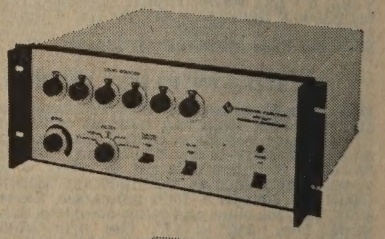
SLO-SYN PRESET INDEXER SP151B



1000 Steps/Second: Packaged unit combines internal oscillator and pulse counting circuitry with translator functions of sequencing and switching logic. Provides complete control of stepping rate, distance and direction from front panel switches. Can also be directed by external switches or voltage levels from minicomputers or microprocessor. **Power Input:** 120 VAC, 60 Hz, 3 amps. max. **Dim:** 17½" w. x 16½" d. x 8" h. For use with M061-F(C)(D)08, M062-F(C)(D)03, M063-F(C)(D)06, M091-F(C)(D)06, M092-F(C)(D)08, M093-F(C)(D)07, M112-F(D)(J)08 motors.

Superior Type SP151B—Net Each.....**$1431.00**

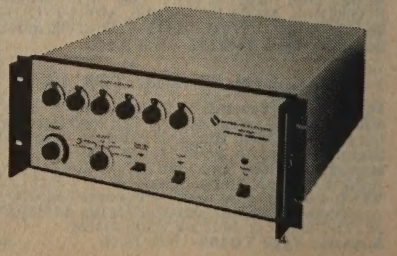
SLO-SYN PRESET INDEXER SP153B



3000 Steps/Second: Similar to SP151, but provides rates to 3000 full steps (1.8°) or 6000 half-steps (0.9°) per second. Has adjustable acceleration and deceleration. Can be controlled using front panel switches, external switches or voltage levels from minicomputer or microprocessor. **Power Input:** 120 VAC, 60 Hz, 5 amps. max. **Internal Oscillator Range:** 0–6000 pulses/sec. **Dim:** 16½" d. x 17½" w. x 7" h. **External Functions:** Index, run, jog, high speed, count complete and clear. Used with M061-F(C)(D)08, M062-F(C)(D)09, M063-F(C)(D)09, M091-F(C)(D)09, M092-F(C)(D)09, M093-F(C)-(D)11, M111-FD12, M112-F(D)(J)12 motors.

Superior Type SP153B—Net Each.....**$1757.00**

SLO-SYN PRESET INDEXER SP155A

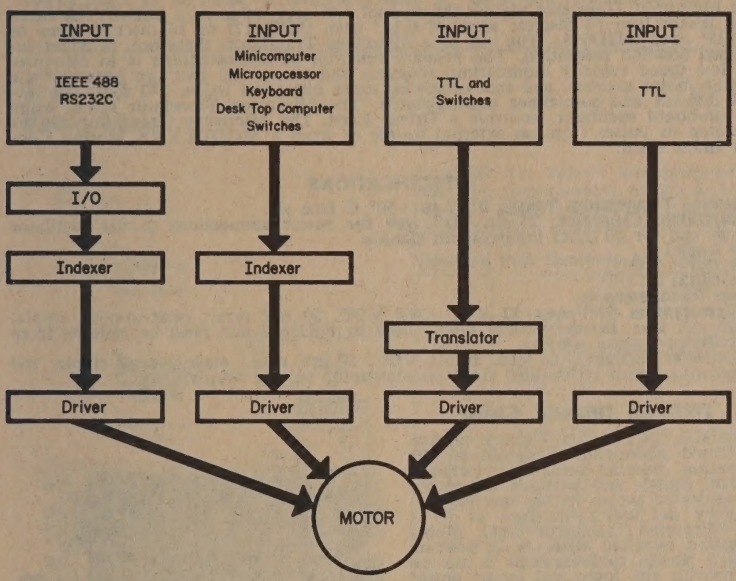


5000 Steps/Second: Can provide indexing motions up to 99,999 steps at rates to 5000 full steps (1.8°) or 10,000 half-steps (0.9°) per second. Can be operated from front panel, external switches or by voltage levels from a minicomputer or microprocessor. **External functions:** Index, run, jog, high speed, clear. **Power Input:** 120/220/240 VAC, 50/60 Hz, 5 amps. max. **Internal Oscillator Range:** Base speed 0–1000 pulse/sec., high speed 200 to 5000 pulse/sec. Factory adjusted for optimum performance with specific motor. Available for use with M062-F(C)(D)09, M063-F(C)(D)09, M091-F(C)(D)09, M092-FD310, M093-FD301, M112-FJ326, M112-FJ327 motors.

Superior Type SP155A—Net Each.....**$2214.00**

PRICES LISTED ARE FOR GUIDANCE ONLY

Superior Electric Motor Motion Controls



THE SYSTEM CONCEPT

MODULYNX Motion Controls utilize a modular building-block approach to designing step motor control systems, providing simple, yet powerful, means of fulfilling the needs of virtually any step motor application.

CONTROLLABILITY

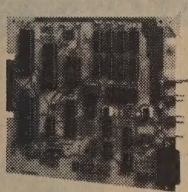
- RS232C or IEEE 488 inputs can be entered directly, using the appropriate Interface Card.
- 8-bit parallel ASCII input can be entered directly into the Indexer or Microstep Indexer Card.
- Switches can load count data and generate move commands to control an Indexer or Microstep Indexer card.
- The on-board pulse source of a Microstep Translator Card can be controlled with switches.
- An external pulse source can direct motor or motion with a Microstep Translator Card.
- Four properly sequenced TTL level translator signals can directly control a Driver Card.

VERSATILITY

- Modular design allows upgrading system for new requirements by simply changing circuit cards.
- A 20 kHz switching current control in the DRD003 Driver Card permits operation over a 24 to 72 VDC motor voltage range.
- Microstep Translator and Microstep Indexer Cards increase step angle resolution to 0.1125°, virtually eliminating low speed resonance and vibration.

SIMPLICITY

- Since each MODULYNX Motion Control Card represents one system function, you only pay for the functions needed for your application.
- The Indexer and Microstep Indexer are microprocessor based, allowing setting of digital speeds and ramps via ASCII input or by using jumpers, located on the circuit cards. Oscilloscopes and frequency counters are no longer needed to set speeds and ramps.

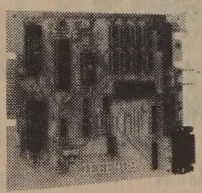


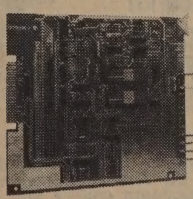
IOD004—RS232C INTERFACE CARD

Intended for use as a serial data interpreter and control interface between an input/output device, such as a teletype or a CRT terminal, and an Indexer Card or Microstepping Indexer Card. Conforms to RS232C Industry Interface Standard for communications with an input/output device. IOD004 can act as a data interpreter/controller for up to six Indexer Cards, providing the capability for a six-axis system controlled by a teletype (TTY) or similar input device. The interface card receives commands from the device, modifies them, and sends them to the Indexers or back to the device. An on-board volatile memory is also provided, allowing storage of an entire sequence of commands. IOD004 allows use of either voltage or current to represent communication signals. Immediate verification of character input, using the echo mode, and jumper selection of any 15 communication frequencies (baud rates).

IOD005—IEEE 488 INTERFACE CARD

A microprocessor based, GPIB (General Purpose Interface Bus) or IEEE 488 Standard Bus, Interface Card. Conforms to IEEE 488-1975 Standard, and may be connected to any GPIB controller, using a standard interface cable. IOD005 is a data interpreter/controller for one to six Indexer Cards connected by a mass terminated bus system. The card receives data or commands from the GPIB, modifies them, and sends the resulting data to the indexers, or back to the GPIB. Commands can also be stored in an on-board volatile memory, allowing storage of an entire sequence of commands. The GPIB, combined with a MODULYNX Mot on Control system incorporating an Interface Card, an Indexer Card and a Driver Card, provides an easy method of connecting a calculator or a computer to a stepping motor without special interface circutiry, cables or connectors.



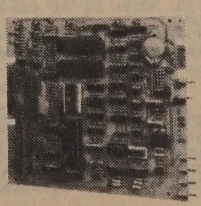


IDD008 INDEXER CARD

A microprocessor based Indexer for controlling direction, distance, acceleration, running speed and deceleration of a SLO-SYN Stepping Motor. Unlike a typical analog Indexer, the base speed, high speed and acceleration/deceleration rates can be digitally programmed with simple jumper plugs, or via digital commands from minicomputers, microprocessors or keyboards. IDD008 accepts commands in ASCII format, allowing control from an intelligent keyboard. The Indexer Card can be controlled by a switch interface, or can be directed with a "smart" controller. Up to six Indexer Cards can be connected in parallel along a 50-line control data bus, and may be individually addressed from a single controller, such as an IOD005 Interface Card, for loading data, executing the various commands, or polling status.

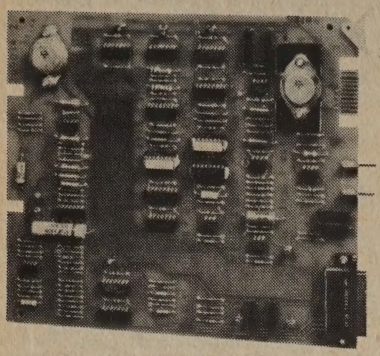
IMD015 MICROSTEP INDEXER CARD

In combination with a Driver Card, IMD015 will operate a SLO-SYN Stepping Motor a specific number of microsteps in either CW or CCW direction. Normal step angle of a SLO-SYN Motor is 1.8. This angle is divided by the Microstep Indexer into five steps of 0.36 each, ten steps of 0.18 each or sixteen steps of 0.1125 each, depending on the position of movable jumpers on the card. Direction of motor motion, number of microsteps, acceleration and deceleration rates and running speed are controlled by IMD015, in response to digital signals from minicomputers, microprocessors, or programmable controllers. Commands can also be entered in ASCII format from an intelligent keyboard. Up to six IMD015 cards can be connected in parallel along a 50-line control data bus, and can be individually addressed through a suitable Interface Card for loading data executing commands or polling status. Interface cards are offered for use with input/output devices conforming to the IEEE 488 format (IOD005) or the RS232C format (IOD004).



Complete information and pricing available on request.

MID012 & MID013 MICROSTEP TRANSLATOR CARDS



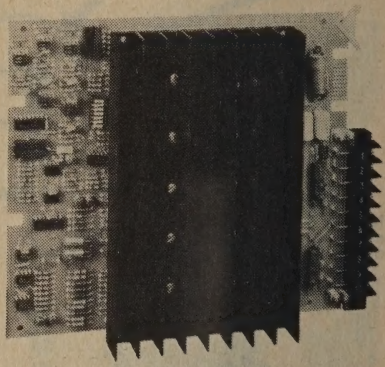
The Microstep Translator divides the normal 1.8° step anlge of a SLO-SYN® Stepping Motor into 10 discrete steps of 0.18° each (MID012) or 16 discrete steps of 0.1125° each (MID013). The use of a Microstep Translator, therefore, provides increased position resolution. The primary function of microstepping is to minimize the low speed velocity modulations (cogging and resonance) that are characteristic of step motor systems, and that otherwise make operation below 240 steps per second difficult and sometimes unpredictable. The Microstep Translator Card, using the on-board oscillator, controls a Driver Card. The Microstep Translator can be operated by pulses from an external source or from a MODULYNX Motion Control Index Card.

SPECIFICATIONS

Operating Temperature Range: 0° C to +50° C free air.
Input/Output Connector: 25-pin "D" type for power connections to the oscillator circuit and for all other input/output signals.
Step Angle:
MID012: 0.18°.
MID013: 0.1125°.
Power Requirements:
Microstepping Section: +12 VDC ±0.5 VDC, 50 mV max.; peak-to-peak ripple, 600 mA max. (must be same supply used by DRD003 and must be isolated from oscillator section supply).
Oscillator Section: +12 VDC to ±5 VDC. 50 mV max.; peak-to-peak ripple, 160 mA max. (must be isolated from microstepping section supply).

DRD003 DRIVER CARD

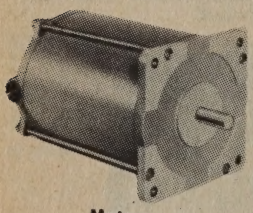
The Driver Card is an essential part of every MODULYNX Motion Control system. The user provides properly sequenced and ramped phase-control signals to the Driver Card to control motor direction, acceleration, running speed and deceleration. The Driver Card accepts these phase-control signals and switches the motor windings as required to ramp the motor to the selected speed, in the specified direction. Phase-control signals can be supplied by the user's interface or by a MODULYNX Motion Control Index Card or Microstep Translator Card. Motor and power connections are made via a 10-position terminal strip. A 20-position edge connector, compatible with mass terminated ribbon cable systems is needed for control signal connections. The user must provide the logic and motor power supplies.



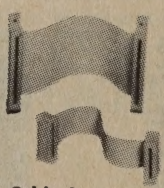
SPECIFICATIONS

Operating Temperature Range: 0° C to +50° C free air ambient (when installed and operated as described).
Power Requirements:
Logic: +12 VDC ±0.5 VDC, 50 mV max.; peak-to-peak ripple, 1.2 amps DC max.; should be isolated from interface logic for optimum noise immunity.
Motor: +24 to +72 VDC, including 6 V max. peak-to-peak ripple.
Phase Current Switching:
Frequency: 15 to 28 kHz.
Operating Modes:
1: Full-step, two windings energized, two phase bifilar.
2: Full-step, one winding energized, two phase bifilar.
3: Half-step, two phase bifilar.
4: Microstep, two phase bifilar with compatible Superior Electric Microstepping Translator or Indexer.
Card Size: 7.7" h. × 2.25" w. × 8.8" l.
Weight: Approx. 2.25 lbs.

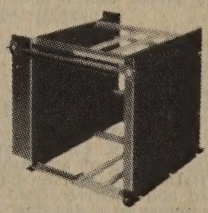
ACCESSORIES



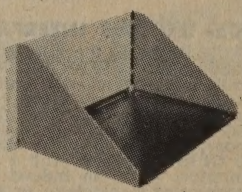
Motors



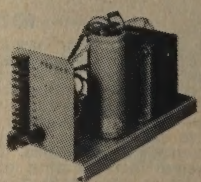
Cable Assys.



Card Cages



Rack Kit



Power Supply

CABLE ASSEMBLIES

20-pin and 50-pin daisy chain mass terminated cable systems for interfacing between the circuit cards of a MODULYNX Motion Control System and between the system and any external communications or control equipment. Both 20-pin and 50-pin cables are offered in a variety of configurations as follows:
CBD032—2 ft. long, 50-pin cable with one connector (pk. of 5).
CBD033—66 in. long, 50-pin cable with 12 connectors spaced 6 inches apart.
CBD040—6 in. long, 20-pin cable with a connector at each end.
CBD041—6 in. long, 50-pin cable with a connector at each end.
CBD030—Bulk pack of ten CBD040 cables.
CBD031—Bulk pack of ten CBD041 cables.

CARD CAGES

As with all circuit cards, it is important that the cards in a MODULYNX Motion Control System be securely mounted, with adequate spacing between cards for air flow. Two card cages available. Type CGD023 holds up to three cards; type CGD207 holds up to seven cards. Cages can be mounted on any flat surface or can be mounted on the Rack Kit described below.

RACK KIT

Rack Kit RKD020 allows the components of a MODULYNX Motion Control System to be installed in a standard 19 in. wide rack. Provisions are made to mount either accessory card cage, plus the PSD048 Power Supply described below on a rack assembly. A blank front panel is included. Height of rack is 8 3/4". Depth behind panel is 12".

48 VDC POWER SUPPLY

Power Supply PSD048 is designed for use with the DRD003 Driver Card as a source for the required motor voltage. The supply is mounted on an aluminum chassis and can be fastened to any flat surface, or may be installed on the RKD020 Rack Kit. The supply can be operated from either 120 or 240 VAC input.

SPECIFICATIONS

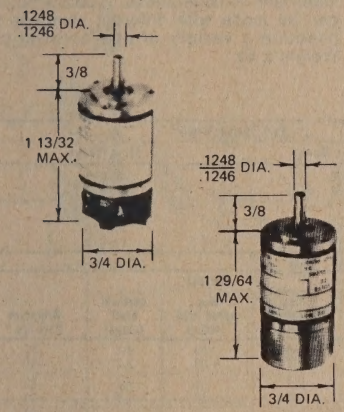
Operating Temperature Range: 0° C to +50° C free air.
Input Voltage: 98-127 VAC, 50/60 Hz, 4.4 A or 195-253 VAC, 50/60 Hz, 2.2 A.
Output Voltage: 60 VDC max. no-load with 127 or 253 VAC input; 40 VDC min., 5 amps at 98 or 195 VAC input.
Current: 5 amps DC max. continuous load; 10 amps rms max. continuous secondary load.
Ripple: 2.5 VAC rms max. at 5 amps DC load.
Size: 8" h. × 6 1/4" w. × 12 1/2" l.

Complete specifications and pricing on request.

PRICES LISTED ARE FOR GUIDANCE ONLY

D.C. 3/4" Dia. Permanent Magnet Motors and Planetary Gearmotors

Type SD
Basic Motor

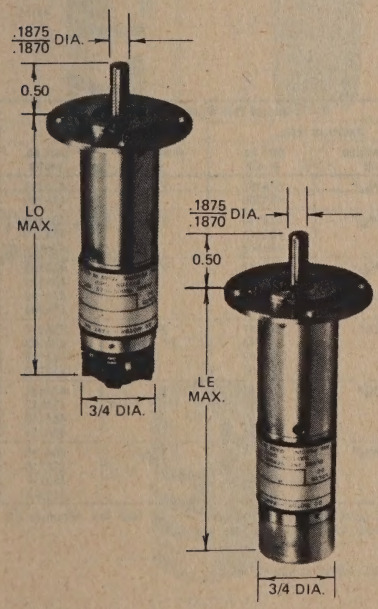


Type SD d.c. motors are designed to meet the requirements of MIL-M-8609; however, designs exceeding this specification to meet customer controlled applications are common. A variety of standard windings are available to provide a wide range of speed and torque characteristics.

Standard Part Numbers and Data

Voltage (v.d.c.)	Speed no load (rpm)	Torque max. rated (oz. in.)	Torque nominal stall (oz. in.)	Current max. no load (amps)	Current max. rated load (amps)	Current nominal stall (amps)	Part Number open 136A207 Armature Dash Number	Part Number enclosed 136A208 Armature Dash Number
6	14,500-17,500	0.20	1.50	.360	0.78	3.6	-17	-17
6	12,000-14,000	0.28	1.20	.290	0.78	2.2	-16	16
6	9,000-10,500	0.32	0.90	.210	0.60	1.4	-15	-15
12	13,000-15,500	0.22	1.60	.170	.38	1.50	-14	-14
12	9,500-11,000	0.37	0.80	.120	.37	0.93	-13	-13
12	8,500-10,000	0.25	0.60	.105	.26	0.70	-12	-12
27	15,500-18,500	0.17	1.80	.085	.17	1.15	-1	-1
27	13,000-16,000	0.22	1.50	.075	.17	0.85	-2	-2
27	10,000-12,500	0.31	1.20	.060	.17	0.48	-3	-3
27	9,000-10,500	0.31	0.90	.050	.14	0.30	-4	-4
27	7,000- 8,500	0.24	0.80	.045	.08	0.21	-5	-5
50	13,000-15,500	0.26	0.90	.040	.10	0.22	-7	-7
50	11,500-13,500	0.31	1.10	.035	.10	0.26	-6	-6
50	11,000-13,000	0.26	0.75	.032	.08	0.18	-8	-8
50	8,000- 9,500	0.18	0.50	.025	.05	0.08	-9	-9
50	7,000- 8,300	0.15	0.45	.022	.04	0.07	-10	-10
50	5,500- 6,500	0.11	0.35	.018	.03	0.05	-11	-11

Type SD
Planetary Gearmotors



This small size, lightweight gearmotor is comprised of a ¾" Type SD motor coupled with a precision planetary geartrain. The combination provides smooth, dependable performance and maximum output torque in the smallest possible space. It is designed to provide a military quality gearmotor of exceptionally compact size.

Standard Part Numbers and Data

Speed Reduction Ratio	Maximum Continuous Torque (oz. in.)	Torque Multiplier Ratio	LO Max.	LE Max.	Standard Part Numbers Prefix* open type	Standard Part Numbers Prefix* enclosed type
3.82:1	1.0	3.1	2 3/8"	2 13/32"	168A247	168A249
5.77:1	1.5	4.6			168A248	168A250
14.58:1	3.0	9.3	2 35/64"	2 41/64"	168A204	168A223
22.03:1	4.5	14			168A205	168A224
33.28:1	7.0	21			168A206	168A225
55.66:1	10	28	2 25/32"	2 13/16"	168A207	168A226
84.11:1	14	43			168A208	168A227
127.1:1	21	65			168A209	168A228
192:1	30	93			168A210	168A229
321:1	45	130	2 43/64"	2 53/64"	168A211	168A230
485:1	70	200			168A212	168A231
733:1	100	300			168A213	168A232
1108:1	150	450			168A214	168A233
1853:1	200	600	3 1/8"	3 5/32"	168A215	168A234
2799:1	300	900			168A216	168A235
4230:1	300	1400			168A217	168A236
6391:1	300	2100			168A218	168A237
10689:1	300	2800	3 15/64"	3 23/64"	168A219	168A238
16150:1	300	4200			168A220	168A239
24403:1	300	6400			168A221	168A240
36873:1	300	9700			168A222	168A241

Max. Cont. Torque: The values in this column are based upon geartrain strength and capability for 1000 hrs. minimum life.
Max. rated torque of motor selected x torque multiple ratio must not exceed these values.
Max. Intermitten Torque = 2 x Max. Cont. Torque.
Momentary Stall Torque = 5 x Max. Cont. Torque.
Minimum Efficiency = Torque Multiplier Ratio divided by Speed Reduction Ratio x 100.

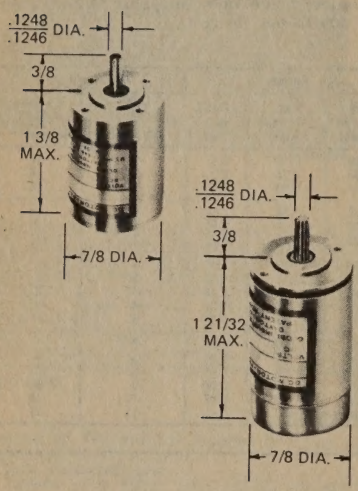
***How to Order:**

The complete motor part number consists of the standard part number prefix, shown on the standard part number and data tables, plus the armature dash number. For gearmotors, each of the basic motor windings (dash no.), in the same type basic motor part number table, must be used, with the selected speed reduction ratio.

D.C. 7/8" Dia. Permanent Magnet Motors and Planetary Gearmotors

TRW GLOBE MOTORS

Type SS
Basic Motor



The Globe Types SS d.c. motor are specifically designed as a component for precision airborne accessory equipment, but may be applied to a variety of other applications where size and weight are important considerations. Type SS motors can be made with different windings to produce a variety of characteristics. Weight 2 oz.

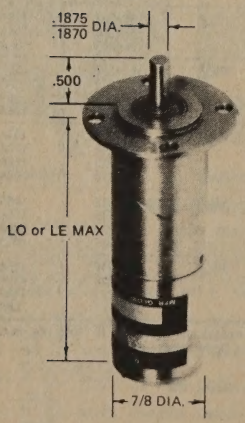
Standard Part Numbers and Data

	Part Number Prefix*	
	Tapped Hole Mount	Servo Mount
Open Housing		
Plain Shaft	41A100	41A499
*Pinion Shaft	41A552	41A677
Enclosed Housing		
Plain Shaft	41A119	41A678
*Pinion Shaft	41A676	41A679

Voltage (v.d.c.)	Speed no load (rpm)	Torque max. rated (oz. in.)	Torque nominal stall (oz. in.)	Current max. no load (amps)	Current max. rated load (amps)	Current nominal stall (amps)	Armature Dash No.*
6	11,000-13,500	0.28	1.6	.46	1.00	4.1	-17
6	8,000-11,000	0.38	1.3	.37	1.00	2.7	-16
12	13,500-17,000	0.22	2.0	.27	.54	3.2	-15
12	10,000-13,000	0.33	1.7	.21	.54	1.9	-14
27	17,000-20,000	0.17	2.9	.15	.26	2.4	-13
27	15,000-18,000	0.20	2.5	.14	.25	1.7	-12
27	12,000-15,000	0.25	2.0	.11	.24	1.15	-1
27	10,000-13,000	0.31	1.6	.10	.23	0.76	-2
27	8,000-10,500	0.45	1.3	.08	.23	0.48	-3
27	6,500- 9,000	0.45	1.0	.07	.20	0.32	-4
27	5,500- 7,500	0.36	0.82	.055	.15	0.21	-5
50	10,200-12,500	0.32	0.97	.05	.13	0.23	-7
50	8,600-11,000	0.42	1.20	.055	.13	0.26	-6
50	6,100- 7,500	0.38	0.54	.03	.09	0.12	-9

*Std. Pinion is 13 teeth 120 pitch.

Type SS
Planetary Gearmotors



Standard Part Numbers and Data

Speed Reduction Ratio	Max. Continuous Torque (oz. in.)	Torque Multiplier Ratio	Standard Part Number Prefix* enclosed type dimension LE	enclosed type part no. prefix	open type dimension LO	open type part no. prefix
3.82:1	1.0	3.1	2 35/64"	43A197	2 17/64"	43A196
5.77:1	1.5	4.6		43A200		43A199
14.58:1	3.0	9.3	2 25/32"	43A140	2 1/2"	43A100
22.03:1	4.5	14		43A141		43A101
33.28:1	7.0	21		43A142		43A102
55.66:1	10	28	2 61/64"	43A143	2 43/64"	43A103
84.11:1	14	43		43A144		43A104
127.1:1	21	65		43A145		43A105
192:1	30	93		43A146		43A106
321:1	45	130	3 1/8"	43A147	2 27/32"	43A107
485:1	70	200		43A148		43A108
733:1	100	300		43A149		43A109
1108:1	150	450		43A150		43A110
1853:1	200	600	3 5/32"	43A151	3"	43A111
2799:1	300	900		43A152		43A112
4230:1	300	1400		43A153		43A113
6391:1	300	2100		43A154		43A114
10689:1	300	2800	3 25/64"	43A155	3 11/64"	43A115
16150:1	300	4200		43A156		43A116
24403:1	300	6400		43A157		43A117
36873:1	300	9700		43A158		43A118

Max. Cont. Torque: The values in this column are based upon geartrain strength and capability for 1000 hrs. minimum life. Max. rated torque of motor selected x torque multiplier ratio must not exceed these values.
Max. Intermittent Torque = 2 x Max. Cont. Torque.
Momentary Stall Torque = 5 x Max. Cont. Torque.
Minimum Efficiency = Torque Multiplier Ratio divided by Speed Reduction Ratio x 100.

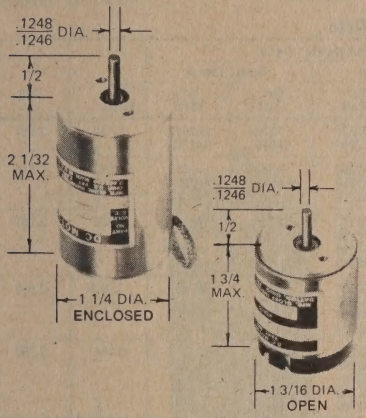
***How to Order**

The complete motor part number consists of the standard part number prefix, shown on the standard part number and data tables, plus the armature dash number. For gearmotors, each of the basic motor windings (dash no.), in the same type basic motor part number table, must be used, with the selected speed reduction ratio.

PRICES LISTED ARE FOR GUIDANCE ONLY

D.C. 1-1/4" Dia. Permanent Magnet Motors

Type MM Basic Motor



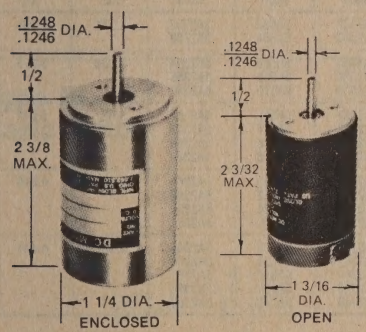
These Globe d.c. motors are specifically designed for use in airborne equipment, missiles, and commercial applications where a combination of small size, reliability, and high torque is desired.

Standard Part Numbers and Data

Voltage (v.d.c.)	Speed no load (rpm)	Torque max. rated (oz. in.)	Torque nom. stall (oz. in.)	Current max. no load (amps)	Current max. rated load (amps)	Current nom. stall (amps)	Standard Part Numbers* open type plain shaft	open type pinion**	enclosed type plain shaft	enclosed type pinion**
4	16,000-19,000	.25	4.9	1.5	2.4	21.	3A998-23	3A1524-23	3A1002-23	3A1525-23
6	18,900-22,500	.5	7.4	1.2	2.3	24.9	3A998-14	3A1524-14	3A1002-14	3A1525-14
6	15,600-18,600	.85	5.8	1.0	2.3	16.3	3A998-6	3A1524-6	3A1002-6	3A1525-6
6	12,000-14,000	.75	4.6	.80	2.0	9.9	3A998-5	3A1524-5	3A1002-5	3A1525-5
12	18,000-21,400	.5	7.4	.56	1.2	11.8	3A998-24	3A1524-24	3A1002-24	3A1525-24
12	14,500-17,000	.7	5.9	.50	1.2	7.5	3A998-3	3A1524-3	3A1002-3	3A1525-3
12	12,400-14,700	.75	4.6	.40	1.2	5.1	3A998-21	3A1524-21	3A1002-21	3A1525-21
12	11,000-13,000	1.0	4.6	.35	1.2	4.6	3A998-4	3A1524-4	3A1002-4	3A1525-4
24	19,200-22,800	.35	7.4	.30	.60	6.3	3A998-7	3A1524-7	3A1002-7	3A1525-7
24	16,000-19,000	.6	5.8	.25	.60	3.8	3A998-1	3A1524-1	3A1002-1	3A1525-1
24	11,500-14,000	1.0	4.6	.18	.60	2.1	3A998-2	3A1524-2	3A1002-2	3A1525-2
24	10,700-12,700	1.0	3.6	.17	.60	1.6	3A998-8	3A1524-8	3A1002-8	3A1525-8
24	9,600-11,400	1.0	2.9	.15	.50	1.1	3A998-22	3A1524-22	3A1002-22	3A1525-22
24	8,000-10,000	1.0	2.9	.13	.45	0.93	3A998-10	3A1524-10	3A1002-10	3A1525-10
24	6,000- 7,000	.8	2.3	.08	.30	0.55	3A998-11	3A1524-11	3A1002-11	3A1525-11
50	14,300-17,000	.7	4.8	.11	.30	1.3	3A998-25	3A1524-25	3A1002-25	3A1525-25
50	9,500-11,500	1.0	3.8	.07	.30	0.71	3A998-16	3A1524-16	3A1002-16	3A1525-16
50	8,000-10,000	1.0	3.0	.07	.20	0.50	3A998-12	3A1524-12	3A1002-12	3A1525-12
50	6,700- 8,000	.8	2.4	.05	.16	0.30	3A998-15	3A1524-15	3A1002-15	3A1525-15
50	4,600- 5,500	.8	1.9	.04	.12	0.20	3A998-13	3A1524-13	3A1002-13	3A1525-13

**Std. Pinion is 10 teeth 96 pitch.

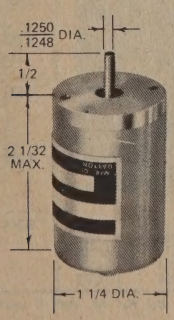
Type LL Basic Motor



Standard Part Numbers and Data

Voltage (v.d.c.)	Speed no load (rpm)	Torque max. rated (oz. in.)	Torque nom. stall (oz. in.)	Current max. no load (amps)	Current max. rated load (amps)	Current nom. stall (amps)	Part Number* open type	Part Number* enclosed type
6	15,600-18,500	1.0	8.7	1.4	2.7	22.4	3A999-23	3A1003-23
6	12,500-14,500	1.3	8.7	1.1	2.4	17.7	3A999-14	3A1003-14
6	10,000-12,200	1.6	6.9	.95	2.6	11.6	3A999-6	3A1003-6
6	7,600- 9,400	1.6	5.5	.70	2.0	7.0	3A999-5	3A1003-5
12	11,500-14,000	1.1	8.7	.52	1.7	8.4	3A999-24	3A1003-24
12	9,000-11,000	1.7	6.9	.42	1.2	5.3	3A999-3	3A1003-3
24	16,000-19,000	.75	11.0	.36	1.0	1.3	3A999-21	3A1003-21
24	14,400-17,000	.85	11.0	.32	.85	6.5	3A999-4	3A1003-4
24	12,000-14,500	1.0	8.7	.28	.80	4.5	3A999-7	3A1003-7
24	10,400-12,300	1.1	6.9	.23	.75	3.0	3A999-1	3A1003-1
24	7,400- 8,900	1.6	5.5	.17	.70	1.7	3A999-2	3A1003-2
24	6,900- 8,200	1.8	4.3	.16	.65	1.2	3A999-8	3A1003-8
24	6,200- 7,400	1.8	3.4	.14	.60	0.89	3A999-22	3A1003-22
24	5,200- 6,200	1.2	3.4	.12	.45	0.74	3A999-10	3A1003-10
50	7,600- 9,400	1.5	5.7	.09	.25	0.92	3A999-11	3A1003-11
75	14,000-17,000	1.0	8.6	.10	.29	1.6	3A999-25	3A1003-25
75	9,000-11,000	1.7	6.8	.07	.29	0.85	3A999-16	3A1003-16
75	8,000-10,000	1.8	5.4	.06	.26	0.60	3A999-12	3A1003-12
75	6,500- 8,000	1.2	4.3	.05	.20	0.37	3A999-15	3A1003-15
75	4,500- 5,300	1.0	3.4	.04	.10	0.23	3A999-13	3A1003-13

Type JM Basic Motor



Standard Part Numbers and Data

Voltage (v.d.c.)	Speed no load (rpm)	Torque max. rated (oz. in.)	Torque nom. stall (oz. in.)	Current max. no load (amps)	Current max. rated load (amps)	Current nom. stall (amps)	Part Number*
6	11,200-13,700	1.20	8.2	.70	3.50	15.4	178A100-1
6	9,100-11,100	1.50	6.5	.55	2.80	9.9	178A100-2
6	7,500- 9,200	1.80	5.2	.44	2.40	6.3	178A100-3
12	11,200-13,700	1.20	8.2	.35	1.45	8.0	178A100-4
12	9,500-11,600	1.40	6.5	.28	1.40	5.1	178A100-5
12	7,500- 9,200	1.60	5.2	.23	1.15	3.2	178A100-6
27	13,700-16,700	1.10	9.9	.18	0.80	4.5	178A100-7
27	10,500-13,000	1.60	7.9	.14	0.75	2.8	178A100-8
27	8,700-10,600	1.70	6.2	.12	0.70	1.8	178A100-9
27	7,000- 8,600	1.80	5.0	.09	0.55	1.2	178A100-10
50	10,500-13,000	1.80	7.1	.08	0.40	1.4	178A100-11
50	8,200-10,000	1.90	5.6	.06	0.35	.88	178A100-12
50	6,500- 8,000	1.80	4.5	.05	0.26	.56	178A100-13
50	5,200- 6,300	2.10	3.5	.04	0.25	.36	178A100-14
115	9,500-11,600	1.90	6.7	.03	0.18	.52	178A100-15
115	7,500- 9,200	1.90	5.3	.03	0.14	.33	178A100-16
115	6,000- 7,500	1.90	4.2	.02	0.11	.21	178A100-17
115	4,800- 5,800	1.20	3.4	.02	0.09	.14	178A100-18

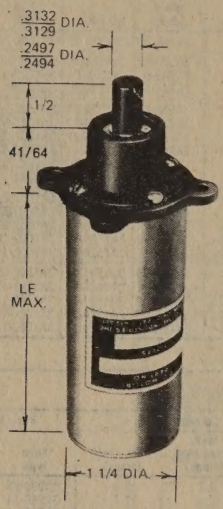
***How to Order**

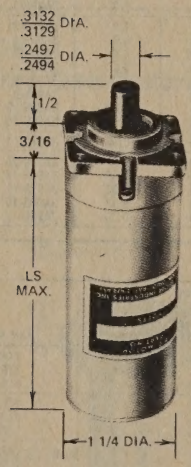
The complete motor part number consists of the standard part number prefix, shown on the standard part number and data tables, plus the armature dash number. For gearmotors, each of the basic motor windings (dash no.), in the same type basic motor part number table, must be used, with the selected speed reduction ratio.

D.C. 1-1/4" Dia. Planetary Gearmotors

TRW GLOBE MOTORS

Type MM, LL, JM Planetary Gearmotors





***How to Order**

The complete motor part number consists of the standard part number prefix, shown on the standard part number and data tables, plus the armature dash number. For gearmotors, each of the basic motor windings (dash no.), in the same type basic motor part number table, must be used, with the selected speed reduction ratio.

These Globe planetary gearmotors provide torques to 1,250 oz. in. and are designed for use in airborne equipment, missiles and other applications where reliability and miniature size are governing factors.

Type MM — Standard Part Numbers and Data

Speed Reduction Ratio	Maximum Continuous Torque (oz. in.)	Torque Multiplier Ratio	Part Number Prefix* Eared Flange 5/16" shaft	Eared Flange 1/4" shaft	Square Flange 5/16" shaft	Square Flange 1/4" shaft	Dim. LE	Dim. LS
18.78 27.94	20 29	12 17	5A537 5A539	5A2292 5A2293	5A538 5A540	5A2312 5A2313	2.437	2.891
81.37 121.00 147.70	70 105 128	41 62 75	5A541 5A543 5A545	5A2294 5A2295 5A2296	5A542 5A544 5A546	5A2314 5A2315 5A2316	2.562	3.016
352.60 524.60 639.90 780.60	247 366 445 544	145 215 262 320	5A547 5A549 5A551 5A553	5A2297 5A2298 5A2299 5A2300	5A548 5A550 5A552 5A554	5A2317 5A2318 5A2319 5A2320	2.828	3.281
1528.00 2273.00 3382.00 4126.00	850** 1250** 1250** 1250**	500 740 1100 1350	5A555 5A557 5A559 5A561	5A2301 5A2302 5A2303 5A2304	5A556 5A558 5A560 5A562	5A2321 5A2322 5A2323 5A2324	3.203	3.656
6621.00 9851.00 12016.00 17879.00 21808.00	1250** 1250** 1250** 1250** 1250**	1730 2580 3150 4700 5700	5A563 5A565 5A567 5A569 5A571	5A2305 5A2306 5A2307 5A2308 5A2309	5A564 5A566 5A568 5A570 5A572	5A2325 5A2326 5A2327 5A2328 5A2329	3.344	3.797

Type LL — Standard Part Numbers and Data

Speed Reduction Ratio	Maximum Continuous Torque (oz. in.)	Torque Multiplier Ratio	Part Number Prefix* Eared Flange 5/16" shaft	Eared Flange 1/4" shaft	Square Flange 5/16" shaft	Square Flange 1/4" shaft	Dim. LE	Dim. LS
18.78 27.94	20 29	12 17	5A501 5A503	5A2332 5A2333	5A502 5A504	5A2352 5A2353	2.781	3.234
81.37 121.00 147.70	70 105 128	41 62 75	5A505 5A507 5A509	5A2334 5A2335 5A2336	5A506 5A508 5A510	5A2354 5A2355 5A2356	2.928	3.375
352.60 524.60 639.90 780.60	247 366 445 544	145 215 262 320	5A511 5A513 5A515 5A517	5A2337 5A2338 5A2339 5A2340	5A512 5A514 5A516 5A518	5A2357 5A2358 5A2359 5A2360	3.187	3.641
1528.00 2273.00 3382.00 4126.00	850** 1250** 1250** 1250**	500 740 1100 1350	5A519 5A521 5A523 5A525	5A2341 5A2342 5A2343 5A2344	5A520 5A522 5A524 5A526	5A2361 5A2362 5A2363 5A2364	3.562	4.016
6621.00 9851.00 12016.00 17879.00 21808.00	1250** 1250** 1250** 1250** 1250**	1730 2580 3150 4700 5700	5A527 5A529 5A531 5A533 5A535	5A2345 5A2346 5A2347 5A2348 5A2349	5A528 5A530 5A532 5A534 5A536	5A2365 5A2366 5A2367 5A2368 5A2369	3.687	4.141

Type JM — Standard Part Numbers and Data

Speed Reduction Ratio	Maximum Continuous Torque (oz. in.)	Torque Multiplier Ratio	Part Number Prefix* Eared Flange 5/16" shaft	Eared Flange 1/4" shaft	Square Flange 5/16" shaft	Square Flange 1/4" shaft	Dim. LE	Dim. LS
18.78 27.94	20 29	12 17	311A201 311A203	311A237 311A239	311A202 311A204	311A238 311A240	2.437	2.891
81.37 121.00 147.70	70 105 128	41 62 75	311A205 311A207 311A209	311A241 311A243 311A245	311A206 311A208 311A210	311A242 311A244 311A246	2.562	3.016
352.60 524.60 639.90 780.60	247 366 445 544	145 215 262 320	311A211 311A213 311A215 311A217	311A247 311A249 311A251 311A253	311A212 311A214 311A216 311A218	311A248 311A250 311A252 311A254	2.828	3.281
1528.00 2273.00 3382.00 4126.00	850** 1250** 1250** 1250**	500 740 1100 1350	311A219 311A221 311A223 311A225	311A255 311A257 311A259 311A261	311A220 311A222 311A224 311A226	311A256 311A258 311A260 311A262	3.203	3.656
6621.00 9851.00 12016.00 17879.00 21808.00	1250** 1250** 1250** 1250** 1250**	1730 2580 3150 4700 5700	311A227 311A229 311A231 311A233 311A235	311A263 311A265 311A267 311A269 311A271	311A228 311A230 311A232 311A234 311A236	311A264 311A266 311A268 311A270 311A272	3.344	3.797

**1/4" dia. shaft units limited to 600 oz. in. maximum continuous duty torque. Use 5/16" dia. shaft if torque requirements exceed this value.

Max. Cont. Torque: The values in this column are based upon geartrain strength and capability for 1000 hrs. minimum life. Max. rated torque of motor selected x torque multiplier ratio must not exceed these values.

Max. Intermittent Torque = 2 x Max. Cont. Torque.

Momentary Stall Torque = 5 x Max. Cont. Torque.

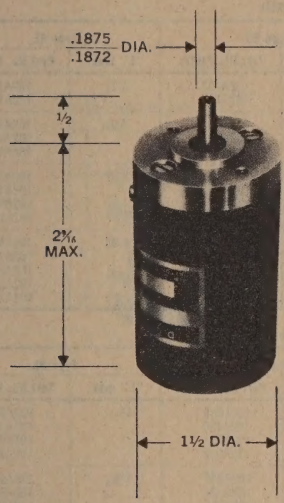
Minimum Efficiency = Torque Multiplier Ratio divided by Speed Reduction Ratio x 100.

PRICES LISTED ARE FOR GUIDANCE ONLY

D.C. 1-1/2" Dia. Permanent Magnet Motors

TRW GLOBE MOTORS

Type BD
Basic Motor

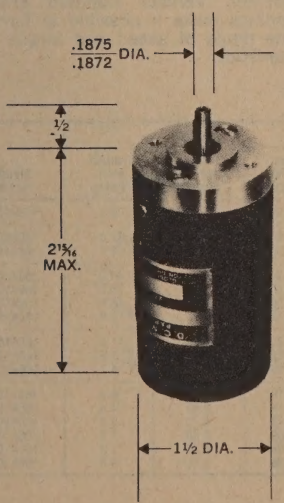


Globe Type BD d.c. motors are designed to missile and aircraft standards. Twenty-one standard armature windings provide a large number of speed and torque characteristics in a comprehensive range of voltages. Units for operations at other voltages can be made available.

Standard Part Numbers and Data

Voltage (v.d.c.)	Speed no load (rpm)	Torque max. rated (oz. in.)	Torque nom. stall (oz. in.)	Current max. no load (amps)	Current Max. rated load (amps)	Current nom. stall (amps)	Standard Part No.*
6	13,000-15,500	1.7	24	1.60	4.5	55.0	100A104-2
6	10,000-12,000	2.3	19	1.30	4.6	35.0	100A104-3
6	8,000- 9,500	3.2	15	.97	4.6	22.0	100A104-4
12	12,500-14,500	1.8	24	.76	2.3	27.0	100A104-5
12	10,000-12,000	2.4	19	.60	2.3	17.0	100A104-6
12	8,000- 9,500	3.2	15	.49	2.3	11.0	100A104-7
27	14,000-16,500	1.6	27	.39	1.0	15.0	100A104-8
27	11,000-13,000	2.0	22	.30	1.0	9.8	100A104-9
27	9,000-10,500	2.8	17	.24	1.0	6.4	100A104-10
27	7,000- 8,500	3.6	14	.20	1.0	3.9	100A104-11
50	10,500-12,500	2.1	20	.16	.5	4.6	100A104-12
50	8,000- 9,500	2.8	16	.13	.5	2.9	100A104-13
50	6,500- 8,000	3.7	13	.10	.5	1.8	100A104-14
50	5,000- 6,000	3.5	10	.08	.4	1.2	100A104-15
115	13,000-15,500	1.6	18	.09	.3	2.3	100A104-16
115	11,000-13,000	2.2	14	.07	.3	1.5	100A104-17
115	9,000-10,500	2.8	11	.06	.3	0.95	100A104-18
115	7,000- 8,500	3.6	9	.05	.3	0.61	100A104-19
115	6,000- 7,000	2.9	7	.04	.2	0.40	100A104-20
115	4,500- 5,500	2.7	6.5	.04	.2	0.26	100A104-21

Type BL
Basic Motor



Globe Type BL d.c. motors are designed to aircraft and missile quality standards. Twenty-one standard armature windings provide a large number of speed-torque characteristics at various voltages. Units for operation at other voltages can be made available.

Standard Part Numbers and Data

Voltage (v.d.c.)	Speed no load (rpm)	Torque max. rated (oz. in.)	Torque nom. stall (oz. in.)	Current max. no load (amps)	Current max. rated load (amps)	Current nom. stall (amps)	Standard Part No.*
6	10,000-12,500	3.3	37	1.50	5.2	62.0	100A108-1
6	8,500-10,500	4.0	29	1.20	5.2	45.0	100A108-2
6	6,500- 8,000	5.0	23	.93	5.1	28.0	100A108-3
12	10,000-12,500	3.3	37	.71	2.6	36.0	100A108-4
12	8,500-10,500	4.4	29	.56	2.7	22.0	100A108-5
12	6,500- 8,000	5.0	23	.44	2.8	14.0	100A108-6
27	11,500-14,000	2.9	42	.36	1.4	20.0	100A108-7
27	8,500-10,500	3.7	33	.28	1.4	12.0	100A108-8
27	7,000- 9,000	5.0	27	.22	1.4	8.0	100A108-9
27	5,500- 7,000	6.0	21	.18	1.4	5.2	100A108-10
50	8,500-10,500	3.8	31	.15	.72	5.9	100A108-11
50	6,500- 8,000	5.0	25	.12	.74	3.7	100A108-12
50	5,500- 7,000	6.5	20	.09	.73	2.4	100A108-13
50	4,500- 5,500	7.5	16	.075	.66	1.5	100A108-14
50	3,500- 4,500	6.0	12.5	.055	.43	0.94	100A108-15
115	8,500-10,500	4.2	22	.065	.34	1.9	100A108-16
115	7,000- 9,000	5.0	17	.055	.40	1.2	100A108-17
115	5,500- 7,000	5.0	14	.045	.28	0.77	100A108-18
115	4,500- 5,500	4.2	11	.035	.19	0.50	100A108-19
115	4,000- 5,000	3.5	8.8	.030	.14	0.33	100A108-20
115	3,000- 4,000	2.9	8.1	.025	.10	0.21	100A108-21

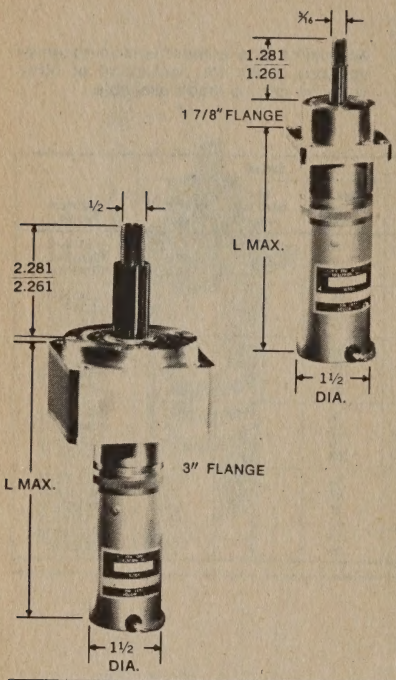
***How to Order**

The complete motor part number consists of the standard part number prefix, shown on the standard part number and data tables, plus the armature dash number. For gearmotors, each of the basic motor windings (dash no.), in the same type basic motor part number table, must be used, with the selected speed reduction ratio.

D.C. 1-7/8" & 3" Flange Planetary Gearmotors
D.C. 2-1/4" Dia. Permanent Magnet Motors

TRW GLOBE MOTORS

Type BD, BL Planetary Gearmotors



TRW/Globe's 1⅞" and 3" diameter planetary geartrains provide high torque outputs in a small package. Coupled to the Type BD or BL motor, they are ideal for business machinery, machine tools, aircraft, and missile applications.

1⅞" Flange — Standard Part Numbers and Data

Speed Reduction Ratio	Torque Multiplier	Max. Cont. Rating (lb. in.)	Type BD		Type BL	
			"L" max.	Part No. Prefix	"L" max.	Part No. Prefix*
3.81:1 5.54:1	3.5 5.1	1.1 1.6	3.34	102A152 102A153	3.72	102A170 102A171
14.5 :1 21.1 :1 30.7 :1	13 19 27	4.1 6.0 8.6	3.53	102A156 102A157 102A158	3.91	102A174 102A175 102A176
55.3 :1 80.4 :1 117.0 :1 170.0 :1	47 68 99 144	14.6 21.0 31.0 45.0	4.09	102A160 102A161 102A162 102A163	4.47	102A178 102A179 102A180 102A181
211.0 :1 306.0 :1 445.0 :1 647.0 :1 941.0 :1	171 248 360 524 762	53.0 77.0 100.0 100.0 100.0	4.28	102A189 102A190 102A191 102A192 102A193	4.66	102A199 102A200 102A201 102A202 102A203

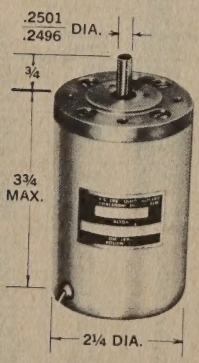
3" Flange — Standard Part Numbers and Data

Speed Reduction Ratio	Torque Multiplier	Max. Cont. Rating (lb. in.)	Type BD		Type BL	
			"L" max.	Part No. Prefix	"L" max.	Part No. Prefix*
306:1 445:1 647:1 941:1	248 360 524 762	77 112 164 238	5⅜	102A929 102A930 102A931 102A932	5¾	102A939 102A940 102A941 102A942
1166:1 1696:1 2466:1 3584:1 5211:1	896 1305 1900 2760 4000	280 407 550 550 550	5 25/64	102A933 102A934 102A935 102A936 102A937	5 59/64	102A943 102A944 102A945 102A946 102A947

NOTE: Shaft spline details available from factory. For prototype use, TRW/Globe will broach holes in customer's parts.

Max. Cont. Torque: The values in this column are based upon geartrain strength and capability for 1000 hrs. minimum life. Max. rated torque of motor selected x torque multiplier ratio must not exceed these values.
Max. Intermittent Torque = 2 x Max. Cont. Torque.
Momentary Stall Torque = 5 x Max. Cont. Torque.
Minimum Efficiency = Torque Multiplier Ratio divided by Speed Reduction Ratio x 100.

Type GRP Basic Motor



Type GRP precision permanent magnet d.c. motors provide extremely high output and efficiency for their frame size. This unit is designed to meet the requirements of MIL-M-8609; however, designs exceeding this specification to meet customer controlled applications are common. Various standard armature windings make it possible to furnish a wide range of speed and torque characteristics.

Standard Part Numbers and Data

Voltage (v.d.c.)	Speed no load (rpm)	Torque		Current			Standard Part No.*
		max. rated (oz. in.)	nom. stall (oz. in.)	max. no load (amps)	max. rated load (amps)	nominal stall (amps)	
6	4,700-5,300	8.0	40	2.00	7.0	45.0	166A100-4
12 12	6,300-7,000 4,700-5,300	8.0 12.0	54 50	1.34 1.00	6.0 5.8	47.0 28.0	166A100-5 166A100-6
27 27 27 27	8,500-9,500 6,500-7,300 5,300-5,900 4,200-4,800	10.0 13.0 16.0 16.0	99 96 89 72	0.80 0.62 0.50 0.40	3.4 3.4 3.3 2.7	40.0 25.0 16.0 10.0	166A100-7 166A100-8 166A100-9 166A100-10
50 50 50	6,300-7,100 4,900-5,500 3,900-4,400	14.0 14.5 15.0	107 83 66	0.32 0.25 0.20	1.9 1.5 1.2	11.8 7.5 4.7	166A100-11 166A100-12 166A100-13
115 115 115 115 115 115	7,300-8,100 5,900-6,500 4,700-5,300 3,700-4,100 3,000-3,400 2,400-2,700	12.0 15.5 16.0 15.0 14.5 14.0	123 99 80 62 51 41	0.16 0.14 0.12 0.09 0.07 0.06	0.90 0.85 0.70 0.50 0.45 0.35	6.8 4.4 2.8 1.8 1.2 0.8	166A100-14 166A100-15 166A100-16 166A100-17 166A100-18 166A100-19

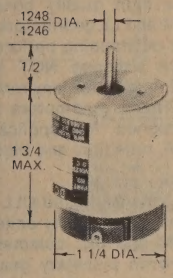
***How to Order**

The complete motor part number consists of the standard part number prefix, shown on the standard part number and data tables, plus the armature dash number. For gearmotors, each of the basic motor windings (dash no.), in the same type basic motor part number table, must be used, with the selected speed reduction ratio.

PRICES LISTED ARE FOR GUIDANCE ONLY

D.C. 1-1/4" Dia. Permanent Magnet Motors

Type CMM Basic Motor

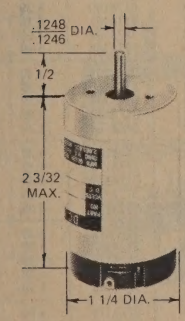


Globe Type CMM motors are designed for applications which require small size, reliability and high torque. Planetary geartrains are available in a wide range of speed reductions. Type CMM motors are commercial versions of Globe military motors and have the same performance characteristics.

Standard Part Numbers and Data

Voltage (v.d.c.)	Speed no load (rpm)	Torque max. rated (oz. in.)	Torque nom. stall (oz. in.)	Current max. no load (amps)	Current max. rated load (amps)	Current nom. stall (amps)	Standard Part Numbers* front face mount
4	16,000-19,000	.25	4.9	1.5	2.4	21	235A106-23
6	18,900-22,500	.5	7.4	1.2	2.3	24.9	235A106-14
6	15,600-18,600	.85	5.8	1.0	2.3	16.3	235A106-6
6	12,000-14,000	.75	4.6	.80	2.0	9.9	235A106-5
12	18,000-21,400	.50	7.4	.56	1.2	11.8	235A106-24
12	14,500-17,000	.70	5.9	.50	1.2	7.5	235A106-3
12	12,400-14,700	.75	4.6	.40	1.2	5.1	235A106-21
12	11,000-13,000	1.0	4.6	.35	1.2	4.6	235A106-4
24	19,200-22,800	.35	7.4	.30	.60	6.3	235A106-7
24	16,000-19,000	.60	5.8	.25	.60	3.8	235A106-1
24	11,500-14,000	1.0	4.6	.18	.60	2.1	235A106-2
24	10,700-12,700	1.0	3.6	.17	.60	1.6	235A106-8
24	9,600-11,400	1.0	2.9	.15	.50	1.1	235A106-22
24	8,000-10,000	1.0	2.9	.13	.45	0.93	235A106-10
24	6,000- 7,000	.8	2.3	.08	.30	0.55	235A106-11
50	14,300-17,000	.7	4.8	.11	.30	1.3	235A106-25
50	9,500-11,500	1.0	3.8	.07	.30	0.71	235A106-16
50	8,000-10,000	1.0	3.0	.07	.20	0.50	235A106-12
50	6,700- 8,000	.8	2.4	.05	.16	0.30	235A106-15
50	4,600- 5,500	.8	1.9	.04	.12	0.20	235A106-13

Type CLL Basic Motor



Globe Type CLL motors are designed for applications which require small size, reliability and high torque. Planetary geartrains are available in a wide range of speed reductions. Type CLL motors are commercial versions of Globe military motors and have the same performance characteristics.

Standard Part Numbers and Data

Voltage (v.d.c.)	Speed no load (rpm)	Torque max. rated (oz. in.)	Torque nom. stall (oz. in.)	Current max. no load (amps)	Current max. rated load (amps)	Current nom. stall (amps)	Standard Part No.*
6	15,600-18,500	1.0	8.7	1.4	2.7	22.4	313A102-23
6	12,500-14,500	1.3	8.7	1.1	2.4	17.7	313A102-6
6	10,000-12,200	1.6	6.9	.95	2.6	11.6	313A102-6
6	7,600- 9,400	1.6	5.5	.70	2.0	7.0	313A102-5
12	11,500-14,000	1.1	8.7	.52	1.7	8.4	313A102-24
12	9,000-11,000	1.7	6.9	.42	1.2	5.3	313A102-3
24	16,000-19,000	.75	11.0	.36	1.0	7.3	313A102-21
24	14,400-17,000	.85	11.0	.32	.85	6.5	313A102-4
24	12,000-14,500	1.0	8.7	.28	.80	4.5	313A102-7
24	10,400-12,300	1.1	6.9	.23	.75	3.0	313A102-1
24	7,400- 8,900	1.6	5.5	.17	.70	1.7	313A102-2
24	6,900- 8,200	1.8	4.3	.16	.65	1.2	313A102-8
24	6,200- 7,400	1.8	3.4	.14	.60	0.89	313A102-22
24	5,200- 6,200	1.2	3.4	.12	.45	0.74	313A102-10
50	7,600- 9,400	1.5	5.7	.09	.25	0.92	313A102-11
75	14,000-17,000	1.0	8.6	.10	.29	1.6	313A102-25
75	9,000-11,000	1.7	6.8	.07	.29	0.85	313A102-16
75	8,000-10,000	1.8	5.4	.06	.26	0.60	313A102-12
75	6,500- 8,000	1.2	4.3	.05	.20	0.37	313A102-15
75	4,500- 5,300	1.0	3.4	.04	.10	0.23	313A102-13

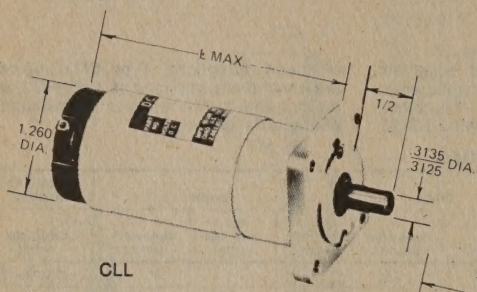
***How to Order**

The complete motor part number consists of the standard part number prefix, shown on the standard part number and data tables, plus the armature dash number. For gearmotors, each of the basic motor windings (dash no.), in the same type basic motor part number table, must be used, with the selected speed reduction ratio.

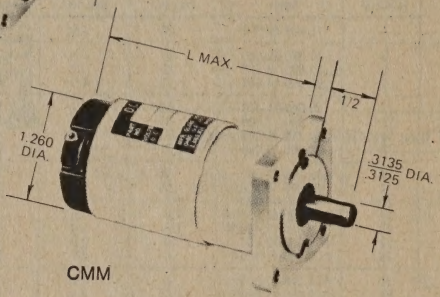
D.C. 1-1/4" Dia. Permanent Magnet Planetary Gearmotors

TRW GLOBE MOTORS

Type CMM, CLL
Planetary Gearmotors



CLL



CMM

Type CLL and CMM gearmotors are of the same high quality construction as Globe MM and LL gearmotors and provide the same outstanding performance characteristics although NOT designed to meet MIL-specs for environmental protection. These gearmotors are specifically designed for application where small size, reliability and high torque are desired.

Globe Type CMM and CLL gearmotors are rugged, high-quality units combining Type CMM and CLL commercial motors with a proven planetary geartrain offering 83 standard speed reduction ratios from 4:1 to 46,656:1 with maximum continuous torque from 3.0 to 1250 oz. in. Since the geartrain is of modular design, literally thousands of special ratios can be furnished.

Standard Part Numbers and Data

Speed Reduction Ratio	Torque Multiplier	Max. Cont. Torque (oz. in.)	Type CMM Gearmotor		Type CLL Gearmotor		Speed Reduction Ratio	Torque Multiplier	Max. Cont. Torque (oz. in.)	Type CMM Gearmotor		Type CLL Gearmotor	
			dim. "L"	Part. No.*	dim. "L"	Part No.*				dim. "L"	Part No.*	dim. "L"	Part No.*
4:1	3.0	5.1	2.86	317A102	3.22	319A100	2,500:1	815	1250	3.81	317A144	4.16	319A142
5:1	3.8	6.5	2.86	317A103	3.22	319A101	2,880:1	940	1250	3.81	317A145	4.16	319A143
6:1	4.5	7.7	2.86	317A104	3.22	319A102	3,000:1	980	1250	3.81	317A146	4.16	319A144
16:1	10	17	3.11	317A105	3.45	319A103	3,125:1	1020	1250	3.81	317A147	4.16	319A145
20:1	13	22	3.11	317A106	3.45	319A104	3,456:1	1130	1250	3.81	317A148	4.16	319A146
24:1	15	26	3.11	317A107	3.45	319A105	3,600:1	1170	1250	3.81	317A149	4.16	319A147
25:1	16	27	3.11	317A108	3.45	319A106	3,750:1	1220	1250	3.81	317A150	4.16	319A148
30:1	19	32	3.11	317A109	3.45	319A107	4,096:1	1070	1250	4.03	317A151	4.39	319A149
36:1	23	39	3.11	317A110	3.45	319A108	4,320:1	1410	1250	3.81	317A152	4.16	319A150
64:1	33	56	3.34	317A111	3.69	319A109	4,500:1	1470	1250	3.81	317A153	4.16	319A151
80:1	41	70	3.34	317A112	3.69	319A110	5,120:1	1340	1250	4.03	317A154	4.39	319A152
96:1	49	83	3.34	317A113	3.69	319A111	5,184:1	1690	1250	3.81	317A155	4.16	319A153
100:1	51	87	3.34	317A114	3.69	319A112	5,400:1	1760	1250	3.81	317A156	4.16	319A154
120:1	61	104	3.34	317A115	3.69	319A113	6,144:1	1610	1250	4.03	317A157	4.39	319A155
125:1	64	109	3.34	317A116	3.69	319A114	6,400:1	1680	1250	4.03	317A158	4.39	319A156
144:1	74	126	3.34	317A117	3.69	319A115	6,480:1	2110	1250	3.81	317A159	4.16	319A157
150:1	77	131	3.34	317A118	3.69	319A116	7,680:1	2010	1250	4.03	317A160	4.39	319A158
180:1	92	156	3.34	317A119	3.69	319A117	7,776:1	2530	1250	3.81	317A161	4.16	319A159
216:1	110	187	3.34	317A120	3.69	319A118	8,000:1	2100	1250	4.03	317A162	4.39	319A160
256:1	105	179	3.58	317A121	3.92	319A119	9,216:1	2390	1250	4.03	317A163	4.39	319A161
320:1	130	221	3.58	317A122	3.92	319A120	9,600:1	2520	1250	4.03	317A164	4.39	319A162
384:1	157	167	3.58	317A123	3.92	319A121	10,000:1	2620	1250	4.03	317A165	4.39	319A163
400:1	164	279	3.58	317A124	3.92	319A122	11,520:1	3010	1250	4.03	317A166	4.39	319A164
480:1	197	335	3.58	317A125	3.92	319A123	12,000:1	3140	1250	4.03	317A167	4.39	319A165
500:1	205	349	3.58	317A126	3.92	319A124	12,500:1	3280	1250	4.03	317A168	4.39	319A166
576:1	235	401	3.58	317A127	3.92	319A125	13,824:1	3620	1250	4.03	317A169	4.39	319A167
600:1	246	418	3.58	317A128	3.92	319A126	14,400:1	3780	1250	4.03	317A170	4.39	319A168
625:1	256	435	3.58	317A129	3.92	319A127	15,000:1	3940	1250	4.03	317A171	4.39	319A169
720:1	295	502	3.58	317A130	3.92	319A128	15,625:1	4100	1250	4.03	317A172	4.39	319A170
750:1	306	520	3.58	317A131	3.92	319A129	17,280:1	4520	1250	4.03	317A173	4.39	319A171
864:1	352	598	3.58	317A132	3.92	319A130	18,000:1	4710	1250	4.03	317A174	4.39	319A172
900:1	370	629	3.58	317A133	3.92	319A131	18,750:1	4910	1250	4.03	317A175	4.39	319A173
1,024:1	334	568	3.81	317A134	4.16	319A132	20,736:1	5430	1250	4.03	317A176	4.39	319A174
1,080:1	442	757	3.58	317A135	3.92	319A133	21,600:1	5660	1250	4.03	317A177	4.39	319A175
1,280:1	416	707	3.81	317A136	4.16	319A134	22,500:1	4900	1250	4.03	317A178	4.39	319A176
1,296:1	530	901	3.58	317A137	3.92	319A135	25,920:1	6790	1250	4.03	317A179	4.39	319A177
1,536:1	500	850	3.81	317A138	4.16	319A136	27,000:1	7070	1250	4.03	317A180	4.39	319A178
1,600:1	522	887	3.81	317A139	4.16	319A137	31,104:1	8150	1250	4.03	317A181	4.39	319A179
1,920:1	625	1063	3.81	317A140	4.16	319A138	32,400:1	8500	1250	4.03	317A182	4.39	319A180
2,000:1	652	1108	3.81	317A141	4.16	319A139	38,880:1	10200	1250	4.03	317A183	4.39	319A181
2,304:1	750	1250	3.81	317A142	4.16	319A140	46,656:1	12200	1250	4.03	317A184	4.39	319A182
2,400:1	780	1250	3.81	317A143	4.16	319A141							

***How to Order**

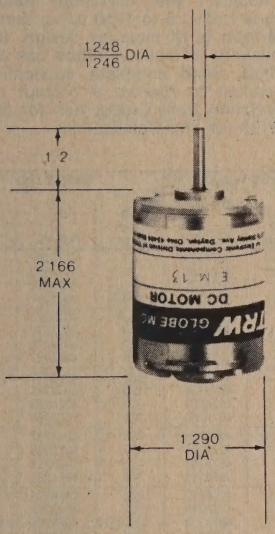
The complete motor part number consists of the standard part number prefix, shown on the standard part number and data tables, plus the armature dash number. For gearmotors, each of the basic motor windings (dash no.), in the same type basic motor part number table, must be used, with the selected speed reduction ratio.

PRICES LISTED ARE FOR GUIDANCE ONLY

D.C. Econo-Mite Permanent Magnet Motors

TRW GLOBE MOTORS

Type EM-13
Basic 1¼" Dia. Motor

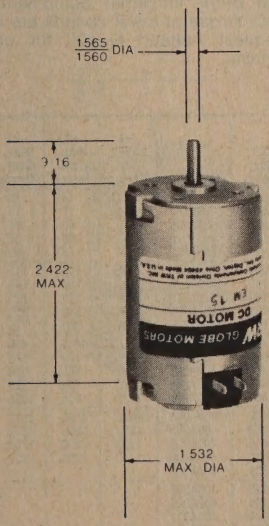


The EM-13 and EM-15 motors are the first of a new line designed for high-volume, low-cost production. Typical applications include tape decks, business machines, computer peripherals, audio-visual, automotive, medical, recreational, and other industrial equipment.

Standard Part Numbers and Data

Voltage (v.d.c.)	Speed ±800 No Load (rpm)	Current No Load (max. amps)	Rated Torque (oz. in.)	Current at Rated Torque (max. amps)	Inertia X 10-4 (oz. in. sec.²)	Temp.* Rise (°C/watt)	Torque Constant (oz. in./ amp)	Resistance ±15% (ohms)	Part Number**
6	4200	0.3	0.5	0.6	1.5	15	1.3	5.4	405A100-3
12	4800	0.15	0.5	0.3	1.5	15	2.6	15.3	405A100-1
24	4800	0.08	0.5	0.2	1.5	15	5.2	51.9	405A100-2
6	4500	0.32	1.0	1.4	1.5	15	1.3	1.6	405A119-3
12	5200	0.175	1.50	0.7	1.5	15	2.6	5.7	405A119-1
24	5400	0.10	1.7	0.45	1.5	15	5.2	18.9	405A119-2
6	5100	0.35	2.1	2.4	2.2	11	1.2	1.8	405A219-3
12	5400	0.19	2.5	1.1	2.2	11	2.8	4.8	405A219-1
24	5600	0.10	3.0	0.7	2.2	11	5.7	16.8	405A219-2

Type EM-15
Basic 1½" Dia. Motor



Designed for economy in commercial and industrial applications, the EM-15 motor is available with the following special order options: geartrain, EMI filters, integral tachometer generators, stud mounting, and rear terminals.

Standard Part Numbers and Data

Sleeve Bearings

Voltage (v.d.c.)	Speed ±800 No Load (rpm)	Current No Load (max. amps)	Rated Torque (oz. in.)	Current at Rated Torque (max. amps)	Inertia X 10-4 (oz. in. sec.²)	Temp.* Rise (°C/Watt)	Torque Constant (oz. in./ amp)	Resistance ±15% (ohms)	Part Number**
6	4800	0.5	3.0	3.0	4.75	8.5	1.4	0.7	403A114-1
12	5200	0.25	3.5	1.6	4.75	8.5	2.7	2.3	403A114-2
24	5500	0.165	4.0	1.0	4.75	8.5	5.5	8.3	403A114-3
6	5500	0.6	4.0	4.0	6.0	7.0	1.3	0.45	403A116-1
12	5500	0.3	4.5	2.2	6.0	7.0	2.7	1.7	403A116-2
24	5500	0.15	5.0	1.2	6.0	7.0	5.5	6.2	403A116-3

Ball Bearings

Voltage (v.d.c.)	Speed ±800 No Load (rpm)	Current No Load (max. amps)	Rated Torque (oz. in.)	Current at Rated Torque (max. amps)	Inertia X 10-4 (oz. in. sec.²)	Temp.* Rise (°C/Watt)	Torque Constant (oz. in./ amp)	Resistance ±15% (ohms)	Part Number**
6	5000	0.25	3.5	3.2	4.75	8.5	1.4	0.7	403A115-1
12	5300	0.125	4.0	1.8	4.75	8.5	2.7	2.6	403A115-2
24	5500	0.06	4.5	1.0	4.75	8.5	5.5	8.3	403A115-3
6	5600	0.4	4.5	4.0	6.0	7.0	1.3	0.45	403A117-1
12	5600	0.2	5.0	2.3	6.0	7.0	2.7	1.7	403A117-2
24	5700	0.1	5.5	1.3	6.0	7.0	5.5	6.2	403A117-3

*Winding temp rise measured when mounted to 8" x 8" x ¼" Alum. plate. Multiply by 1.4 when mounted to a heat insulator.

****How to Order**

Units shown above are standard and may be ordered by part number. Consult TRW Globe for variations in mechanical or electrical performance to suit specific applications. Ask for Bulletin E-2109 and E-2404 for complete details.

D.C. Econo-Mite Permanent Magnet Motors

TRW GLOBE MOTORS

Type EM-13 1¼" Dia. Planetary Gearmotors

Type EM-13 gearmotors are of the same high quality construction as Globe military gearmotors and provide the same outstanding performance characteristics although **not** designed to meet MIL-Specs for environmental protection. These gearmotors are specifically designed for application where small size reliability and high torque are desired.

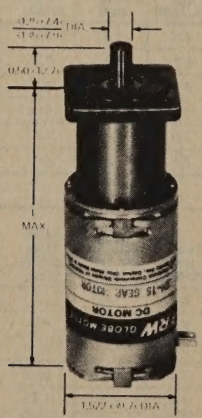
Globe EM-13 gearmotors are rugged, high-quality units combining EM-13 commercial motors (see Bulletin E-2109) with a proven planetary geartrain offering 30 standard speed reduction ratios from 4:1 to 46,656:1 with maximum continuous torque from 1.5 to 1250 oz. in. Since the geartrain is of modular design, literally thousands of special ratios can be furnished. Send complete application information to receive a prompt recommendation from Globe. Ask for Bulletin E-2129 for complete details.

Standard Part Numbers and Data

Speed Reduction	Torque Multiplier	405A100 Type (Basic Motor) Max. Cont. Torque (oz. in.)	Part No.*	"L" Max. (Applies to both)	405A119 Type Max. Cont. Torque	Part No.*	405A219 Type Max. Cont. Torque	Part No.*	"L" Max.
4:1	3	1.5	407A100	3.158	5.1	407A184	9	407A267	3.476
5:1	3.8	1.9	407A101	3.158	6.5	407A185	11.5	407A268	3.476
16:1	10	5	407A103	3.347	17	407A187	30	407A270	3.715
20:1	13	7	407A104	3.347	22	407A188	40	407A271	3.715
25:1	16	8	407A106	3.347	27	407A190	48	407A273	3.715
36:1	23	12	407A108	3.347	39	407A192	69	407A275	3.715
64:1	33	14	407A109	3.630	56	407A193	100	407A276	3.948
80:1	41	21	407A110	3.630	70	407A194	125	407A277	3.948
100:1	51	26	407A112	3.630	87	407A196	155	407A279	3.948
125:1	64	32	407A114	3.630	109	407A198	195	407A281	3.948
180:1	92	46	407A117	3.630	156	407A201	275	407A284	3.948
256:1	105	53	407A119	3.863	179	407A203	315	407A286	4.181
320:1	130	65	407A120	3.863	221	407A204	390	407A287	4.181
400:1	164	85	407A122	3.863	279	407A206	495	407A289	4.181
500:1	205	105	407A124	3.863	349	407A208	620	407A291	4.181
625:1	256	130	407A127	3.863	435	407A211	770	407A294	4.181
750:1	306	155	407A129	3.863	520	407A213	920	407A296	4.181
1024:1	334	170	407A132	4.096	568	407A216	1000	407A299	4.414
1280:1	416	210	407A134	4.096	707	407A218	1250	407A301	4.414
1600:1	522	260	407A137	4.096	887	407A221	1250	407A304	4.414
2000:1	652	330	407A139	4.096	1108	407A223	1250	407A306	4.414
2500:1	815	410	407A142	4.096	1250	407A226	1250	407A309	4.414
3125:1	1020	500	407A145	4.096	1250	407A229	1250	407A312	4.414
4096:1	1070	540	407A149	4.329	1250	407A233	1250	407A316	4.747
5120:1	1340	670	407A152	4.329	1250	407A236			
6400:1	1680	840	407A156	4.329	1250	407A240			
8000:1	2100	1050	407A160	4.329	1250	407A244			
10000:1	2620	1250	407A163	4.329					
12500:1	3280	1250	407A166	4.329					
15625:1	4100	1250	407A170	4.329					

*Add dash number to part number for voltage: −1 = 12V −2 = 24V −3 = 6V

Type EM-15 1½" Dia. Planetary Gearmotors



Type EM-15 d.c. gearmotors are designed for high-volume, low-cost production. Typical applications include business machines, computer peripherals, audio-visual, automotive, medical recreational, and other industrial equipment where high torque at lower speeds are needed. Request Bulletin E-2429 for complete details.

Standard Part Numbers and Data

Ratio	Torque Multiplier	Part No.*	−1 Max. Cont. Torque (oz. in.)	−2 Max. Cont. Torque	−3 Max. Cont. Torque	"L" Max. Inches	Part No.*	−1 Max. Cont. Torque	−2 Max. Cont. Torque	−3 Max. Cont. Torque	"L" Max. Inches
4	3	409A100	9	10.5	12	3.697	409A266	12	14	15	3.976
5	3.8	409A101	11.5	13.5	15	3.697	409A267	15	17	19	3.976
16	10	409A103	30	35	40	3.936	409A269	40	45	50	4.215
20	13	409A104	40	46	52	3.936	409A270	52	60	65	4.215
25	16	409A106	48	56	64	3.936	409A272	64	72	80	4.215
36	23	409A108	69	81	92	3.936	409A274	92	105	115	4.215
64	33	409A109	100	116	132	4.169	409A275	132	150	165	4.448
80	41	409A110	125	144	164	4.169	409A276	164	185	205	4.448
100	51	409A112	155	180	204	4.169	409A278	240	230	255	4.448
125	64	409A114	195	225	256	4.169	409A280	256	290	320	4.448
180	92	409A117	275	325	368	4.169	409A283	368	415	460	4.448
256	105	409A119	315	370	420	4.402	409A285	420	475	525	4.681
320	130	409A120	390	455	520	4.402	409A286	520	585	650	4.681
400	164	409A122	495	575	650	4.402	409A288	650	740	820	4.681
500	205	409A124	620	720	820	4.402	409A290	820	925	1025	4.681
625	256	409A127	770	900	1020	4.402	409A293	1020	1150	1250	4.681
750	306	409A129	920	1070	1250	4.402	409A295	1250	1250	1250	4.681
1024	334	409A132	1000	1170	1250	4.635	409A298	1250	1250	1250	4.914
1280	416	409A134	1250	1250	1250	4.635	409A300	1250	1250	1250	4.914
1600	522	409A137	1250	1250	1250	4.635	409A303				4.914
2000	652	409A139	1250	1250	1250	4.635	409A305				4.914
2500	815	409A142	1250	1250	1250	4.635	409A308				4.914
3125	1020	409A145				4.635	409A311				4.914
4096	1070	409A149				4.868	409A315				5.147
5120	1340	409A152				4.868	409A318				5.147
6400	1680	409A156				4.868	409A322				5.147
8000	2100	409A160				4.868	409A326				5.147
10000	2620	409A163	EM13 Recommended			4.868	409A329	EM13 Recommended			5.147
12500	3280	409A166	below			4.868	409A332	below			5.147
15625	4100	409A170	double lines			4.868	409A336	double lines			5.147

*Add dash number to part number for voltage: −1 = 6V −2 = 12V −3 = 24V

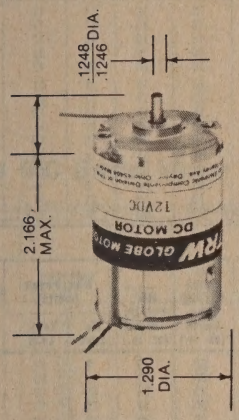
Special order options

- Integral tachometer generators.
- Stud mounting.
- Rear terminals.
- Other ratios.
- Ball bearing motors.

PRICES LISTED ARE FOR GUIDANCE ONLY

D.C. Permanent Magnet Motor/Tachs

Type EM-13 Motor/Tachs



Type EM-13 motor/tachs consist of a permanent magnet D.C. motor and an A.C. tachometer. They are designed for high-volume, low-cost production, and for use in tape decks, business machines, computer peripherals, audio-visual, automotive, medical, recreational, and other industrial equipment.

Standard Part Numbers and Data

Sleeve Bearings

Voltage (v.d.c.)	Speed ±800 No Load (rpm)	Current No Load (max. amps)	Rated Torque (oz. in.)	Current at Rated Torque (max. amps)	Inertia x 10^{-4} (oz. in. $sec.^2$)	Temp.* Rise (°C/Watt)	Torque Constant (oz. in./amp)	Resistance ±15% (ohms)	Part Number**
6	4500	0.32	1.0	1.4	1.5	11	1.5	2.3	397A106-1
12	5000	0.175	1.5	0.7	1.5	11	3.2	8.8	397A106-2
24	5200	0.10	1.7	0.45	1.5	11	4.8	24.0	397A106-3
12	6300	0.24	1.5	1.1	1.5	11	2.3	6.6	397A106-4

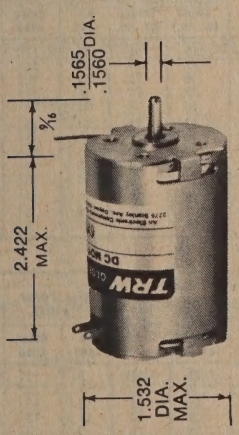
Ball Bearings

Voltage (v.d.c.)	Speed ±800 No Load (rpm)	Current No Load (max. amps)	Rated Torque (oz. in.)	Current at Rated Torque (max. amps)	Inertia x 10^{-4} (oz. in. $sec.^2$)	Temp.* Rise (°C/Watt)	Torque Constant (oz. in./amp)	Resistance ±15% (ohms)	Part Numbers**
6	4700	0.32	1.0	1.4	1.5	11	1.5	2.3	397A107-1
12	5200	0.175	1.5	0.7	1.5	11	3.2	8.8	397A107-2
24	5400	0.10	1.7	0.45	1.5	11	5.3	24.0	397A107-3
12	6500	0.24	1.5	1.1	1.5	11	2.3	6.6	397A107-4

*Winding temp. rise measured when mounted to 8″ x 8″ x ¼″ Alum. plate. Multiply by 1.4 when mounted to a heat insulator.

Special order options
- Geartrain
- EMI filters
- Stud mounting

Type EM-15 Motor/Tachs



Type EM-15 motor/tachs consist of a D.C. permanent magnet motor and an A.C. tachometer. They are designed for high-volume, low-cost production, and for use in tape decks, business machines, computer peripherals, audio-visual, automotive, medical, recreational, and other industrial equipment.

Standard Part Numbers and Data

Sleeve Bearings

Voltage (v.d.c.)	Speed ±800 No Load (rpm)	Current No Load (max. amps)	Rated Torque (oz. in.)	Current at Rated Torque (max. amps)	Inertia x 10^{-4} (oz. in. $sec.^2$)	Temp.* Rise (°C/Watt)	Torque Constant (oz. in./amp)	Resistance ±15% (ohms)	Part Number**
6	4850	0.5	3.0	3.0	4.9	8.5	1.4	1.1	397A108-1
12	5500	0.25	3.5	1.6	4.9	8.5	2.7	2.3	397A108-2
24	5700	0.125	4.0	1.0	4.9	8.5	5.5	8.3	397A108-3
24	3600	0.10	4.0	0.8	4.9	8.5	7.5	16.5	397A108-4

Ball Bearings

Voltage (v.d.c.)	Speed ±800 No Load (rpm)	Current No Load (max. amps)	Rated Torque (oz. in.)	Current at Rated Torque (max. amps)	Inertia x 10^{-4} (oz. in. $sec.^2$)	Temp.* Rise (°C/Watt)	Torque Constant (oz. in./amp)	Resistance ±15% (ohms)	Part Number**
6	5000	0.5	3.5	3.2	4.9	8.5	1.4	1.1	397A109-1
12	5600	0.25	4.0	1.8	4.9	8.5	2.7	2.7	397A109-2
24	5800	0.125	4.5	1.1	4.9	8.5	5.5	8.0	397A109-3
24	3700	0.10	4.5	0.9	4.9	8.5	7.7	16.5	397A109-4

*Winding temp. rise measured when mounted to 8″ x 8″ x ¼″ Alum. plate. Multiply by 1.4 when mounted to a heat insulator.

Special order options
- Geartrain
- EMI filters
- Stud mounting
- Rear terminal

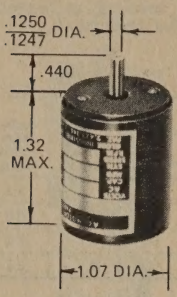
****How to Order**

Part Number. Units shown above are standard and may be ordered by part number. Consult TRW Globe for variations in mechanical or electrical performance to suit specific applications.

A.C. 1″ Dia. Hysteresis Synchronous and Induction Planetary Gearmotors

TRW GLOBE MOTORS

Type SC Basic Motor



Globe Type SC a.c. motors are available in many variations. Motors are wound a) three-phase, two or four pole or b) single-phase, two, four, or six pole. Type SC motors are designed to meet the requirements of MIL-M-7969.

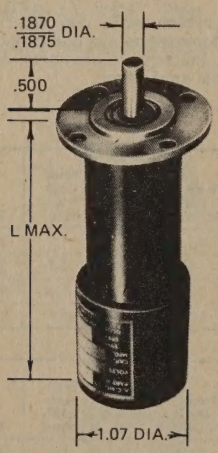
Hysteresis Synchronous — Standard Part Numbers and Data

Voltage (vac)	Freq. (Hz)	Poles	Phase	Variable Lead Color B	Variable Lead Color C	Phasing Capacitor (mfd) (wvac)	Sync. Speed (rpm)	Max. Rated Load @ Sync. Speed (oz. in.)	Min. Pull Up Torque (oz. in.)	Max. Power (watts) No Load	Max. Power (watts) Rated Load	Part. No.
27	400	2	1		Black	1.50 100	24,000	.16	.16	11	11	53A1000-2
27	400	2	3		Black	Not Req'd	24,000	.13	.13	11	11	53A1001-2
27	400	4	1		Green	1.50 100	12,000	.16	.16	12	12	53A1002-2
27	400	4	3		Green	Not Req'd	12,000	.20	.20	11	11	53A1003-2
27	400	6	1	White	Gray	1.50 100	8,000	.10	.10	12	12	53A111-2
115	400	2	1		Black	0.068 300	24,000	.16	.16	11	11	53A1005-2
115	400	2	3		Black	Not Req'd	24,000	.13	.13	11	11	53A1006-2
115	400	4	1		Green	0.068 300	12,000	.16	.16	12	12	53A1007-2
115	400	4	3		Green	Not Req'd	12,000	.20	.20	11	11	53A1008-2
115	400	6	1	Black	Gray	0.22 300	8,000	.10	.10	15	15	53A107-2
115	60	2	1	White		2.00 200	3,600	.07	.07	8	8	53A118-2
115	60	4	1	Red		2.00 200	1,800	.07	.07	12	12	53A338-2
115	60	6	1	Black		2.50 200	1,200	.05	.04	9	9	53A117-2
200	400	2	3		Black	Not Req'd	24,000	.13	.13	11	11	53A1010-2
200	400	4	3		Green	Not Req'd	12,000	.20	.20	11	11	53A1011-2

Induction — Standard Part Numbers and Data

Voltage (vac)	Freq. (Hz)	Poles	Phase	Variable Lead Color B	Variable Lead Color C	Phasing Capacitor (mfd) (wvac)	Sync. Speed (rpm)	Max. Rated Load @ Sync. Speed (oz. in.)	Min. Pull Up Torque (oz. in.)	Max. Power (watts) No Load	Max. Power (watts) Rated Load	Part. No.
27	400	2	1		Black	1.25 100	21,000	.20	.20	9	12	53A1000-1
27	400	2	3		Black	Not Req'd	21,000	.30	.30	7	13	53A1001-1
27	400	4	1		Green	1.50 100	10,000	.25	.25	13	13	53A1002-1
27	400	4	3		Green	Not Req'd	10,000	.30	.30	11	13	53A1003-1
27	400	6	1	White	Gray	1.50 100	6,000	.20	.20	10	12	53A111-1
115	400	2	1		Black	0.100 300	21,000	.20	.20	9	12	53A1005-1
115	400	2	3		Black	Not Req'd	21,000	.30	.30	7	13	53A1006-1
115	400	4	1		Green	0.068 300	10,000	.25	.25	13	13	53A1007-1
115	400	4	3		Green	Not Req'd	10,000	.30	.30	11	13	53A1008-1
115	400	6	1	Black	Gray	0.22 300	6,000	.12	.12	14	14	53A107-1
115	60	2	1	White		2.00 200	2,500	.10	.10	8	8	53A118-1
115	60	4	1	Red		2.00 200	1,000	.05	.05	12	12	53A338-1
115	60	6	1	Black		2.50 200	500	.05	.05	11	11	53A117-1
200	400	2	3		Black	Not Req'd	21,000	.30	.30	7	13	53A1010-1
200	400	4	3		Green	Not Req'd	10,000	.30	.30	11	13	53A1011-1

Type SC Planetary Gearmotors



This extremely small size and lightweight gearmotor consists of a Globe Type SC a.c. motor and a precision planetary geartrain. The combination provides smooth, dependable performance and maximum output torque in the smallest possible space.

Type SC gearmotors are designed to meet MIL-M-7969.

Hysteresis Synchronous — Standard Part Numbers and Data

Voltage (vac)	Freq. (Hz)	Poles	Phase	Lead Color B	Lead Color C	Lead Color Var.	Phasing Capacitor (mfd) (wvac)	Sync. Speed (rpm)	Normal Rated Load @ Sync. Speed (oz. in.)	Min. Pull Up Torque (oz. in.)	Max. Power (watts) No Load	Max. Power (watts) Rated Load	Part No.*
27	400	2	1			Blk	1.25 100	24,000	.16	.16	11	11	59A1002
27	400	2	3			Blk	Not Req'd	24,000	.13	.13	11	11	59A1004
27	400	4	1			Grn	1.5 100	12,000	.16	.16	12	12	59A1006
27	400	4	3			Grn	Not Req'd	12,000	.20	.20	11	11	59A1008
115	400	2	1			Blk	0.068 300	24,000	.16	.16	11	11	59A1012
115	400	2	3			Blk	Not Req'd	24,000	.13	.13	11	11	59A1014
115	400	4	1			Grn	0.068 300	12,000	.16	.16	12	12	59A1016
115	400	4	3			Grn	Not Req'd	12,000	.20	.20	11	11	59A1018
115	400	6	1	Blk	Gry		0.22 300	8,000	.10	.10	15	15	59A109
200	400	2	3			Blk	Not Req'd	24,000	.13	.13	11	11	59A1022
200	400	4	3			Grn	Not Req'd	12,000	.20	.20	11	11	59A1024
115	60	2	1		White		2.00 200	3,600	.07	.07	8	8	59A113
115	60	6	1		Blk		2.50 200	1,200	.05	.05	9	9	59A112

Induction — Standard Part Numbers and Data

Voltage (vac)	Freq. (Hz)	Poles	Phase	Lead Color B	Lead Color C	Lead Color Var.	Phasing Capacitor (mfd) (wvac)	Min. Speed @ Rated Load (rpm)	Rated Load (oz. in.)	Min. Pull Up Torque (oz. in.)	Max. Power (watts) No Load	Max. Power (watts) Rated Load	Part No.*
27	400	2	1			Blk	1.50 100	21,000	.20	.20	9	12	59A1001
27	400	2	3			Blk	Not Req'd	21,000	.30	.30	7	13	59A1003
27	400	4	1			Grn	1.5 100	10,000	.25	.25	13	13	59A1005
27	400	4	3			Grn	Not Req'd	10,000	.30	.30	11	13	59A1007
115	400	2	1			Blk	0.10 300	21,000	.20	.20	9	12	59A1011
115	400	2	3			Blk	Not Req'd	21,000	.30	.30	7	13	59A1013
115	400	4	1			Grn	0.068 300	10,000	.25	.25	13	13	59A1015
115	400	4	3			Grn	Not Req'd	10,000	.30	.30	11	13	59A1017
115	400	6	1	Blk	Gry		0.22 300	6,000	.12	.12	14	14	59A110
200	400	2	3			Blk	Not Req'd	21,000	.30	.30	7	13	59A1021
200	400	4	3			Grn	Not Req'd	10,000	.30	.30	11	13	59A1023

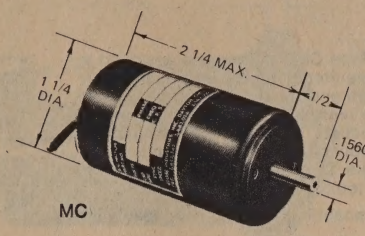
***How to Order**

To specify gearmotors, select the standard part number prefix from the standard part number and data table, plus the speed reduction ratios from the Type SS Planetary Gearmotor chart. Request Bulletin B-1732 for complete details.

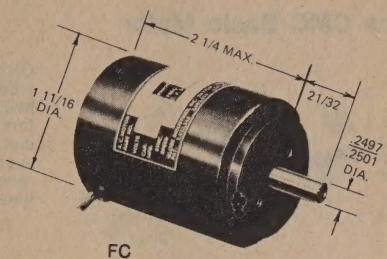
PRICES LISTED ARE FOR GUIDANCE ONLY

A.C. 1-1/4″ & 1-11/16″ Dia. Hysteresis Synchronous and Induction Motors

TRW GLOBE MOTORS



MC



FC

Type MC Basic Motor

Type MC motors are designed to meet the requirements of MIL-M-7969.

Hysteresis Synchronous — Standard Part Numbers and Data

Voltage	Frequency (Hz)	Poles	Phase	Variable Lead Color	Phasing Capacitor (mfd)	Phasing Capacitor (w.v.a.c.)	Sync Speed (rpm)	Max. Rated Load @ Sync Speed (oz. in.)	Min. Pull Up Torque (oz. in.)	Max. Power (watts) No Load	Max. Power (watts) Normal Rated Load	Part No. Tapped Hole Mount
115	60	2	1	White	1.00	200	3,600	.70	.50	12	12	18A108
115	60	4	1	Black	1.00	200	1,800	.65	.50	12	12	18A107
115	60	6	1	Yellow	1.00	200	1,200	.50	.40	12	12	18A437
115	400	2	1	Black	0.18	350	24,000	.80	.55	23	33	18A1003-2
115	400	2	3	Black	Not Required		24,000	.80	.80	20	30	18A1004-2
115	400	4	1	Green	0.082	500	12,000	.65	.45	17	20	18A1005-2
115	400	4	3	Green	Not Required		12,000	.85	.85	16	21	18A1006-2
115	400	6	1	Gray	0.15	400	8,000	.45	.25	16	18	18A250
200	400	2	3	Black	Not Required		24,000	.80	.80	20	30	18A1008-2
200	400	4	3	Green	Not Required		12,000	.75	.75	14	18	18A1009-2

Induction — Standard Part Numbers and Data

Voltage	Frequency (Hz)	Poles	Phase	Variable Lead Color	Phasing Capacitor (mfd)	Phasing Capacitor (w.v.a.c.)	Min. Speed @ Rated Load (rpm)	Rated Load (oz. in.)	Min. Pull Up Torque (oz. in.)	Max. Power (watts) No Load	Max. Power (watts) Rated Load	Part No. Tapped Hole Mount
115	400	2	1	Black	0.18	350	21,000	1.0	.8	16	32	18A1003-1
115	400	2	3	Black	Not Required		22,000	1.5	1.5	16	40	18A1004-1
115	400	4	1	Green	0.082	500	10,000	1.0	1.0	17	28	18A1005-1
115	400	4	3	Green	Not Required		10,500	1.5	1.5	14	28	18A1006-1
200	400	2	3	Black	Not Required		22,000	1.5	1.5	16	40	18A1008-1
200	400	4	3	Green	Not Required		10,500	1.5	1.5	14	28	18A1009-1

Type FC Basic Motor

Type FC motors are available with a wide variety of performance characteristics and are designed to meet the characteristics of MIL-M-7969.

Hysteresis Synchronous — Standard Part Numbers and Data

Voltage	Frequency (Hz)	Poles	Phase	Variable Lead Color B	Variable Lead Color C	Phasing Capacitor (mfd)	Phasing Capacitor (w.v.a.c.)	Sync Speed (rpm)	Max. Rated Load @ Sync Speed (oz. in.)	Min. Pull Up Torque (oz. in.)	Max. Power (watts) No Load	Max. Power (watts) Rated Load	Part No. Tapped Hole Mount
115	60	2	1	White	Yellow	3.0	200	3,600	1.0	1.0	20	20	75A121-2
115	60	4	1	White	Green	2.0	200	1,800	1.0	1.0	11	12	75A120-2
115	60	6	1	White	Gray	1.5	200	1,200	0.8	0.8	20	20	75A119-2
115	400	2	1		Black	0.22	400	24,000	1.0	1.0	28	40	75A1003-2
115	400	2	3		Black	Not Required		24,000	1.0	1.0	23	37	75A1004-2
115	400	4	1		Green	0.12	500	12,000	1.0	1.0	19	24	75A1005-2
115	400	4	3		Green	Not Required		12,000	1.2	1.2	21	26	75A1006-2
115	400	6	1	Black	Gray	1.3	200	8,000	0.8	0.8	35	45	75A107-2
200	400	2	3		Black	Not Required		24,000	1.0	1.0	24	38	75A1008-2
200	400	4	3		Green	Not Required		12,000	1.2	1.2	21	28	75A1009-2

Induction — Standard Part Numbers and Data

Voltage	Frequency (Hz)	Poles	Phase	Variable Lead Color B	Variable Lead Color C	Phasing Capacitor (mfd)	Phasing Capacitor (w.v.a.c.)	Min. Speed @ Rated Load (rpm)	Rated Load (oz. in.)	Min. Pull Up Torque (oz. in.)	Max. Power (watts) No Load	Max. Power (watts) Rated Load	Part No. Tapped Hole Mount
115	60	2	1	White	Yellow	3.0	200	3,000	1.4	1.4	18	20	75A121-1
115	60	4	1	White	Green	2.0	200	1,300	1.0	1.0	11	12	75A120-1
115	60	6	1	White	Gray	1.5	200	600	1.0	1.0	15	17	75A119-1
115	400	2	1		Black	0.22	400	21,500	1.5	0.8	19	50	75A1003-1
115	400	2	3		Black	Not Required		22,500	2.5	2.5	10	65	75A1004-1
115	400	4	1		Green	0.12	500	10,000	1.5	1.5	15	31	75A1005-1
115	400	4	3		Green	Not Required		11,000	2.5	2.5	12	40	75A1006-1
200	400	2	3		Black	Not Required		22,500	2.5	2.5	10	65	75A1008-1
200	400	4	3		Green	Not Required		11,000	2.5	2.5	12	40	75A1009-1

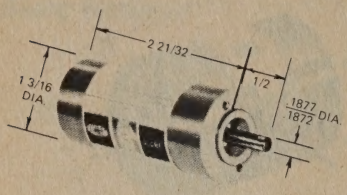
***How to Order**

The complete motor part number consists of the standard part number shown for gearmotors. See the following pages.

A.C. 1-3/16" & 1-1/4" Dia. Hysteresis Synchronous and Induction Planetary Gearmotors

TRW GLOBE MOTORS

Type CMC Basic Motor



Globe Type CMC motors are designed to meet requirements for extremely compact high-performance synchronous motors in high-quality industrial/commercial products. They are ideally suited to such applications as dictating machines, recorders, business machines, industrial timers, tools, and controls.

Thermosetting plastic encapsulation provides protection against shock and vibration and is impermeable to dirt and moisture.

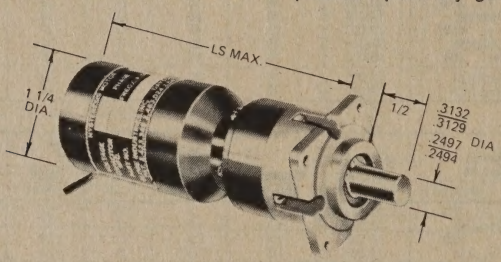
Induction versions and units for operation at other voltages and frequencies can be provided. Single phase operation requires a phasing capacitor (not furnished by Globe).

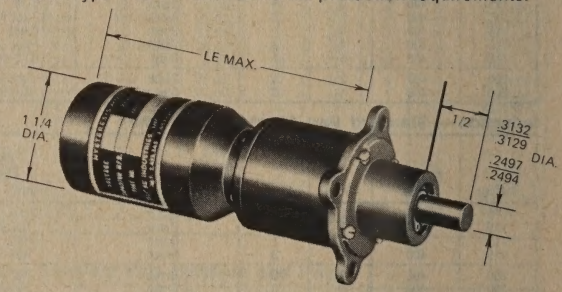
Standard Part Numbers and Data

Voltage (v.a.c.)	Frequency (Hz)	Phase	Speed (rpm)	Torque max. start (oz. in.)	Torque max sync. (oz. in.)	Current max. (amps)	Power Input max. (watts)	Capacitor (mfd)	Capacitor (w.v.d.c.)	Standard* Part No.
115	60	1	3,600	.70	.70	.12	11	1.2	400	144A110-2
115	60	1	1,800	.75	.75	.12	10	1.2	400	144A110-4

Type MC Planetary Gearmotors

These small, lightweight gearmotors consist of Globe Type MC hysteresis synchronous or induction motors and a precision planetary geartrain. Type MC planetary gearmotors are designed to meet all applicable MIL-specs including high and low temperature and complete environmental protection requirements.





Hysteresis Synchronous — Standard Part Numbers and Data

Voltage	Frequency (Hz)	Poles	Phase	Variable Lead Color	Phasing Capacitor (mfd)	Phasing Capacitor (wvac)	Motor Sync. Speed (rpm)	Normal Rated Load @ Sync. Speed (oz. in.)	Motor Min. Pull Up Torque (oz. in.)	Max. Power (watts) No Load	Max. Power (watts) Normal Rated Load	Standard Part Number Prefix* Even Ratio eared flange 1/4" shaft	Even Ratio square flange 1/4" shaft	Odd Ratio square flange 1/4" shaft	Odd Ratio square flange 5/16" shaft	Odd Ratio square flange 1/4" shaft	Odd Ratio square flange 5/16" shaft
115	60	2	1	White	1.00	200	3,600	.70	.50	12	12	33A603	33A613	33A648	33A513	33A643	33A638
115	60	4	1	Black	1.00	200	1,800	.65	.50	12	12	33A604	33A614	33A649	33A514	33A644	33A639
115	60	6	1	Yellow	1.00	200	1,200	.65	.40	12	12	33A1214	33A1215	33A1217	33A1216	33A1219	33A1218
115	400	6	1	Gray	0.15	400	8,000	.45	.25	16	18	33A1208	33A1209	33A1211	33A1210	33A1213	33A1212

Voltage	Frequency (Hz)	Poles	Phase	Variable Lead Color	Phasing Capacitor (mfd)	Phasing Capacitor (wvac)	Motor Sync. Speed (rpm)	Normal Rated Load @ Sync. Speed (oz. in.)	Motor Min. Pull Up Torque (oz. in.)	Max. Power (watts) No Load	Max. Power (watts) Normal Rated Load	Standard Part No. Prefix* All Ratios eared flange 1/4" shaft	eared flange 5/16" shaft	square flange 1/4" shaft	square flange 5/16" shaft
115	400	2	1	Black	.18	350	24,000	.80	.55	23	33	33A2008	33A2108	33A2208	33A2308
115	400	2	3	Black	Not Req'd		24,000	.80	.80	20	30	33A2010	33A2110	33A2210	33A2310
115	400	4	1	Green	0.082	500	12,000	.65	.45	17	20	33A2012	33A2112	33A2212	33A2312
115	400	4	3	Green	Not Req'd		12,000	.85	.85	16	21	33A2014	33A2114	33A2214	33A2314
200	400	2	3	Black	Not Req'd		24,000	.80	.80	20	30	33A2018	33A2118	33A2218	33A2318
200	400	4	3	Green	Not Req'd		12,000	.75	.75	14	18	33A2020	33A2120	33A2220	33A2320

Induction — Standard Part Numbers and Data

Voltage	Frequency (Hz)	Poles	Phase	Variable Lead Color	Phasing Capacitor (mfd)	Phasing Capacitor (wvac)	Motor Min. Speed @ Rated Load (rpm)	Normal Rated Load (oz. in.)	Motor Min. Pull Up Torque (oz. in.)	Max. Power (watts) No Load	Max. Power (watts) Normal Rated Load	Standard Part Number Prefix* All Ratios eared flange 1/4" shaft	eared flange 5/16" shaft	square flange 1/4" shaft	square flange 5/16" shaft
115	400	2	1	Black	.18	350	21,000	1.0	0.8	16	32	33A2007	33A2107	33A2207	33A2307
115	400	2	3	Black	Not Req'd		22,000	1.5	1.5	16	40	33A2009	33A2109	33A2209	33A2309
115	400	4	1	Green	0.082	500	10,000	1.0	1.0	17	28	33A2011	33A2111	33A2211	33A2311
115	400	4	3	Green	Not Req'd		10,500	1.5	1.5	14	28	33A2013	33A2113	33A2213	33A2313
200	400	2	3	Black	Not Req'd		22,000	1.5	1.5	16	40	33A2017	33A2117	33A2217	33A2317
200	400	4	3	Green	Not Req'd		10,500	1.5	1.5	14	28	33A2019	33A2119	33A2219	33A2319

***How to Order**

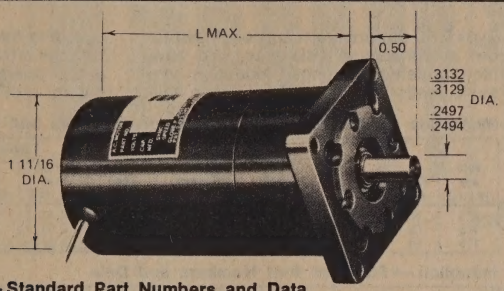
To specify gearmotors, select the standard part number prefix from the data table, plus the even speed reduction ratio or the odd speed reduction ratio from the following page.

PRICES LISTED ARE FOR GUIDANCE ONLY

A.C. 1-11/16" Dia. Hysteresis Synchronous and Induction Planetary Gearmotors

TRW GLOBE MOTORS

Type FC



Globe Type FC planetary gearmotors offer 83 even and 18 odd ratios ranging from 4:1 to 46,656:1. Special geartrains are available with ratios up to 17,000,000:1.

Hysteresis Synchronous — Standard Part Numbers and Data

Voltage	Frequency (Hz)	Poles	Phase	Lead Color B	Lead Color C	Phasing Capacitor (mfd)	Phasing Capacitor (wvac)	Motor Sync. Speed (rpm)	Normal Rated Load Sync. Speed (oz. in.)	Motor Min. Pull Up Torque (oz. in)	Max Power (watts) No Load	Max Power (watts) Normal Rated Load	Standard Part No. Prefix* Odd Ratio ¼" shaft	Standard Part No. Prefix* Odd Ratio 5/16" shaft	Standard Part No. Prefix* Even Ratio ¼" shaft
115	60	2	1	White	Yellow	3.0	200	3,600	1.0	1.0	20	20	83A510	83A116	83A138
115	60	4	1	White	Green	2.0	200	1,800	1.0	1.0	11	12	83A509	83A115	83A137
115	60	6	1	White	Gray	1.5	200	1,200	.8	.8	20	20	83A508	83A114	83A136
115	400	6	1	Black	Gray	1.3	200	8,000	.8	.8	35	45	83A113	83A108	83A122

Voltage	Frequency (Hz)	Poles	Phase	Lead Color B	Lead Color C	Lead Color D	Phasing Capacitor (mfd)	Phasing Capacitor (wvac)	Motor Sync. Speed (rpm)	Normal Rated Load Sync. Speed (oz. in.)	Motor Min. Pull Up Torque (oz. in.)	Max Power (watts) No Load	Max Power (watts) Normal Rated Load	Standard Part No. Prefix* All Ratios ¼" shaft	Standard Part No. Prefix* All Ratios 5/16" shaft
115	400	2	1		Black		0.22	400	24,000	1.0	1.0	28	40	83A1008	83A1108
115	400	2	3		Black		Not Required		24,000	1.0	1.0	23	37	83A1010	83A1110
115	400	4	1		Green		0.12	500	12,000	1.0	1.0	19	24	83A1012	83A1112
115	400	4	3		Green		Not Required		12,000	1.2	1.2	21	26	83A1014	83A1114
200	400	2	3		Black		Not Required		24,000	1.0	1.0	24	38	83A1018	83A1118
200	400	4	3		Green		Not Required		12,000	1.2	1.2	21	28	83A1020	83A1120

Induction — Standard Part Numbers and Data

Voltage	Frequency (Hz)	Poles	Phase	Lead Color B	Lead Color C	Lead Color D	Phasing Capacitor (mfd)	Phasing Capacitor (wvac)	Motor Min. Speed @ Rated Load (rpm)	Rated Load (oz. in.)	Min. Pull Up Torque (oz. in.)	Max Power (watts) No Load	Max Power (watts) Normal Rated Load	Standard Part No. Prefix* All Ratios ¼" shaft	Standard Part No. Prefix* All Ratios 5/16" shaft
115	400	2	1		Black		0.22	400	21,500	1.5	.8	19	50	83A1007	83A1107
115	400	2	3		Black		Not Required		22,500	2.5	2.5	10	65	83A1009	83A1109
115	400	4	1		Green		0.12	500	10,000	1.5	1.5	15	31	83A1011	83A1111
115	400	4	3		Green		Not Required		11,000	2.5	2.5	12	40	83A1013	83A1113
200	400	2	3		Black		Not Required		22,500	2.5	2.5	10	65	83A1017	83A1117
200	400	4	3		Green		Not Required		11,000	2.5	2.5	12	40	83A1019	83A1119

Dimensions — Even Ratios

Speed Reduction Ratio	Dimension LE	Dimension LS	Dim. "L"	Speed Reduction Ratio	Dimension LE	Dimension LS	Dim. "L"
4:1	2.87	3.28	3.190	720:1	3.28	3.68	3.594
5:1	2.87	3.28	3.190	750:1	3.28	3.68	3.594
6:1	2.87	3.28	3.190	864:1	3.28	3.68	3.594
16:1	2.87	3.28	3.190	900:1	3.28	3.68	3.594
20:1	2.87	3.28	3.190	1,024:1	3.65	4.06	3.964
24:1	2.87	3.28	3.190	1,080:1	3.28	3.68	3.594
25:1	2.87	3.28	3.190	1,280:1	3.65	4.06	3.964
30:1	2.87	3.28	3.190	1,296:1	3.28	3.68	3.594
36:1	2.87	3.28	3.190	1,536:1	3.65	4.06	3.964
64:1	3.02	3.42	3.325	1,600:1	3.65	4.06	3.964
80:1	3.02	3.42	3.325	1,920:1	3.65	4.06	3.964
96:1	3.02	3.42	3.325	2,000:1	3.65	4.06	3.964
100:1	3.02	3.42	3.325	2,304:1	3.65	4.06	3.964
120:1	3.02	3.42	3.325	2,400:1	3.65	4.06	3.964
125:1	3.02	3.42	3.325	2,500:1	3.65	4.06	3.964
144:1	3.02	3.42	3.325	2,880:1	3.65	4.06	3.964
150:1	3.02	3.42	3.325	3,000:1	3.65	4.06	3.964
180:1	3.02	3.42	3.325	3,125:1	3.65	4.06	3.964
216:1	3.02	3.42	3.325	3,456:1	3.65	4.06	3.964
256:1	3.28	3.68	3.594	3,600:1	3.65	4.06	3.964
320:1	3.28	3.68	3.594	3,750:1	3.65	4.06	3.964
384:1	3.28	3.68	3.594	4,096:1	3.78	4.18	4.099
400:1	3.28	3.68	3.594	4,320:1	3.65	4.06	3.964
480:1	3.28	3.68	3.594	4,500:1	3.65	4.06	3.964
500:1	3.28	3.68	3.594	5,120:1	3.78	4.18	4.090
576:1	3.28	3.68	3.594	5,184:1	3.65	4.06	3.964
600:1	3.28	3.68	3.594	5,400:1	3.65	4.06	3.964
625:1	3.28	3.68	3.594	6,144:1	3.78	4.18	4.099

Dimensions — Odd Ratios

Speed Reduction Ratio	Torque Multiplier	Gear Train Max. Cont. Rating (oz. in.)	Dimension LE	Dimension LS	Dim. "L"
4.33:1	3.2	5.4	2.87	3.28	3.190
5.28:1	4	6.8	2.87	3.28	3.190
18.78:1	12	20	2.87	3.28	3.190
27.94:1	17	29	2.87	3.28	3.190
81.37:1	41	70	3.02	3.42	3.325
121.1:1	62	105	3.02	3.42	3.325
147.7:1	75	128	3.02	3.42	3.325
352.6:1	145	247	3.28	3.68	3.594
524.6:1	215	366	3.28	3.68	3.594
639.9:1	262	445	3.28	3.68	3.594
780.6:1	320	544	3.28	3.68	3.594
1,528:1	500	850‡	3.66	4.06	3.964
2,273:1	740	1250‡	3.66	4.06	3.964
3,382:1	1100	1250‡	3.66	4.06	3.964
4,126:1	1350	1250‡	3.66	4.06	3.964
6,621:1	1730	1250‡	3.78	4.18	4.099
9,851:1	2580	1250‡	3.78	4.18	4.099
12,016:1	3150	1250‡	3.78	4.18	4.099
17,879:1	4700	1250‡	3.78	4.18	4.099
21,808:1	5700	1250‡	3.78	4.18	4.099

‡¼ O.D. shafts are limited to 600 oz. in.

Max. Cont. Torque: The values in this column are based upon geartrain strength and capability for 1000 hrs. minimum life. Max. rated torque of motor selected x torque multiplier ratio must not exceed these values.

Max. Intermittent Torque = 2 x Max. Cont. Torque.

Momentary Stall Torque = 5 x Max. Cont. Torque.

Minimum Efficiency = Torque Multiplier Ratio divided by Speed Reduction Ration x 100.

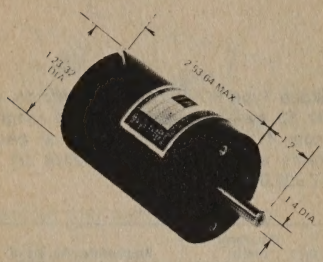
***How to Order**

To specify gearmotors, select the standard part number prefix from the data table, plus the even or odd speed reduction ratio desired. For higher ratios consult factory.

A.C. 1-23/32" Dia. Hysteresis Synchronous and Induction Motors

TRW GLOBE MOTORS

Type CFC Basic Motor



Type CFC motors are totally enclosed for dirt and moisture resistance, and have life-lubricated bearings. Induction versions, units for operation at other voltages and frequencies, and integral planetary geartrains are available. Single phase operation requires a phasing capacitor (not furnished by Globe).

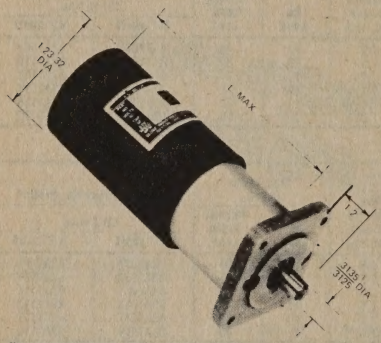
Hysteresis Synchronous — Standard Part Numbers and Data

Voltage (v.a.c.)	Freq. (Hz)	Ph.	Capacitor (mfd)	Capacitor (v.a.c.)	Speed No Load (rpm)	Speed Rated Load (rpm)	Torque Rated Load (oz. in.)	Torque Stall (oz. in.)	Power No Load (watts)	Power Rated Load (watts)	Standard Part No.
115	60	1	1.0	200	3600		1.40	1.80	14	15	138A201-2
115	60	1	1.0	200	1800		2.00	2.25	16	17	138A201-4
115	60	1	1.5	200	1200		1.20	1.50	15	16	138A201-6

Induction — Standard Part Numbers and Data

Voltage (v.a.c.)	Freq. (Hz)	Ph.	Capacitor (mfd)	Capacitor (v.a.c.)	Speed No Load (rpm)	Speed Rated Load (rpm)	Torque Rated Load (oz. in.)	Torque Stall (oz. in.)	Power No Load (watts)	Power Rated Load (watts)	Standard Part No.
115	60	1	1.0	200	3500	3000	1.5	2.5	14	15	138A202-2
115	60	1	3.5	200	1700	1550	.75	3.8	16	17	138A202-4
115	60	1	1.5	200	1000	800	.5	2.0	15	16	138A202-6

Type CFC Planetary Gearmotors Commercial Motors



Type CFC planetary gearmotors are lightweight a.c. commercial/industrial units designed to provide performance and size advantages of military gearmotors in lower cost package. Both hysteresis synchronous and induction versions can be provided with any of 83 standard planetary geartrains with speed reduction ratios from 4:1 to 46,656:1, and torques to 1250 oz. in.

Hysteresis Synchronous — Standard Part Numbers and Data

Voltage (v.a.c.)	Freq. (Hz)	Ph.	Capacitor (mfd)	Capacitor (v.a.c.)	Speed Rated Load (rpm)	Speed No Load (rpm)	Torque Rated Load (oz. in.)	Torque Stall (oz. in.)	Power No Load (watts)	Power Rated Load (watts)	Standard Part No.
115	60	1	1.0	200	3600		1.40	1.80	14	15	230A395
115	60	1	3.5	200	1800		2.00	2.25	16	16	230A396
115	60	1	1.5	200	1200		1.20	1.50	15	16	230A397

Induction — Standard Part Numbers and Data

Voltage (v.a.c.)	Freq. (Hz)	Ph.	Capacitor (mfd)	Capacitor (v.a.c.)	Speed No Load (rpm)	Speed Rated Load (rpm)	Torque Rated Load (oz. in.)	Torque Stall (oz. in.)	Power No Load (watts)	Power Rated Load (watts)	Standard Part No.
115	60	1	1.0	200	3000		1.5	2.5	14	16	230A398
115	60	1	3.5	200	1550		.75	3.8	16	17	230A399
115	60	1	1.5	200	800		.5	2.0	15	16	230A400

Low slip-high torque units available on special request.

Performance Characteristics

Speed Reduction Ratio	Dim "L"	Gearmotor Output Speeds 3,600 rpm Input	1,800 rpm Input	1,200 rpm Input
4:1	4.01	900.0	450.0	300.0
5:1	4.01	720.0	360.0	240.0
6:1	4.01	600.0	300.0	200.0
16:1	4.25	225.0	112.5	75.0
20:1	4.25	180.0	90.0	60.0
24:1	4.25	150.0	75.0	50.0
25:1	4.25	144.0	72.0	48.0
30:1	4.25	120.0	60.0	40.0
36:1	4.25	100.0	50.0	33.33
64:1	4.48	56.25	28.12	18.75
80:1	4.48	45.00	22.50	15.00
96:1	4.48	37.50	18.75	12.50
100:1	4.48	36.00	18.00	12.00
120:1	4.48	30.00	15.00	10.00
125:1	4.48	28.80	14.40	9.60
144:1	4.48	25.00	12.50	8.333
150:1	4.48	24.00	12.00	8.000
180:1	4.48	20.00	10.00	6.666
216:1	4.48	16.66	8.333	5.555
256:1	4.68	14.06	7.031	4.687
320:1	4.68	11.25	5.625	3.750
384:1	4.68	9.375	4.687	3.125
400:1	4.68	9.000	4.500	3.000
480:1	4.68	7.500	3.750	2.500
500:1	4.68	7.200	3.600	2.400
576:1	4.68	6.250	3.125	2.083
600:1	4.68	6.000	3.000	2.000
625:1	4.68	5.760	2.880	1.920

Speed Reduction Ratio	Dim. "L"	Gearmotor Output Speeds** 3,600 rpm Input	1,800 rpm Input	1,200 rpm Input
720:1	4.68	5.000	2.500	1.666
750:1	4.68	4.800	2.400	1.600
864:1	4.68	4.166	2.083	1.388
900:1	4.68	4.000	2.000	1.333
1,024:1	4.95	3.515	1.757	1.172
1,080:1	4.68	3.333	1.666	1.111
1,280:1	4.95	2.812	1.406	0.938
1,296:1	4.68	2.777	1.388	0.926
1,536:1	4.95	2.343	1.171	0.781
1,600:1	4.95	2.250	1.125	0.750
1,920:1	4.95	1.875	0.937	0.625
2,000:1	4.95	1.800	0.900	0.600
2,304:1	4.95	1.562	0.781	0.521
2,400:1	4.95	1.500	0.750	0.500
2,500:1	4.95	1.440	0.720	0.480
2,880:1	4.95	1.250	0.625	0.417
3,000:1	4.95	1.200	0.600	0.400
3,125:1	4.95	1.152	0.576	0.384
3,456:1	4.95	1.041	0.520	0.347
3,600:1	4.95	1.000	0.500	0.333
3,750:1	4.95	0.960	0.480	0.320
4,096:1	5.18	0.879	0.439	0.293
4,320:1	4.95	0.833	0.417	0.278
4,500:1	4.95	0.800	0.400	0.267
5,120:1	5.18	0.703	0.352	0.234
5,184:1	4.95	0.694	0.347	0.231
5,400:1	4.95	0.667	0.333	0.222
6,144:1	5.18	0.586	0.293	0.195

Speed Reduction Ratio	Dim. "L"	Gearmotor Output Speeds** 3,600 rpm Input	1,800 rpm Input	1,200 rpm Input
6,400:1	5.18	0.563	0.281	0.188
6,480:1	4.95	0.556	0.278	0.185
7,680:1	5.18	0.469	0.234	0.156
7,776:1	4.95	0.463	0.231	0.154
8,000:1	5.18	0.450	0.225	0.150
9,216:1	5.18	0.391	0.195	0.130
9,600:1	5.18	0.375	0.182	0.125
10,000:1	5.18	0.360	0.180	0.120
11,520:1	5.18	0.313	0.156	0.104
12,000:1	5.18	0.300	0.150	0.100
12,500:1	5.18	0.288	0.144	0.096
13,824:1	5.18	0.260	0.130	0.087
14,400:1	5.18	0.250	0.125	0.083
15,000:1	5.18	0.240	0.120	0.080
15,625:1	5.18	0.230	0.115	0.077
17,280:1	5.18	0.208	0.104	0.069
18,000:1	5.18	0.200	0.100	0.067
18,750:1	5.18	0.192	0.096	0.064
20,736:1	5.18	0.183	0.087	0.058
21,600:1	5.18	0.167	0.083	0.056
22,500:1	5.18	0.160	0.080	0.053
25,920:1	5.18	0.139	0.069	0.047
27,000:1	5.18	0.133	0.067	0.044
31,104:1	5.18	0.116	0.058	0.039
32,400:1	5.18	0.111	0.056	0.037
38,880:1	5.18	0.093	0.046	0.031
46,656:1	5.18	0.077	0.039	0.026

Output Torque = Torque Multiplier x Motor Torque.

Torque Multiplier = Reduction Ratio x Efficiency.

Torque Max. Cont. Rating Refers to Max. Cont. Duty Rating of Geartrain.

***How to Order**

To specify gearmotors, select the standard part number prefix from the data table, plus speed reduction ratio desired.

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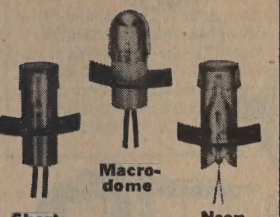
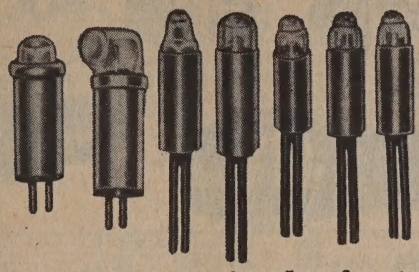
CM22 SERIES PEANUT-LITES

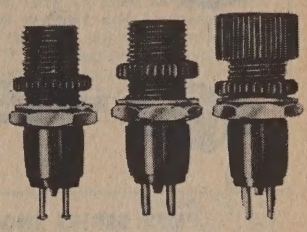


20 SERIES LENS END-LITES

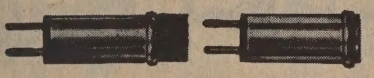


20 BEAM EMITTERS

CML SERIES CARTRIDGE HOLDERS



CML SERIES CARTRIDGE INDICATORS



CM21 SERIES SOCKETS FOR BI-PIN LAMPS

Pushfit Teflon® sockets accept all CM7 Bi-Pin lamps listed above. Snap directly into panels, brackets or PC boards. Type CM21-1 has beryllium copper contacts with .050″ pin centers, for T-1 lamps. CM21-2 has phosphor bronze contacts with gold over silver plating, with .125″ pin centers for T-1¼ and T-1¾.

®Registered DuPont trademark.

CML No.	For Bi-Pin Lamp	Mtg. Hole	Net Each, Lots of* 10-99	100-499	500-999
CM21-1	T-1	.122″	$2.21	$1.93	$1.55
CM21-2	T-1¼, T-1¾	.221″	2.72	2.38	1.90

20 SERIES SUBMINIATURE LENS END-LITES

Subminiature end-lites produce axially centered spots for minimal adjustment problems and easy lamp replacement. Ideal for close proximity use with photo sensors, where an intense spot of luminous and infrared energy is required. Typical applications include encoders, tape sensors, card readers and optical scanners. Types 20-1, -2, -17 and -19 have clear anodized aluminum cartridge body; stainless steel terminals (20-19 #24 AWG stranded wire leads); nylon insulation. Types 20-3 thru -7 and -20 have gold anodized aluminum shell; #24 AWG stranded wire leads; Type B insulation per MIL-W-16878; semi-resilient thermosetting resin encapsulation. Types 20-5 thru 20-7 are small enough to be mounted on .250″ centers for card reader applications. **Spot Specifications:** 20-1, -19: When projected ⅜″ from end of bulb, spot covers ⅛″ dia. target, concentric with long axis at minimum intensity of 750 ft.-candles. 20-2: When projected 1″ from end of bulb, spot covers 1″ dia. target with minimum of 350 ft.-candles. 20-3: When projected ⅜″ from end of bulb, spot covers 1/16″ dia. target concentric with sleeve; intensity ⅜″ from bulb is minimum of 750 ft.-candles; spot is narrow elliptical. 20-4: Same as 20-3 except covers ⅛″ dia. target; spot is "round" elliptical. 20-5 thru -7, -20 have no spot specifications, but have axially aligned lamp; 20-17 spot is axially aligned with housing.

CML No.	Lamp Type	V	Amps (±10%)	Aver. Life, Hours	Net Each, Lots of* 10-99	100-499	500-999
20-1	TL-1¾	2.5	.350	10,000	$ 6.97	$ 6.15	$ 5.33
20-2	SL-2	2.5	.325	10,000	25.93	22.88	19.83
20-3	TL-1¾	2.5	.350	10,000	6.63	5.85	5.07
20-4	TL-1¾	2.5	.350	10,000	8.28	7.31	6.33
20-5	TL-1¼	2.5	.200	1,000	7.45	6.57	5.69
		2.1	.180	10,000			
20-6	TL-1¼	6.0	.200	1,000	5.51	4.86	4.21
		5.1	.180	10,000			
20-7	TL-1¼	28.0	.040	1,000	6.55	5.78	5.01
		24.0	.036	10,000			
20-17	TL-1¾	5.0	.180	10,000	11.41	10.07	8.72
20-20	TL-1¾	5.0	.180	10,000	13.46	11.88	10.30

CML SERIES CARTRIDGE HOLDERS

Panel mounting holders for T-1¾ or T-2 lamps. Body, collar and facing nut are black anodized aluminum. Molded phenolic insulation. Turret terminals are spring brass, gold over nickel plate; solder cup terminals are spring brass, tintilate plate. Types 10202-1 and 10203-1 have 3/32″ thick knurled collar nut. Mount in round or "D" hole, .375″ dia., in panels to 1/16″ thick (when not using collar nut). Terminal pins are polarized.

CML No. CML-	Mounting	Terminals	Net Each, Lots of* 10-99	100-499	500-999
10202-1	Front/rear	Turret	$2.00	$1.75	$1.40
10203-1	Front/rear	Solder	2.00	1.75	1.40
10204-1	Front	Solder	1.66	1.46	1.17

★WRITE FOR PRICES ON LARGER QUANTITIES

20 SERIES BEAM EMITTERS

Compact assemblies designed to project narrow cones of infrared and luminous energies over distances of 3″ to 20″. Spots produced are round, varying from ⅜″ to 1¼″. Infrared outputs are approximately 75% of input power, ideal for integration with silicon type sensors. Low power consumption (782 mW), axially aligned spots, easy mounting and long life. **Volts:** 2.3. **Current:** .340 amps, ±10%. **Average Life:** 10,000 hours. **Construction:** Anodized aluminum housing, #24 AWG wire leads, semi-resilient thermosetting resin encapsulation. **Size:** .475″ dia.; 20-8-01, 1.33″ long; 20-9-01, 2.08″ long.

CML Number	Focal Distance	Projected Spot Dia.	Net Each, Lots of* 10-99	100-499	500-999
20-8-01	7″–9″	1¼″–1¾″	$26.04	$22.98	$19.92
20-9-01	14″–16″	1″–1⅛″	31.28	27.60	23.92

39 SERIES LAMP FILTERS (Not Illus.)

Slip-on filters are translucent, precision molded silicone rubber caps; for subminiature and miniature lamps. They assume basic lamp contours, are impervious to color shift. Replaceable and reusable. Temperature range, −62° to +225° C. **TO ORDER:** Add suffix to CML Number to indicate color: **-1,** red; **-2,** blue/white; **-3,** clear; **-4,** amber; **-5,** green; **-6,** blue; **-7,** yellow.

CML Number	Lamp Size	Size, In. Dia. x L.	Net Each, Lots of* 10-99	100-499	500-999
39-02	T-¾	.090 x .230	$0.46	$0.41	$0.35
39-03	T-1	.096 x .3125	.43	.38	.30
39-04	T-1	.096 x .219	.43	.38	.35
39-05	T-1¼	.175 x .265	.50	.43	.35
39-06	T-1¾	.214 x .375	.43	.38	.30
39-07	T-1¾	.218 x .3125	.43	.38	.30
39-08	T-1¾	.325 x .279	.43	.38	.30
39-11	T-3¼	.370 x .672	.91	.80	.64

CML SERIES CARTRIDGE INDICATORS

Cartridge housings with incandescent or neon lamps; cool operating temperatures for long life. Mount in cartridge holder, or panel mounting with speed clip (not included). Clear anodized aluminum housings, nylon insulation, transparent or translucent polycarbonate (color matched to industrial standards) caps. Meet requirements of MIL-L-3661. Stainless steel pins are located off-center for polarization. Stainless steel pin terminals, or #24 AWG wire leads. Available with hot stamped legends; write for prices. **Body Size:** .284″ dia. x .634″ long.

HOW TO ORDER: Insert two interfixes in CML number, replacing **XX** or **YX** shown in tables below. First interfix indicates cap style and terminal configuration: **X-1,** flush cap with wire leads; **X-2,** short cylindrical cap with wire leads; **Y-5,** flush cap with pin terminals; **6,** short cylindrical cap with pin terminals. Second interfix indicates cap type: **3,** polycarbonate, transparent; or **4,** polycarbonate, translucent.

Also replace final **X** in CML number to indicate cap color: **1,** red; **2,** green; **3,** amber; **5,** white; **6,** yellow; or **7,** clear.

WITH T-1¾ INCANDESCENT LAMPS

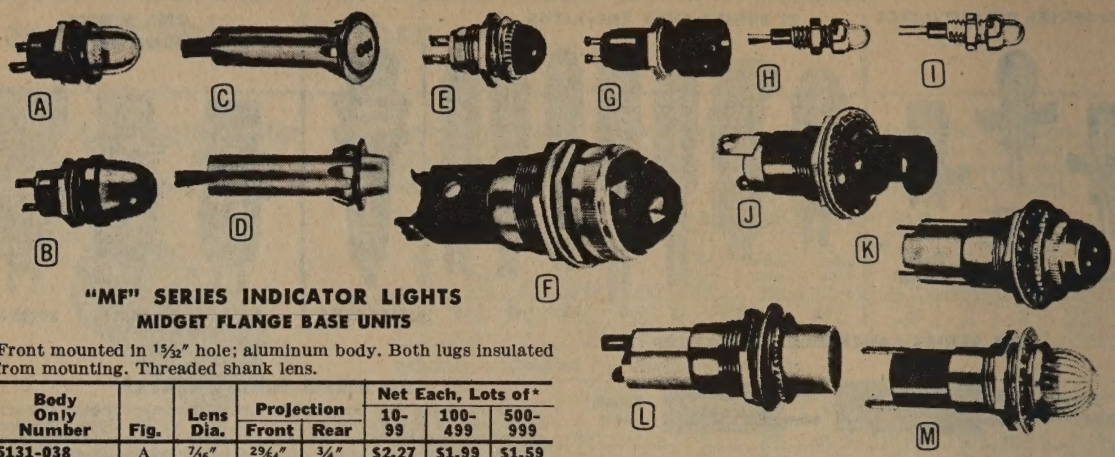
CML No.* CML-	Volts	Amps	M.S. C.P., Approx.	Aver. Life, Hours	Net Each, Lots of* 10-99	100-499	500-999
XX013X	6.3	.20	.40	50,000	$3.15	$2.76	$2.21
YX013X	6.3	.20	.40	50,000	3.15	2.76	2.21
XX008X	10.0	.04	.08	5,000	3.15	2.76	2.21
YX008X	10.0	.04	.08	5,000	3.15	2.76	2.21
XX028X	14.0	.08	.30	50,000	3.15	2.76	2.21
YX028X	14.0	.08	.30	50,000	3.15	2.76	2.21
XX029X	28.0	.04	.30	25,000	3.15	2.76	2.21
YX029X	28.0	.04	.30	25,000	3.15	2.76	2.21

Net Each, Lots of: 10-99 ..... $3.15
100-499 ..... $2.76; 500-999 ..... 2.21
*See How To Order information above, and add two interfixes and suffix, as indicated.

No. CML-10380 Cartridge Indicator Mounting Clip—For mounting CML series indicators directly in panel, in 3/32″ clearance hole. Spring tempered steel. Net Each, Lots of: 10-99 ..... $0.13

No. CM21-3 Cartridge Indicator Connector—Accepts CML series indicators for low-cost mounting (not in panels). Phenolic body, cadmium plated brass contacts.

Net Each, Lots of: 10-99 ..... $0.50



"MF" SERIES INDICATOR LIGHTS
MIDGET FLANGE BASE UNITS

Front mounted in 15/32" hole; aluminum body. Both lugs insulated from mounting. Threaded shank lens.

Body Only Number	Fig.	Lens Dia.	Projection Front	Projection Rear	Net Each, Lots of* 10-99	100-499	500-999
5131-038	A	7/16"	29/64"	3/4"	$2.27	$1.99	$1.59

Number 131A-303 Lens Only—Net Each, Lots of 10–99. **$0.70**
100–499..... **$0.62**; 500–999..... **$0.49**

"MF" OIL-TITE/WATER-TITE UNITS

Recessed rubber "O" rings will withstand up to 25 p.s.i. pressure. Maximum panel thickness, 3/16". Per MIL drawing: D5-15-3217.

5139-038	B	37/64"	15/32"	25/32"	$2.93	$2.56	$2.05

Number 139A-403 Lens Only—Net Each, Lots of 10–99.. **$1.26**
100–499..... **$1.11**; 500–999..... **$0.89**

"GLO-LITES"

One-piece nylon body and lens with built-in Hi-Brite neon lamp. With two lead terminations, 22 ga. plastic-insulated wire. Mount from front of panel, up to .080" thick, in 1/2" dia. hole on 1 1/16" centers. Built-in resistor: 25K for 115 V.

6073-001-534	C	27/64"	1/8"	1 15/32"	$1.36	$1.19	$0.95
6073-001-634	D	27/64"	5/16"	1 9/32"	1.36	1.19	.95

"TINYLITE" SERIES INDICATOR LIGHTS
MIDGET SCREW BASE
G-2 INCANDESCENT LAMPS
7 TO 28 VOLTS

Lamps replaceable from front. Mount from front of panel, up to 9/32" thick, in 7/16" dia. hole on 1 9/32" centers. Lamps built-in; 7 V in 5126-022; 28 V in 5128-022.

5126-022-204	E	7/16"	2 1/64"	1 3/16"	$2.40	$2.10	$1.68
5126-022-604	..	3/8"	2 1/64"	1 3/16"	2.40	2.10	1.68
5128-022-204	E	7/16"	2 1/64"	2 9/32"	2.40	2.10	1.68
5128-022-604	..	3/8"	2 1/64"	2 9/32"	2.40	2.10	1.68

1" LENS INDICATOR LIGHTS
CANDELABRA SCREW S-6—115 VOLTS
"TITELITE"

Neoprene gaskets seal out oil, water, dust and dirt.

5796-523	F	1"	1 3/16"	1 27/32"	$3.84	$3.36	$2.69

Number 78A-416 Lens Only—Net Each, Lots of 10–99.. **$2.16**
100–499..... **$1.89**; 500–999..... **$1.51**

CARTRIDGE LAMPHOLDER

Lampholder has lamp cartridge replaceable from front. Mount from rear of panel, up to 1 1/64" thick, in 3/8" dia. hole on 2 1/32" centers. Two tinned turret lugs. No resistor.

4428-001	G	..	3/8"	51/64"	Use CML10202-1		
CML10202-1	G	..	..	..	$2.00	$1.75	$1.40

LED "SOLID STATE ASTROLITES"

Mount to 3/16" th., on 1 1/32" ctrs., in .191" dia. "D" hole. Two 6" lead wires. 2.1 VDC: red/clear (Glows red when lit). 2.6 VDC: green/yellow. Specify LED color.

6039-004-304	H	17/64"	17/64"	1 3/32"	$2.42	$2.11	$1.69
6039-005-304	I	17/64"	17/64"	1 3/32"	2.14	1.88	1.50

INSTRUMENT LIGHT
MINIATURE BAYONET BASE T-3 1/4—6 TO 28 VOLTS

Threaded hood. Lamps replaceable from front. Mount from front of panel, to 1 3/32" th., in 1 1/16" dia. hole on 3 1/32" ctrs.; 2 solder lugs.

Lamp Number	Fig.	Lens Dia.	Projection Front	Projection Rear	Net Each, Lots of* 10-99	100-499	500-999
900-200	J	..	1 1/16"	1 3/8"	$3.66	$3.21	$2.57

"GEMLITE"

Replaceable, long-life, sub-midget incandescent lamp T-1, 5 V. Front mounted in 5/16" hole. Brass body; two lugs insulated from ground. Meets MIL applications. Max. panel thickness, 7/32".

5160-458	..	1/4"	1/4"	15/32"	$3.71	$3.27	$2.83

Number 160A-604 Lens Only—Net Each, Lots of 10–99. **$0.67**
100–499..... **$0.59**; 500–999..... **$0.47**

"DELUXE MOLDED" INDICATOR LIGHTS
MINIATURE BAYONET BASE T-3 1/4—6 TO 28 VOLTS
NEON B-2A—115 & 250 V—UL & CSA APPROVED

Polished chrome finish. Assured dependability; fine appearance. Feature E-Z-Tite flange for quick assembly with No. 32 wrench. Lamp replaceable from front. Mount from front of panel, up to 1 3/32" thick, in 1 1/16" dia. hole on 3 1/32" centers. Neon lamps have built-in series resistor. Two solder lugs.

Body Only Number	Fig.	Lens Dia.	Projection Front	Projection Rear	Resis., Ohms	Net Each, Lots* 10-99	100-499	500-999
5200-222	K	1/2"	17/32"	1 5/8"	....	$2.00	$1.75	$1.40
5200-232	..	5/8"	1/2"	1 5/8"	22K	2.37	2.07	1.66
5200-242	L	5/8"	1/2"	1 5/8"	100K	2.37	2.07	1.66

Number 25-105 Dome Lens Only—
Net Each, Lots of 10–99..... **$0.72**
100–499..... **$0.63**; 500–999..... **$0.50**

Number 25P-607 Flat Lens Only—
Net Each, Lots of 10–99..... **$0.58**
100–499..... **$0.50**; 500–999..... **$0.40**

STANDARD SERIES INDICATOR LIGHTS
MINIATURE BAYONET T-3 1/4—6 TO 28 VOLTS
NEON B-2A—115 & 250 V—UL & CSA APPROVED

Nickel-plated lens holder and flange. Replace lamps from front. Front-mount in 1 1/16" hole on 3 1/32" centers in panel up to 1 3/32" thick. Two solder lugs.

5100-822	..	....	....	....	....	$1.36	$1.19	$0.95
5100-832	M	5/8"	1/2"	1 23/32"	25K	1.73	1.51	1.21
5100-842	M	5/8"	1/2"	1 23/32"	100K	1.73	1.51	1.21

Number 25P-326 Lens Only—Net Each, Lots of 10–99.. **$0.58**
100–499..... **$0.50**; 500–999..... **$0.40**

‡These units can use 120 V min. bay. incandescent lamp; 3 watts, T-2 bulb, 1500-ft. candles, life 3000 hours (twice cand. screw). Lamp prices on request.

★PRICES LESS LAMPS UNLESS BUILT-IN.

WRITE FOR O.E.M. DISCOUNTS ON LARGER QUANTITY ORDERS.

SPECIFY COLOR ON ORDER: Incandescent and Neon— Red, Yellow (Amber), White or Colorless. **Incandescent Only—**Green or Blue.

CHICAGO MINIATURE

SPECIALISTS IN DESIGN & MANUFACTURE OF MINIATURE ILLUMINATING, INDICATING AND ENERGY EMITTING DEVICES

Lamps

GENERAL INSTRUMENT

This is a partial listing of miniature and subminiature lamps. Miniature lamps are most commonly used in numerous applications for panel indicators, aircraft, flashlight and radio or TV pilot lights. The subminiature lamps were specifically designed for modern, up-to-date special equipment such as computers, miniature switches, medical electronic equipment, aircraft, aerospace, etc. Many other uses are met where the ultimate in precision miniature lamp techniques is demanded. Engineered to military specifications, they are used as standards on many classified government projects and business machines. Lamps listed herein are the most popular types available from Chicago Miniature. If your application requires a special lamp or one not shown, send us your application needs. We will be pleased to submit our recommendations.

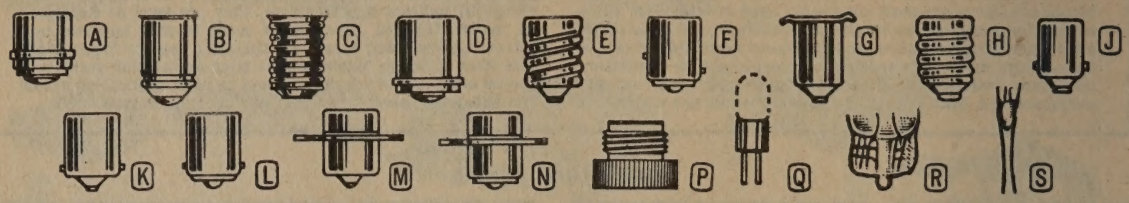
MINIATURE LAMPS

Lamp No.	Design V	Design A	MSCP* Approx.	Base Fig.	Bulb	Net Ea., Lots of 10-99	100-499	500-999
PR-2	2.38	.50	.80	G§	B-3½	$0.46	$0.41	$0.35
PR-3*	3.57	.50	1.50	G§	B-3½	.46	.41	.35
PR-4	2.33	.27	.40	G§	B-3½	.46	.41	.35
PR-6*	2.47	.30	.45	G§	B-3½	.46	.41	.35
PR-7	3.70	.30	.90	G	B-3½	.46	.41	.35
PR-12	5.95	.50	3.10	G§	B-3½	.46	.41	.35
PR-13	4.75	.50	2.20	G§	B-3½	.46	.41	.35
PR-16	12.5	.25	.27	G	B-3½	.53	.47	.40
12	6.3	.15	.35	Q	G-3½	.54	.48	.42
13*	3.7	.30	.98	H	G-3½	.32	.29	.25
14*	2.47	.30	.50	H	G-3½	.29	.26	.22
27*	4.9	.30	1.4	H	G-4½	.73	.66	.56
43	2.5	.50	.50	J	T-3¼	.46	.40	.35
44*	6.3	.25	.90	J	T-3¼	.31	.27	.23
45*	3.2	.35	.50	J	T-3¼	.71	.63	.55
47*	6.3	.15	.52	J	T-3¼	.31	.27	.23
48	2.0	.06	.04	H	T-3¼	.54	.48	.42
49	2.0	.06	.04	J	T-3¼	.54	.48	.42
50	7.5	.22	1.0	H	G-3½	.31	.27	.23
51*	7.5	.22	1.0	J	G-3½	.34	.30	.26
53*	14.4	.12	1.0	J	G-3½	.36	.32	.27
55*	7.0	.41	2.0	J	G-4½	.44	.39	.34
57	14.0	.24	2.0	J	G-4½	.37	.33	.29
67*	13.5	.59	4.0	K	G-6	.43	.38	.33
68*	13.5	.59	4.0	L	G-6	.49	.44	.38
73	14.0	.08	.30	R	T-1¾	.44	.39	.34
82*	6.5	1.05	6.0	L	G-6	.49	.44	.38
87*	6.8	1.91	15.0	K	S-8	.94	.83	.72
88*	6.8	1.90	15.0	L	S-8	.73	.65	.56
90*	13.0	.58	6.0	L	G-6	.53	.47	.40
93*	12.8	1.04	15.0	K	S-8	.70	.62	.53
94*	12.8	1.0	15.0	L	S-8	.68	.60	.52
123	1.25	.30	10.0	H	G-3½	.32	.29	.25
131*	1.3	.10	.03	H	G-3½	.32	.29	.25
159	6.3	.15	3.8	R	T-3¼	.24	.21	.18
161	14.0	.19	1.0	R	T-3¼	.26	.23	.20
194	14.0	.27	2.0	R	T-3¼	.26	.23	.20
222*	2.25	.25	.....	H	GTL-3	.46	.41	.35
224	2.15	.22	.....	SP‡	GTL-2¼	.58	.51	.44
239	6.3	.36	.67	J	T-3¼	1.07	.95	.82
240	6.3	.36	.67	J	T-3¼	1.16	1.02	.88
252	2.5	.35	.....	D	GTL-1¾	3.89	3.44	2.98
253	2.5	.35	.....	B	GTL-1¾	3.76	3.32	2.87
253X	2.5	.35	.....	B	GTL-1¾	4.68	4.13	3.58
261	2.5	.35	.....	B	GTL-1¾	4.78▲	4.22▲	3.65▲
301*	28.0	.17	3.0	K	G-5	1.31	1.16	1.00
304*	28.0	.30	6.0	L	G-6	1.39	1.23	1.07
305*	28.0	.51	15.0	K	S-8	1.68	1.49	1.29
307*	28.0	.66	21.0	K	S-8	1.36	1.20	1.04
313*	28.0	.17	.35	J	T-3¼	.56	.50	.43
323*	3.0	.19	.250	P	T-1¼	2.67	2.36	2.04
324	3.0	.19	.250	S	T-1¼	.90	.80	.69
325	3.0	.19	.250	T‡	T-1¼	2.82	2.49	2.16
327*	28.0	.04	.340	D	T-1¾	.65	.57	.49
328*	6.0	.20	.60†	D	T-1¾	.60	.53	.46
330	14.0	.08	.500	D	T-1¾	.85	.75	.65
331	1.35	.06	.01	D	T-1¾	1.24	1.10	.95
334	28.0	.04	.340	B	T-1¾	1.12	.99	.86
336	14.0	.08	.50	B	T-1¾	1.19	1.05	.91
337	6.0	.20	.60	B	T-1¾	1.24	1.10	.95
344	10.0	.014	.002	B	T-1¾	1.39	1.23	1.07
346	18.0	.04	.15	B	T-1¾	1.41	1.25	1.08
363	14.0	.20	2.0	J	G-3½	.44	.39	.34
370	18.0	.04	.15	D	T-1¾	.99	.87	.75
375	3.0	.015	.003	D	T-1¼	1.36	1.20	1.04
376	28.0	.06	.340	D	T-1¾	1.55	1.37	1.18
380	6.3	.04	.020	D	T-1¾	1.02	.90	.78
381	6.3	.20	.40	D	T-1¾	1.21	1.07	.92
382	14.0	.08	.30	D	T-1¾	1.04	.92	.79
386	14.0	.08	.30	B	T-1¾	1.46	1.29	1.12
387*	28.0	.04	.30	D	T-1¾	.61	.54	.47
388	28.0	.04	.30	B	T-1¾	1.26	1.11	.96
425	5.0	.50	2.3	H	G-4½	$0.80	$0.71	$0.61
502	5.1	.15	.60	H	G-4½	.32	.29	.25
503	5.1	.15	.60	J	G-4½	.39	.35	.30
509K	24.0	18	2.8	E	G-6	.94	.83	.72
965	9.8	.50	6.0	H	T-4½	.94	.83	.72
1003	12.8	.94	15.0	K	B-6	.51	.45	.39
1004	12.8	.94	15.0	L	B-6	.58	.51	.44
1034	12.8	1.80	32.0	F	S-8	.68	.60	.52
	14.0	.51	4.0					
1073*	12.8	1.80	32.00	K	S-8	.58	.51	.44
1129*	6.4	2.63	21.00	K	S-8	.73	.65	.56
1130*	6.4	2.00	21.00	L	S-8	1.07	.95	.82
1133*	6.2	3.91	32.00	K	RP-11	1.45	1.28	1.11
1141*	12.8	1.44	21.00	K	S-8	.58	.51	.44
1142*	12.8	1.44	21.00	L	S-8	.73	.65	.56
1143*	12.5	2.00	32.00	K	RP-11	1.84	1.62	1.40
1156	12.8	2.10	32.0	K	S-8	.66	.59	.51
1157	12.8	2.10	32.0	F	S-8	.58	.51	.44
1184*	5.5	6.25	50.00	L	RP-11	2.11	1.86	1.61
1224	34.0	.16	3.8	E	G-6	1.46	1.29	1.12
1251*	28.0	.23	3.0	K	G-6	1.11	.98	.85
1252*	28.0	.23	3.0	L	G-6	1.11	.98	.85
1385*	28.0	.....	20W	K	R-12	5.08	4.49	3.89
1449	14.0	.20	2.0	H	G-3½	.32	.29	.25
1458	20.0	.25	4.2	H	G-5	.82	.72	.62
1471	12.0	.26	2.3	E	G-6	1.97	1.74	1.51
1483	6.0	.04	.10	H	G-4½	1.02	.90	.78
1487	14.0	.20	1.4	H	T-3¼	.49	.44	.38
1488	14.0	.15	1.5	J	T-3¼	.49	.44	.38
1490	3.2	.16	.20	J	T-3¼	.78	.69	.60
1493	6.5	2.80	23	L	S-8	2.72	2.40	2.08
1630	6.5	2.75	23.0	N	S-8	3.21	2.84	2.46
1705D	14.0	.08	.50	S	T-1¾	.73▲	.65▲	.56▲
1728D	1.35	.06	.01	S	T-1¾	.60	.53	.46
1738	2.7	.06	.04	S	T-1¾	.65	.57	.49
1764D	28.0	.04	.34	M	T-1¾	.68	.60	.52
1767*	2.5	.20	.22	C	T-1¾	.94	.83	.72
1768*	6.0	.20	.60	C	T-1¾	1.22	1.08	.94
1783	2.5	.20	.22	S	T-1¾	.60	.53	.46
1813	14.4	.10	.86	J	T-3¼	.53	.47	.40
1815*	14.0	.20	1.4	J	T-3¼	.53	.47	.40
1816	13.0	.33	3.0	J	T-3¼	.39	.35	.30
1819*	28.0	.04	.34	J	T-3¼	.63	.56	.48
1820	28.0	.10	1.6	J	T-3¼	.63	.56	.48
1821	28.0	.17	3.5	H	T-3¼	1.82	1.61	1.39
1822	36.0	.10	2.5	J	T-3¼	1.17	1.04	.90
1828	37.5	.05	.65	J	T-3¼	.94	.83	.72
1829*	28.0	.07	1.0	J	T-3¼	.56	.50	.43
1835	55.0	.05	1.1	J	T-3¼	1.21	1.07	.92
1847	6.3	.15	.38	J	T-3¼	.36	.32	.27
1850	5.0	.09	.25	J	T-3¼	.82	.72	.62
1855	6.3	.80	3.6	J	T-4½	.121	1.07	.92
1869D	10.0	.014	.002	S	T-1¾	.85	.75	.65
1891	14.0	.24	2.0	J	T-3¼	.34	.30	.26
1892	14.4	.12	.75	J	T-3¼	.34	.30	.26
1893	14.0	.33	2.0	J	T-3¼	.34	.30	.26
2102D	18.0	.04	.15	S	T-1¾	.78	.69	.60
2107D	10.0	.04	.08	S	T-1¾	.82	.72	.62
2112	6.3	.20	.55	S	T-1¾	.83	.74	.64
2124	2.5	.35	.....	S	GTL-1¼	2.86	2.52	2.18
2158	3.0	.015	.003	S	T-1¼	1.07▲	.95▲	.82▲
2162D	14.0	.088	.100	S	T-1¾	.87	.77	.66
2180	6.3	.04	.02	S	T-1¾	.68▲	.60▲	.52▲
2181D	6.3	.20	.40	S	T-1¾	.77	.68	.59
2182D	14.0	.08	.30	S	T-1¾	.85	.75	.65
2185D	28.0	.04	.20	S	T-1¾	.78	.69	.60
2187D	28.0	.04	.30	S	T-1¾	.66	.59	.51

*Mean Spherical Candlepower is the measurement of the total integrated light output of the lamp operated at design voltage.

†At 5 volts. ‡Special, not illustrated. ***See following page for MS numbers.** §Single Contact. ▲Min. qty. 500.

BASE STYLES FOR CHICAGO MINIATURE LAMPS



(A) Sub-Midget Flanged, (B) Midget Grooved, (C) Midget Screw, (D) Midget Flanged, (E) Candelabra, (F) DC Bayonet Index, (G) Miniature Flange, (H) Miniature Screw, (J) Miniature Bayonet, (K) SC Bayonet, (L) DC Bayonet, (M) SC Prefocus, (N) DC Prefocus, (P) Threaded Knurled, (Q) Bi-Pin, (R) Wedge, (S) Wire Terminal. (SC for Single Contact; DC for Double Contact.)

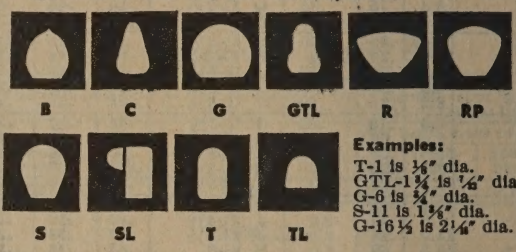
MINIATURE AND SUBMINIATURE LAMPS

Lamp No.	Design V	Design A	MSCP* Approx.	Base Fig.	Bulb	Net Ea., Lots of 10-99	100-499	500-999
313	28.0	.17	3.5	J	T-3¼	$0.56	$0.50	$0.43
334	28.0	.04	.340	B	T-1¾	1.12	.99	.86
335	28.0	.04	.34	C	T-1¾	1.22	1.08	.94
336	14.0	.08	.50	B	T-1¾	1.19	1.05	.91
345	6.0	.04	.03	D	T-1¾	1.24	1.10	.95
349	6.3	.20	.55	D	T-1¾	1.00	.89	.77
8-373	2.5	.35	.....	B	TL-1¾	4.00	3.53	3.06
8-374	2.5	.35	.....	S	TL-1¾	3.38	2.99	2.59
380	6.3	.04	.020	D	T-1¾	1.02	.90	.78
381	6.3	.20	.40	D	T-1¾	1.21	1.07	.92
382	14.0	.08	.30	D	T-1¾	1.04	.92	.79
399	28.0	.04	.30	C	T-1¾	1.45	1.28	1.11
8-428	5.0	.18	.35	D	T-1¾	7.99	7.05	6.11
634D	6.0	.20	.63	S	T-1¼	1.00	.89	.77
680*	5.0	.06	.03	S	T-1	1.24	1.10	.95
682*	5.0	.06	.03	A	T-1	2.13	1.88	1.63
683*	5.0	.06	.05	S	T-1	1.24	1.10	.95
685*	5.0	.06	.05	A	T-1	2.57	2.27	1.96
713*	5.0	.075	.09	S	T-1	1.28	1.13	.98
714*	5.0	.075	.09	A	T-1	2.57	2.27	1.96
718*	5.0	.115	.15	A	T-1	2.02	1.79	1.55
755	6.3	.15	.33	J	T-3¼	.48	.42	.36
757	28.0	.08	.62	J	T-3¼	.77	.68	.59
965	9.8	.50	6.0	H	T-4½	.94	.83	.72
8-967	120	.025	.36	J	T-2	1.80	1.59	1.38
6803	5.0	.06	.03	S	T-¾	2.31	2.04	1.77
6833	5.0	.06	.05	S	T-¾	2.31	2.04	1.77
6839	28.0	.024	.15	A	T-1	4.15	3.66	3.17
7153	5.0	.115	.15	S	T-¾	2.26	2.00	1.73
7216•	5.0	.125	.22	S	T-1	2.94	2.60	2.25
7387	28.0	.04	.30	Q	T-1¾	.83	.74	.64
8610•	6.3	.20	.55	S	T-1¼	1.67	1.47	1.27
8627	28.0	.04	.32	S	T-1¼	2.13	1.88	1.63
8628•	6.0	.20	.63	D	T-1¼	3.44	3.03	2.63
8631•	1.35	.06	.006	D	T-1¼	2.40	2.12	1.83
8632	28.0	.04	.32	‡	T-1¼	4.00	3.53	3.06
8635	28.0	.04	.32	§	T-1¼	3.93	3.47	3.00
8640•	14.0	.08	.50	S	T-1¼	1.67	1.47	1.27
8666	5.0	.08	.15	S	T-1¾	4.27	3.77	3.26

*Mean Spherical Candlepower. †Silvered base. ‡Special midget flanged, not illus. §Special screw, not illus. •New vs. former No.: 7216 = CM8-715F1; 8610 = CM8-610; 8628 = CM8-628; 8631 = CM8-631; 8637 = CM8-637; 8640 = CM8-640; 8805 = CM8-805; 276 = 334LSV. ▲Min. qty. 500.

BULB SHAPES AND SIZES

The bulb is the glass envelope which houses the lamp filament assembly, and contains the vacuum or gas seal. A letter and number identifies bulb shape and approximate bulb diameter in eighths of an inch. Popular bulb shapes are:



Examples:
T-1 is ⅛" dia.
GTL-1¾ is ⅛" dia.
G-6 is ¾" dia.
S-11 is 1⅜" dia.
G-16½ is 2⅛" dia.

CM7 SERIES BI-PIN LAMPS

Lamp No. CM7-	Design Volts	Design Amps	MSCP* Approx.	Base Fig.	Bulb	Net Ea., Lots of 10-99	100-499	500-999
7327	28.0	.04	.34	Q	T-1¾	$0.75	$0.66	$0.57
7328	6.0	.20	.60	Q	T-1¾	.78	.69	.60
7330	14.0	.08	.50	Q	T-1¾	.82	.72	.62
7838	2.7	.06	.04	Q	T-1¾	.87	.77	.66
7876	28.0	.06	.34	Q	T-1¾	.88	.78	.68

*Mean Spherical Candlepower.

STANDARD VOLTAGE LAMPS

Lamp No.	Design Volts	Design Watts	Base Fig.	Bulb	Net Ea., Lots of 10-99	100-499
6S6	120	6	E	S-6	$0.75	$0.66
6S6	130	6	E	S-6	.85	.75
6S6	145	6	E	S-6	1.97	1.74
6S6DC	120	6	L	S-6	1.21	1.07
6T4121	115–125	6	E	T-4½	2.26	2.00
7C7	115–125	7	E	C-7	.63	.56
10C7	115–125	10	E	C-7	1.09	.96
10S6C	230	10	E	S-6	2.21	1.95

▲Min. qty.500.

NEON GLOW LAMPS

Cold-cathode gas discharge type lamps. Neon gas ionizes and glows when voltage is applied.

Lamp No. NE-§	Design Volts	Design W	Design A	Base Fig.	Bulb	Net Ea., Lots of 10-99	100-499	500-999
2(A1A)	105–125	1/17	0.5	S	T-2	$0.37	$0.33	$0.29
2D(C7A)*	105–125	1/12	0.7	D‡	T-2	2.18	1.92	1.66
2H(C2A)	105–125AC	1/4	1.9	S	T-2	.37	.33	.29
51(B1A)	105–125	1/25	0.3	J	T-3¼	.83	.74	.64
51H(B2A)	105–125AC	1/7	1.2	J	T-3¼	.83	.74	.64

§Numbers in parentheses are ASA (American Standards Association) numbers. ‡Single contact.

★MILITARY (MS) EQUIVALENTS

Lamp No.	MS Number	Lamp No.	MS Number	Lamp No.	MS Number	Lamp No.	MS Number	Lamp No.	MS Number	Lamp No.	MS Number	Lamp No.	MS Number
PR-3	15610-2	51	15573-1	90	15569-4	313	25231-313	1141	35478-4	1815	15571-8	685‡	24515-685‡
PR-6	15610-1	53	15573-3	93	35478-93	323	25236-323	1142	15584-4	1819	15571-6	713‡	24367-713‡
13	15611-1	55	15572-1	94	15584-2	327	25237-327	1143	15565-3	1829	25231-1829	714‡	24515-714‡
14	15611-3	64	15569-1	131	15611-4	328	25237-328	1184	15564-1	10C7DC	16123	715‡	24367-715‡
27	15587-1	67	15570-4	222	28798-222	387	18209	1251	*	680‡	24367-680‡	718‡	24515-718‡
40	15536-4	68	15569-6	301	25238-301	1073	35478-1073	1252	15569-7	682‡	24515-682‡	NE2D	
44	15571-1	82	15569-3	304	15569-8	1129	35478-1129	1385	35480-2	683‡	24367-683‡	(C7A)	25257-C7A (NE-2D)
45	15571-11	87	35478-87	305	35478-305	1130	15584-3	1767	15612-3				
47	15571-2	88	15584-1	307	35478-307	1133	15565-1	1768	15612-1				

*15570-1251. ‡Also AS15 (aged and selected with candlepower indicated) versions; e.g., 680AS15 = 24367-680AS15.

CHICAGO MINIATURE LED Displays

GENERAL INSTRUMENT

Fast switching—excellent for multiplexing—low power consumption—bold segments that are highly legible—solid state reliability—long operational life—impact resistant plastic construction—directly compatible with IC logic—high brightness, high contrast.

0.300" SEVEN-SEGMENT LED DISPLAYS

Standard 14-pin dual-in-line packaging—common anode or common cathode models—categorized for luminous intensity—wide viewing angle of 150°.

Chicago Miniature Number	Color	Description	Forward Voltage $I_F = 20$ mA	Luminous Intensity @ 10 mA, min.	Net Each, Lots of 1-99	Net Each, Lots of 100-999
CMN 3620A	Orange	Common anode, left-hand decimal	2.5 V	510 μcd	$2.85	$2.25
CMN 3640A	Orange	Common cathode, right-hand decimal	2.5 V	510 μcd	2.85	2.25
CMN 72A	Red	Common anode, left-hand decimal	2.0 V	125 μcd	1.48	1.27
CMN 73A	Red	Common anode, overflow ±1	2.0 V	125 μcd	1.48	1.27
CMN 74A	Red	Common cathode, right-hand decimal	2.0 V	125 μcd	1.48	1.27

0.300" SEVEN-SEGMENT LED DISPLAYS

Standard 10-pin dual-in-line packaging—H.P. compatible, common-cathode displays available in red, green, yellow, orange, and high efficiency red—categorized for luminous intensity, wide viewing angle of 150°.

Chicago Miniature Number	Color	Description	Forward Voltage $I_F = 20$ mA	Luminous Intensity @ 10 mA, min.	Net Each, Lots of 1-99	Net Each, Lots of 100-999
CMN 58A	Green	Common cathode, right-hand decimal	3.0 V	125 μcd	$3.05	$2.40
CMN 3680A	Orange	Common cathode, right-hand decimal	2.5 V	510 μcd	2.85	2.25
CMN 78A	Red	Common cathode, right-hand decimal	2.0 V	125 μcd	1.48	1.27
CMN 88A	Yellow	Common cathode, right-hand decimal	3.0 V	320 μcd	3.05	2.40
CMN 3980A	Red*	Common cathode, right-hand decimal	2.5 V	320 μcd	2.40	1.95

0.300" SEVEN-SEGMENT LED DISPLAYS

Standard 14-pin dual-in-line packaging—common anode or common cathode models—categorized for luminous intensity—wide viewing angle of 150°—high efficiency red.

Chicago Miniature Number	Color	Description	Forward Voltage $I_F = 20$ mA	Luminous Intensity @ 10 mA, min.	Net Each, Lots of 1-99	Net Each, Lots of 100-999
CMN 3910A	Red*	Common anode, right-hand decimal	2.5 V	320 μcd	$2.40	$1.95
CMN 3920A	Red*	Common anode, left-hand decimal	2.5 V	320 μcd	2.40	1.95
CMN 3930A	Red*	Common anode, overflow ±1	2.5 V	320 μcd	2.40	1.95
CMN 3940A	Red*	Common cathode, right-hand decimal	2.5 V	320 μcd	2.40	1.95
CMN 3980A	Red*	Common cathode, right-hand decimal	2.5 V	320 μcd	2.40	1.95

0.400" SEVEN-SEGMENT LED DISPLAYS

Standard 14-pin dual-in-line packaging—common anode or common cathode models—categorized for luminous intensity—wide viewing angle of 150°—high efficiency red.

Chicago Miniature Number	Color	Description	Forward Voltage $I_F = 20$ mA	Luminous Intensity @ 10 mA, min.	Net Each, Lots of 1-99	Net Each, Lots of 100-999
CMN 4905A	Red*	Universal (common anode or common cathode), overflow ±1, right-hand decimal	2.5 V	320 μcd	$2.65	$2.15
CMN 4910A	Red*	Common anode, right-hand decimal	2.5 V	320 μcd	2.65	2.15
CMN 4940A	Red*	Common cathode, right-hand decimal	2.5 V	320 μcd	2.65	2.15
CMN 4980A	Red*	Common cathode, right-hand decimal	2.5 V	320 μcd	2.65	2.15

0.400" SEVEN-SEGMENT LED DISPLAYS

Standard 14-pin dual-in-line packaging—common anode or common cathode models—categorized for luminous intensity—wide viewing angle of 150°.

Chicago Miniature Number	Color	Description	Forward Voltage $I_F = 20$ mA	Luminous Intensity @ 10 mA	Net Each, Lots of 1-99	Net Each, Lots of 100-999
CMN 4610A	Orange	Common anode, right-hand decimal	2.5 V	510 μcd	$3.05	$2.40
CMN 4640A	Orange	Common cathode, right-hand decimal	2.5 V	510 μcd	3.05	2.40
CMN 4705A	Red	Universal (common anode or common cathode), overflow ±1, right-hand decimal	2.0 V	200 μcd	2.10	1.60
CMN 4710A	Red	Common anode, right-hand decimal	2.0 V	200 μcd	2.10	1.60

0.400" SEVEN-SEGMENT LED DISPLAYS

Standard 10-pin dual-in-line packaging—H.P. compatible, common cathode displays available in red, yellow, orange, and high-efficiency red—categorized for luminous intensity—wide viewing angle of 150°.

Chicago Miniature Number	Color	Description	Forward Voltage $I_F = 20$ mA	Luminous Intensity @ 10 mA	Net Each, Lots of 1-99	Net Each, Lots of 100-999
CMN 4580A	Green	Common cathode, right-hand decimal	3.0 V	320 μcd	$3.05	$2.40
CMN 4680A	Orange	Common cathode, right-hand decimal	2.5 V	510 μcd	3.05	2.40
CMN 4780A	Red	Common cathode, right-hand decimal	2.0 V	200 μcd	2.10	1.60
CMN 4880A	Yellow	Common cathode, right-hand decimal	3.0 V	510 μcd	3.05	2.40
CMN 4980A	Red*	Common cathode, right-hand decimal	2.5 V	320 μcd	2.65	2.15

LISTING CONTINUED ON FOLLOWING PAGE

0.500" SEVEN-SEGMENT LED DISPLAYS

Two-digit and four-digit displays prematched for brightness and hue—end stackable—sculptured font for easy reading—available in red, yellow, and orange.

TWO-DIGIT

Chicago Miniature Number	Color	Description	Forward Voltage $I_F = 20$ mA	Luminous Intensity @ 10 mA	Net Each, Lots of 1-99	Net Each, Lots of 100-999
CMN 56120	Orange	Common anode, direct drive	2.6 V	510 μcd	$4.05	$4.20
CMN 56320	Orange	Common cathode, direct drive	2.6 V	510 μcd	4.05	4.20
CMN 58120	Yellow	Common anode, direct drive	3.0 V	510 μcd	4.05	4.20
CMN 58320	Yellow	Common cathode, direct drive	3.0 V	510 μcd	4.05	4.20
CMN 59120	Red*	Common anode, direct drive	2.6 V	350 μcd	4.05	4.20
CMN 59320	Red*	Common cathode, direct drive	2.6 V	350 μcd	4.05	4.20

FOUR DIGIT

CMN 56240	Orange	Common anode, multiplexed	2.6 V	510 μcd	$9.90	$8.40
CMN 56440	Orange	Common cathode, multiplexed	2.6 V	510 μcd	9.90	8.40
CMN 58240	Yellow	Common anode, multiplexed	3.0 V	510 μcd	9.90	8.40
CMN 58440	Yellow	Common cathode, multiplexed	3.0 V	510 μcd	9.90	8.40
CMN 59240	Red*	Common anode, multiplexed	2.6 V	350 μcd	9.90	8.40
CMN 59440	Red*	Common cathode, multiplexed	2.6 V	350 μcd	9.90	8.40

0.560" SEVEN-SEGMENT LED DISPLAYS

High efficiency orange, single- or double-digit display—categorized for luminous intensity—wide viewing angle of 150°

Chicago Miniature Number	Color	Description	Forward Voltage $I_F = 20$ mA	Luminous Intensity @ 10 mA	Net Each, Lots of 1-99	Net Each, Lots of 100-999
CMN 6640	Orange	Two digit, common cathode, right-hand decimal	2.5 V	510 μcd	$4.60	$3.65
CMN 6680	Orange	One digit, common cathode, right-hand decimal	2.5 V	510 μcd	3.15	2.50

0.560" SEVEN-SEGMENT LED DISPLAYS

Standard high performance red—single- or double-digit displays—categorized for luminous intensity—wide viewing angle of 150°.

Chicago Miniature Number	Color	Description	Forward Voltage $I_F = 20$ mA	Luminous Intensity @ 10 mA	Net Each, Lots of 1-99	Net Each, Lots of 100-999
CMN 6710	Red	Two digit, common anode, right-hand decimal	2.0 V	125 μcd	$3.55	$2.80
CMN 6730	Red	One and one-half digit, overflow ±1.8, right-hand decimal	2.0 V	125 μcd	3.55	2.80
CMN 6740	Red	Two digit, common cathode, right-hand decimal	2.0 V	125 μcd	3.55	2.80
CMN 6780	Red	One digit, common cathode, right-hand decimal	2.0 V	125 μcd	2.20	1.75

0.560" SEVEN-SEGMENT LED DISPLAYS

High-efficiency red—single- or double-digit displays—categorized for luminous intensity—wide viewing angle of 150°.

Chicago Miniature Number	Color	Description	Forward Voltage $I_F = 20$ mA	Luminous Intensity @ 10 mA	Net Each, Lots of 1-99	Net Each, Lots of 100-999
CMN 6910	Red*	Two digit, common anode, right-hand decimal	2.5 V	320 μcd	$4.20	$3.35
CMN 6930	Red*	One and one-half digit, common anode, overflow ±1.8, right-hand decimal	2.5 V	320 μcd	4.20	3.35
CMN 6940	Red*	Two digit, common cathode, right-hand decimal	2.5 V	320 μcd	4.20	3.35
CMN 6950	Red*	One and one-half digit, common cathode, overflow ±1.8, right-hand decimal	2.5 V	320 μcd	4.20	3.35
CMN 6960	Red*	One digit, common anode, right-hand decimal	2.5 V	320 μcd	2.30	1.85
CMN 6980	Red*	One digit, common cathode, right-hand decimal	2.5 V	320 μcd	2.30	1.85

0.800" SEVEN-SEGMENT LED DISPLAYS

High efficiency red—common cathode or anode models—categorized for luminous intensity—wide viewing angle of 150°.

Chicago Miniature Number	Color	Description	Forward Voltage $I_F = 20$ mA	Luminous Intensity @ 10 mA	Net Each, Lots of 1-99	Net Each, Lots of 100-999
CMN 8910	Red*	Common anode, right-hand decimal	2.5 V	320 μcd	$2.94	$2.40
CMN 8930	Red*	Common anode, ±1 overflow, right-hand decimal	2.5 V	320 μcd	2.94	2.40
CMN 8940	Red*	Common cathode, right-hand decimal	2.5 V	320 μcd	2.94	2.40
CMN 8950	Red*	Common cathode, ±1 overflow, right-hand decimal	2.5 V	320 μcd	2.94	2.40

*High efficiency.

4-X80B SERIES SOLID STATE LED's

Low power consumption for IC compatibility and cool operation. Long life virtually eliminates replacement. Solid lens construction. Very intense light source; up to 45.0 mcd luminous intensity. Subminiature, T-1¾ size cylindrical lens. Silver-plated leads standard on all devices. Mounting clip No. 4-6B available for panel mounting. **Forward Voltage (at If = 20 mA):** Orange and red, 2 V typical, 3 V max.; yellow, 2.1 V typical, 3 V max.; green, 2.2 V typical, 3 V max. **Reverse Voltage (at Ir = 100 μA):** 25 V typical, 5 V min. **Response Time:** 50 nsec. **Capacitance (at 1 MHz, 0 VDC):** 45 pF. **Max. Continuous Forward Current:** 35 mA at 25° C. **Max. Power Dissipation:** 105 mW at 25° C. **Max. Power Dissipation Above 25° C:** −1.15 mW/°C. **Max. Peak Forward Current (1 μsec. pulse, 0.1% duty cycle):** 5 amps. **Storage and Operating Temperature Range:** −55° C to +100° C.

CML No.	Lens Tint	Lens Diffusion	Material	Luminous Intensity @ If = 20 mA (mcd) Min.	Luminous Intensity @ If = 20 mA (mcd) Typ.	Typ. Viewing Angle
4-282B	Red	Transparent	GaAsP	17.0	40.0	28
4-282B-2	Red	Transparent	GaAsP	30.0	50.0	28
4-283B	Red	Diffused	GaAsP	3.0	8.0	24
4-284B	Red	Diffused	GaAsP	3.0	6.0	65
4-284B-2	Red	Diffused	GaAsP	3.0*	8.0	65
4-382B	Green	Transparent	GaP	5.0	15.0	28
4-382B-2	Green	Transparent	GaP	12.0	20.0	28
4-383B	Green	Diffused	GaP	0.9	3.0	24
4-384B	Green	Diffused	GaP	0.8	1.5	65
4-384B-2	Green	Diffused	GaP	2.2	3.0	65
4-482B	Orange	Transparent	GaAsP	17.0	40.0	28
4-482B-2	Orange	Transparent	GaAsP	30.0	50.0	28
4-483B	Orange	Diffused	GaAsP	3.0	8.0	24
4-484B	Orange	Diffused	GaAsP	3.0	6.0	65
4-484B-2	Orange	Diffused	GaAsP	3.0*	8.0	65
4-582B	Yellow	Transparent	GaAsP	16.0	45.0	28
4-582B-2	Yellow	Transparent	GaAsP	24.0	50.0	28
4-583B	Yellow	Diffused	GaAsP	3.0	10.0	24
4-584B	Yellow	Diffused	GaAsP	2.5	6.0	65
4-584B-2	Yellow	Diffused	GaAsP	2.2*	4.0	65

*Luminous intensity at If = 10 mA.

Series 4-X80B—Net Each, Lots of: 10–99 ..... **$0.61**
100–499 ..... **$0.54**; 500–999 ..... **.47**

Series 4-X80B-2—Net Each, Lots of: 10–99 ..... **$1.11**
100–499 ..... **$0.98**; 500–999 ..... **.85**

4-80B SERIES RED

Red gallium arsenide phosphide light-emitting diodes. Variety of lens styles and luminance intensities widens design choice. **Power Dissipation:** 180 mW (derate 2.0 mW/°C. above 25°C). **Forward Voltage:** 1.7 volts typical at 20 mA, 2.2 volts max. **Reverse Voltage:** 5.0 volts. **Wavelength:** 660 mM at peak. **Turn On and Turn Off Time:** 50nS. **Size:** 0.2″ dia. x 0.340″ length plus two 0.75 leads.

CML No.	Lens Tint	Lens Diffusion	Luminous Int. @ I_F = 20mA. Typical	Viewing Angle Typical
4-80B	Clear	Transparent	2.0 mcd	50°
4-81B	Clear	Diffused	1.6 mcd	72°
4-82B	Red	Transparent	2.0 mcd	50°
4-84B	Red	Diffused	1.6 mcd	80°
4-85B	Red	Diffused	0.8 mcd	110°
4-86B	Red	Diffused	0.8 mcd	150°

Models 4-80B, -81B, -82B and -85B—
Net Each, Lots of: 10–99 ..... **$0.39**
100–499 ..... **$0.35**; 500–999 ..... **.30**

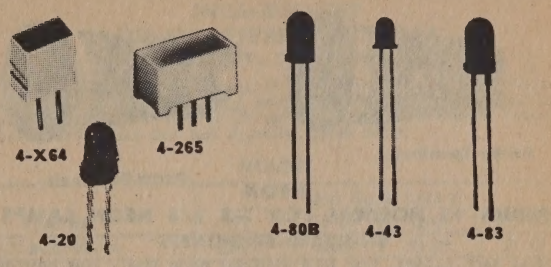
Model 4-84B—Net Each, Lots of: 10–99 ..... **$0.27**
100–499 ..... **$0.24**; 500–999 ..... **.21**

Model 4-86B—Net Each, Lots of: 10–99 ..... **$0.27**
100–499 ..... **$0.24**; 500–999 ..... **.21**

4-83 RED

The red diffused lens and T-1¾ size are ideally suited for panel and back-lighting applications. **Luminous Intensity:** 2.0 mcd at 10 mA. **Wavelength:** 660nM. **Power Dissipation:** 180 mW (derate 2.0 mW/°C above 25° C). **Forward Voltage:** 1.6 volts typical at 20 mA, 2.2 volts max. **Reverse Voltage:** 3.0 volts. **Turn On and Turn Off Time:** 50nS. **Size:** 0.2″ dia x 0.34″ length, plus two 0.85″ leads.

Model 4-83—Net Each, Lots of: 10–99 ..... **$0.32**
100–499 ..... **$0.29**; 500–999 ..... **.25**



4-20, 4-21, 4-22, 4-23 RED

Each unit supplied with snap-in mounting clip for panel mounting. Rigid terminals allow device to be connected in a variety of ways, soldered, welded or wire-wrapped, as well as being pluggable. Tin-plated leads. Choice of clear and red lenses, transparent or translucent. **Power Dissipation:** 180 mW (derate 2.0 mW/° C above 25° C). **Forward Voltage:** 1.6 volts typical at 20 mA, 2.0 volts max. **Reverse Voltage:** 3 volts. **Storage and Operating Temperature:** −55° C to +100° C. **Wavelength** 660 nM at peak. **Turn On and Turn Off Time:** 50 ns. **Soldering Time at 260° C:** 5 seconds. **Size:** .190″ dia. x .340″ length, plus two .55″ leads. **Hole for mounting clip:** ¼″ dia. **Max. Panel Thk.:** ⅛″.

CML No.	Lens Tint	Lens Diffusion	Luminous Int. @ I_F = 20 mA Typical	Viewing Angle Typical
4-20	Clear	Transparent	2.0 mcd	90°
4-21	Clear	Diffused	1.6 mcd	90°
2-22	Red	Transparent	1.6 mcd	90°
4-23	Red	Diffused	0.4 mcd	180°

Models 4-20, -21 and -22—Net Each, Lots of: 10–99 .... **$0.66**
100–499 ..... **$0.59**; 500–999 ..... **.51**

Model 4-23—Net Each, Lots of: 10–99 ..... **$0.54**
100–499 ..... **$0.48**; 500–999 ..... **.42**

4-43B RED

The red diffused lens and T-1 size make the 4-43B the perfect choice for high-density array and indicator applications. **Luminous Intensity:** 1.0 mcd at 20 mA. **Peak Wavelength:** 660 nM. **Power Dissipation:** 100 mW (derate 1.3 mW/°C above 25° C). **Forward Voltage:** 1.6 volts typical at 20 mA., 2.0 volts max. **Reverse Voltage:** 5.0 volts. **Turn On and Turn Off Time:** 50nS. **Size:** 0.120″ dia. max. x 0.2″ length, plus two 1.00″ min. leads.

Model 4-43B—Net Each, Lots of: 10–99 ..... **$0.54**
100–499 ..... **$0.48**; 500–999 ..... **.42**

4-X64 SERIES RECTANGULAR LED INDICATORS

Solid state LED lamps with .220″ x .125″ lighted area. Stackable in X or Y direction. High brightness; typically 4 mcd at 20 mA. Compact, rugged, lightweight. No light leakage from unit or sides. **Continuous Forward Current:** 35 mA max. at 25° C. **Power Dissipation:** 105 mW max. at 25° C; derated 1.15 mW/°C above 25° C. **Peak Forward Current (1 μsec. pulse, 1% duty cycle):** 300 pps, 1 amp. **Temperature Range:** −55° C to +100° C. **Solder Time (at 230° C):** 5 sec. Lens tint and light color are the same. Diffused lenses.

CML No.	Light Color	Typical Peak Wavelength (nm)	Luminous Intensity at If = 20 mA (mcd) Min.	Luminous Intensity at If = 20 mA (mcd) Typ.
4-264	Red	635	1.0	4.0
4-364	Green	565	1.0	3.0
4-564	Yellow	585	1.0	4.0

Series 4-X64—Net Each, Lots of: 10–99 ..... **$0.61**
100–499 ..... **$0.54**; 500–999 ..... **.47**

4-265 SERIES RED RECTANGULAR LED INDICATORS

Solid-state LED lamps with .500″ x .250″ lighted area. Stackable in X or Y direction. Compact, rugged, lightweight. No light leakage from sides. **Luminous Intensity:** 4.5 mcd at 20 mA. **Max. Continuous Forward Current:** 35 mA per chip at 25° C. **Power Dissipation:** 200 mW at 25° C; derated, −4.3 mW/°C above 25° C. **Peak Forward Current (1 μsec pulse, 0.1% duty cycle):** 300 pps, 1 amp. **Storage Temperature:** −40° C to +100° C. **Operating Temperature:** −40° C to +85° C. Lens tint and light color are the same. Diffused lenses.

Series 4-265—Net Each, Lots of 10–99 ..... **$1.84**
100–499 ..... **$1.71**; 500–999 ..... **1.48**

FOR THAT PERSONAL SERVICE, CALL OR WRITE US

DIALIGHT MINIATURE INDICATOR LIGHTS

DIALCO®

Solder Terminals

Screw Terminals

NEON

SERIES 95 HOLDERS FOR T-3 1/4 NEON LAMPS

STANDARD BRIGHTNESS

Meet MIL-L-3661. Use B1A (NE-51) neon lamp. Has built-in 56K resistor for use on 105-125 VAC or VDC. 2 1/16" long, mounts in 11/16" clearance hole. Less lamp.

Type No.	Terms.	Net Each, Lots of 1-9	10-24	25-99	100-249
BLACK NICKEL FINISH					
95-0408-09-241	Solder	$2.70	$2.18	$1.90	$1.76
95-1308-09-241	Screw	2.92	2.34	2.07	1.88
POLISHED CHROME FINISH					
95-0408-09-341	Solder	$2.70	$2.18	$1.90	$1.76
95-1308-09-341	Screw	2.92	2.34	2.07	1.88

HIGH BRIGHTNESS

Meet MIL-L-3661. Use B2A (NE-51H) neon lamp. Has built-in 22K resistor for use on 110-125 VAC. 2 1/16" long, mounts in 11/16" clearance hole. Less lamp.

BLACK NICKEL FINISH					
95-0463-09-211	Solder	$2.70	$2.18	$1.90	$1.76
95-1363-09-211	Screw	2.92	2.34	2.07	1.88
POLISHED CHROME FINISH					
95-0463-09-311	Solder	$2.70	$2.18	$1.90	$1.76
95-1363-09-311	Screw	2.92	2.34	2.07	1.88

Meet MIL-L-3661. Use B2A (NE-51H) neon lamp, Has built-in 68K resistor for use on 210-250 VAC or VDC.

POLISHED CHROME FINISH					
95-9463-09-361	Solder	$2.70	$2.18	$1.90	$1.76
95-9363-09-361	Screw	2.92	2.34	2.07	1.88

COMMERCIAL TYPE NEONS

Not MIL. Phenolic body 2 1/16" long, mounts in 11/16" clearance hole.

WHITE NICKEL FINISH					
95-9108-09-142*	Solder	$2.08	$1.76	$1.52	$1.36
95-9163-09-112†	Solder	2.08	1.76	1.52	1.36

*Has built-in 56K resistor for use on 105-125 VAC or VDC. Uses B1A (NE-51) lamp. †Has built-in 22K resistor for use on 110-125 VAC. Uses B2A (NE-51H) lamp.

INCANDESCENT

INDICATOR USING T-3 1/4 INCANDESCENT LAMPS

Meet MIL-L-3661. Use T-3 1/4 incandescent lamp with miniature bayonet base. For use on 2 to 55 volts. 2 1/16" long, mounts in 11/16" clearance hole. Less lamp.

BLACK NICKEL FINISH					
95-0410-09-201	Solder	$2.11	$1.80	$1.62	$1.44
95-1310-09-201	Screw	2.27	1.97	1.69	1.56
POLISHED CHROME FINISH					
95-410-09-301	Solder	$2.11	$1.80	$1.62	$1.44
95-1310-09-301	Screw	2.27	1.97	1.69	1.56

COMMERCIAL TYPE INCANDESCENT

Not MIL. No resistor, for use on 2 to 55 VAC. Use T-3 1/4 incandescent lamp. Phenolic body 2 1/16" long mounts in 11/16" clearance hole. Less lamp.

WHITE NICKEL FINISH					
95-9110-09-102	Solder	$1.72	$1.52	$1.31	$1.16

LENSES FOR ABOVE HOLDERS

Lens Color	Short Stovepipe Fluted	Short Stovepipe Plain	Cylindrical
Red	52-0991	95-0931	135-1431
Green*	52-0992	95-0932	135-1432
Amber	52-0993	95-0933	135-1433
Blue*	52-0994	95-0934	135-1434
Clear	52-0997	95-0937	135-1437
White	52-0995	95-0935	135-1435

*Not recommended for use with neon lamps.

Any Type Lens—Net Each, Lots of 1-9 .....$0.47; 10-24 .....$0.39; 25-99 .....$0.35; 100-249 .....$0.29

Type 135 Cylindrical (Translucent)

Type 95 Stovepipe (Smooth Face Translucent)

Type 81 Faceted

Type 52 Stovepipe (Internally Fluted Transparent)

INCANDESCENT

SERIES 81 HOLDERS

Use T-3 1/4 incandescent lamp. Has no resistor. Rated from 2 to 120 VAC or VDC. Meets MIL specs., mounts in 11/16" hole in panels up to 3/8" thick. Does not include lamp or lens.

Type No.	Terms.	Net Each, Lots of 1-9	10-24	25-99
BLACK NICKEL FINISH				
81-0410-01-201	Solder	$2.24	$1.91	$1.65
WHITE NICKEL FINISH				
81-0410-01-102	Solder	$1.80	$1.56	$1.36
81-9110-01-102*	Solder	1.80	1.61	1.41
CHROME FINISH				
81-0410-01-301	Solder	$2.24	$1.91	$1.65
81-1310-01-301	Screw	2.44	1.98	1.71

*Commercial type.

SERIES 81 LENS ASSEMBLIES

Screw-in lenses. Convex lenses are back frosted except (*) unfrosted. Faceted lenses are unfrosted.

Lens Color	Type Numbers: Polished Chrome† Convex Lens	Polished Chrome† Faceted Lens	White Nickel Convex Lens	White Nickel Faceted Lens
Red	81-0111-300	81-0431-300	81-0111-100	81-2131-100
Green	81-0112-300	81-0432-300	81-0112-100	81-2132-100
Amber	81-0113-300	81-0433-300	81-0113-100	81-2133-100
White	81-0135-300*	81-0435-300	81-0135-100*	81-2135-100
Clear	81-0117-300	81-0437-300	81-0117-100	81-2137-100

*Unfrosted. †To order black nickel finish, change suffix to 200.

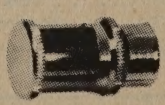
Finish	Net Each, Lots of 1-9	10-24	25-99	100-249
Chrome or black nickel	$0.97	$0.86	$0.72	$0.66
White nickel	.81	.72	.64	.56

LIGHT SHIELD INDICATOR

Uses T-3 1/4 incandescent lamp with miniature bayonet base. Rated 2 to 55 VAC or VDC. Mounts in 11/16" hole. Light shield cap has 1/2" × 1/2" opening. Polished chrome finish.

Type No.	Terms.	Net Each, Lots of 1-9	10-24	25-99	100-249
21-0410-29-301	Solder	$2.24	$1.91	$1.69	$1.50
21-1310-29-301	Screw	2.48	2.07	1.83	1.66

LIGHT SHIELD CAP



Type No.	Net Each, Lots of 1-9	10-24	25-99	100-249
21-2900-300	$1.99	$1.76	$1.53	$1.40

PILOT BULB REMOVER

Molded of rubber. Have two hollow ends which stretch over and engage bulbs tightly. Type 506-0045 fits T-3 1/4 and T-4 1/2 bulbs. Type 506-0073 fits T-3 1/4 and S6 candelabra screw base bulbs.

Type No.	Net Each, Lots of 1-9	10-24	25-99	100-249
506-0045	$0.78	$0.69	$0.63	$0.53
506-0073	.74	.53	.44	.37

PRICES LISTED ARE FOR GUIDANCE ONLY

SUB-MINIATURE INDICATOR LIGHTS

Front or Back Mounting | Front Mounting | Stovepipe Lens | Cylindrical Lens

INCANDESCENT INDICATOR LIGHTS
TWO-TERMINAL—FULLY INSULATED

Meet MIL requirements. Phenolic insulated. Lens cap assembly unscrews from front of panel for easy replacement of lamp. Two solder terminals provided for electrical connections. Anti-rotation (locked) construction provides secure locking of assembly to panel. Lenses molded of high heat plastic. Use T-1 3/4 midget flange base lamp rated from 1.35 to 28 volts. Order holder and lens separately to obtain necessary parts for self-assembly of complete unit. Less lamp.

FRONT MOUNTING HOLDERS

Type No.	Mtg. Hole	Net Each, Lots of 1-9	10-24	25-99	100-249
101-5030-09-201	17/32"	$2.57	$2.01	$1.67	$1.44
101-8430-09-201	15/32"	3.05	2.37	2.00	1.72

FRONT OR BACK MOUNTING HOLDERS

101-3830-09-201	15/32"	$2.57	$2.01	$1.67	$1.44

LENS CAPS FOR ABOVE HOLDERS

Lens Color	Type Nos. Stovepipe Translucent	Stovepipe Transparent	Flat Cylindrical Translucent	Flat Cylindrical Transparent
Red	101-0971	101-0931	140-1471	140-1431
Green	101-0972	101-0932	140-1472	140-1432
Amber	101-0973	101-0933	140-1473	140-1433
White	101-0975	101-0935	140-1475	140-1435

Any Lens—Net Each, Lots of 1-9 .....$0.67; 10-24 .....$0.52; 25-99 .....$0.43; 100-249.....$0.35

TWO TERMINAL—MS25256

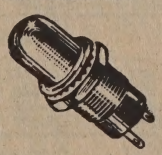
Uses T-1 3/4 midget flange base incandescent lamps rated from 1.35 to 28 volts. Front panel mounting in 15/32" clearance hole. Less lamp.

Type No.*	MIL Std. Dwg. No.	Color	Net Each, Lots of 1-9	10-24	25-99
162-8430-0933-502	MS25256-2	Yellow	$3.07	$2.45	$2.07
162-8430-0932-502	MS25256-4	Green	3.07	2.45	2.07
162-8430-0931-502	MS25256-6	Red	3.07	2.45	2.07
162-8430-0937-502	MS25256-8	Clear	3.07	2.45	2.07
162-8430-0975-502	MS25256-10	White	3.07	2.45	2.07
162-8430-0934-502	MS25256-12	Blue	3.07	2.45	2.07

*Anti-rotation construction.

NEON INDICATOR LIGHTS
C7A (NE-2D) NEON SUB-MINIATURE MS25257

Uses T-2 neon glow lamp. Has built-in 62K resistor for use on 105-125 VAC or VDC. Stove pipe lens in plastic with 180° lens spread. Mounting bushing is aluminum with black anodized finish. Steel internal tooth lockwasher and hex mounting nut are cadmium plated and coated with iridite. Terminals are hot-tinned brass with elongated slots. Less lamp. Size, 1 1/2" × 5/8". Front mounting in 15/32" clearance hole.



137-8836-0933-552	MS25257-2	Yellow	$5.16	$4.05	$3.40
137-8836-0931-552	MS25257-4	Red	5.16	4.05	3.40
137-8836-0937-552	MS25257-6	Clear	5.16	4.05	3.40

SERIES 137-8864 HOLDERS

For bright light when used with C9A (NE-2J) neon lamp. Has built-in 22K resistor for use on 110-125 VAC. Black anodized finish, aluminum bushing, steel hardware. Less lamp.

HOLDERS

Type No.	Net Each, Lots of 1-9	10-24	25-99	100-249
137-8864-09-512	$4.49	$3.53	$2.97	$2.52
137-8864-09-532†	4.49	3.53	2.97	2.52

†Has 33K resistor.

LENS CAPS FOR ABOVE HOLDERS

Type No.	Lens Color	Net Each, Lots of 1-9	10-24	25-99	100-249
137-0931	Red	$0.67	$0.52	$0.43	$0.35
137-0933	Amber	.67	.52	.43	.35
137-0937	Clear	.67	.52	.43	.35

INCANDESCENT
SUB-MINIATURE INDICATORS
WATER-TIGHT—TWO-TERMINAL

With retained "O" ring seal. Front mounting in 15/32" clearance hole. Takes T-1 3/4 midget flange base incandescent lamps rated from 1.35 to 28 volts. Lugs are hot-tinned brass. Lockwasher and hex nut supplied. Less lamp.

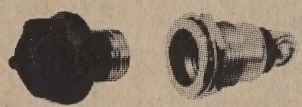
HOLDER

Type No.	Net Each, Lots of 1-9	10-24	25-99	100-249
177-8430-09-503	$2.77	$2.23	$1.89	$1.66

LENS CAPS FOR ABOVE HOLDER

Lens Color	Type Nos. Transparent	Translucent	Net Each, Lots of 1-9	10-24
Red	177-0931-003	177-0971-003	$1.19	$0.95
Green	177-0932-003	177-0972-003	1.19	.95
Amber	177-0933-003	177-0973-003	1.19	.95
Blue	177-0934-003	177-0974-003	1.19	.95
White	177-0935-003	177-0975-003	1.19	.95
Yellow	177-0936-003	177-0976-003	1.19	.95
Clear	177-0937-003	.....	1.19	.95

SERIES 270 TRANSLUCENT PANEL EDGE



For MIL-P-7788 plastic plate panels. Mounts in 15/32" clearance hole. Less lamp. Uses T-1 3/4 lamp. Overall size, 1 7/16". Order separate base and cap.

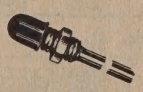
BASE ASSEMBLIES

Type No.	Terms.	Net Each, Lots of 1-9	10-24	25-99	100-249
270-1830-702	Screw	$1.57	$1.26	$1.07	$0.95
270-1930-702	Solder	1.16	1.01	.84	.76

LENS CAP ASSEMBLIES

Type No.	Filter Color	Net Each, Lots of 1-9	10-24	25-99	100-249
270-0111	Red	$1.16	$0.86	$0.71	$0.61
270-0171	Clear	1.16	.86	.71	.61

SUB-SUB-MINIATURE INDICATOR LIGHTS



MS25446. T-1 filament lamp in plastic cap. Flexible 6" wire leads. Requires 0.193" mounting hole. Lens cap diam. 7/32". Lamp rating, 5 volts at 0.06 amps, 60.000 hour life; 6.3 volts at 0.07 amps, 6000 hour life. Sealed unit with non-replaceable lamp.

Type No.	MIL Spec.	Color	Net Each, Lots of 1-9	10-24	25-99
252-9951-0971	MS25446-4	Red	$4.74	$4.38	$4.05
252-9951-0972	MS25446-3	Green	4.74	4.38	4.05
252-9951-0973	MS25446-6	Amber	4.74	4.38	4.05
252-9951-0974	MS25446-2	Blue	4.74	4.38	4.05
252-9951-0975	MS25446-5	White	4.74	4.38	4.05
252-9951-0937	MS25446-7	Clear	4.74	4.38	4.05

NEON WATER-TIGHT
TWO-TERMINAL INDICATORS

Series 181-8864 and 181-8836 Holders. Have built-in 22K or 62K resistor for use on 105-125 VAC or VDC. Series has retained "O" ring seal for water-tight construction. Less lamp.

HOLDERS

Type No.	Net Each, Lots of 1-9	10-24	25-99	100-249
181-8836-09-553	$5.12	$4.07	$3.50	$2.99
181-8864-09-513*	5.12	4.07	3.50	2.99

*Has 22K resistor.

LENS FOR ABOVE HOLDERS

Type No.	Lens Color	Net Each, Lots of 1-9	10-24	25-99	100-249
181-0931-003	Red	$1.16	$0.96	$0.81	$0.69
181-0935-003	White	1.16	.96	.81	.69
181-0937-003	Clear	1.16	.96	.81	.69

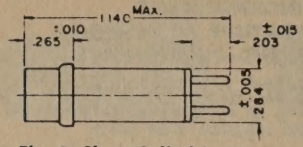


Fig. 1. Short Cylindrical Lens

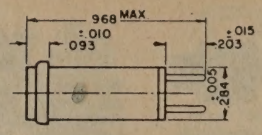


Fig. 2. Flat Lens

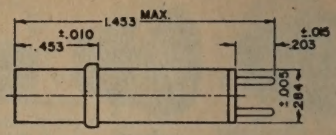


Fig. 3. Long Cylindrical Lens

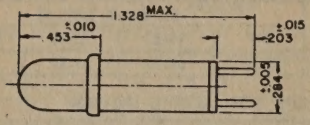


Fig. 4. Stovepipe Lens

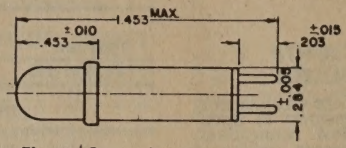


Fig. 5. Stovepipe Lens

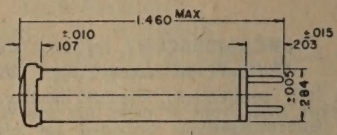


Fig. 6. Plano-convex Lens

NEON CARTRIDGES

Neon lamps with lower series resistor values offer the best indication with a minimum life of 5K hours, while 25K hours can be expected with higher resistor values. The high brightness types offer constant light output through life and 5 times the brightness of standard neons.

STANDARD BRIGHTNESS 105-125 VAC OR VDC (Fig. 5)

Type No.	Lamp	Built-in Resistor	Lens Color	Net Ea., Lots of 1-9	Net Ea., Lots of 10-24
507-4537-0931-640	A1B	56K	Red	$3.04	$2.37
507-4537-0933-640	A1B	56K	Amber	3.04	2.37
507-4537-0935-640	A1B	56K	White	3.04	2.37
507-4537-0937-640	A1B	56K	Clear	3.04	2.37

HIGH BRIGHTNESS 110-125 VAC (Fig. 5)

507-4538-0931-610	A1C	22K	Red	$3.04	$2.37
507-4538-0933-610	A1C	22K	Amber	3.04	2.37
507-4538-0935-610	A1C	22K	White	3.04	2.37
507-4538-0937-610	A1C	22K	Clear	3.04	2.37

STANDARD BRIGHTNESS 105-125 VAC OR VDC (Fig. 3)

Type No.	Lamp	Built-in Resistor	Lens Color	Net Ea., Lots of 1-9	Net Ea., Lots of 10-24
507-4537-1531-640	A1B	56K	Red	$3.04	$2.37
507-4537-1533-640	A1B	56K	Amber	3.04	2.37
507-4537-1535-640	A1B	56K	White	3.04	2.37
507-4537-1537-640	A1B	56K	Clear	3.04	2.37

HIGH BRIGHTNESS 110-125 VAC (Fig. 3)

507-4538-1531-610	A1C	22K	Red	$3.04	$2.37
507-4538-1533-610	A1C	22K	Amber	3.04	2.37
507-4538-1535-610	A1C	22K	White	3.04	2.37
507-4538-1537-610	A1C	22K	Clear	3.04	2.37

INCANDESCENT LAMP CARTRIDGES

TRANSLUCENT 6 V, 0.2 A (Fig. 1)

Type No.	C.P.	Life Hours	Lens Color	Net Ea., Lots of 1-9	Net Ea., Lots of 10-24
507-3906-1471-600	.60	1000	Red	$2.22	$1.98
507-3906-1472-600	.60	1000	Green	2.22	1.98
507-3906-1473-600	.60	1000	Amber	2.22	1.98
507-3906-1475-600	.60	1000	White	2.22	1.98

TRANSLUCENT 6.3 V, 0.2 A (Fig. 4)

507-3909-0971-600	.40	20,000	Red	$2.43	$2.12
507-3909-0972-600	.40	20,000	Green	2.43	2.12
507-3909-0973-600	.40	20,000	Amber	2.43	2.12
507-3909-0975-600	.40	20,000	White	2.43	2.12

TRANSPARENT 10 V, 0.14 A (Fig. 1)

507-3910-1431-600	.004	50,000	Red	$2.43	$2.12
507-3910-1432-600	.004	50,000	Green	2.43	2.12
507-3910-1433-600	.004	50,000	Amber	2.43	2.12

TRANSPARENT 10 V, .04 A (Fig. 1)

507-3911-1431-600	.08	10,000	Red	$2.16	$1.93
507-3911-1432-600	.08	10,000	Green	2.16	1.93
507-3911-1433-600	.08	10,000	Amber	2.16	1.93
507-3911-1435-600	.08	10,000	White	2.16	1.93

TRANSLUCENT 14 V, .08 A (Fig. 1)

507-3913-1471-600	.50	1500	Red	$2.22	$1.98
507-3913-1472-600	.50	1500	Green	2.22	1.98
507-3913-1473-600	.50	1500	Amber	2.22	1.98
507-3913-1475-600	.50	1500	White	2.22	1.98

TRANSLUCENT 14 V, .08 A (Fig. 1)

Type No.	C.P.	Life Hours	Lens Color	Net Ea., Lots of 1-9	Net Ea., Lots of 10-24
507-3914-1471-600	.30	15,000	Red	$2.16	$1.93
507-3914-1472-600	.30	15,000	Green	2.16	1.93
507-3914-1473-600	.30	15,000	Amber	2.16	1.93
507-3914-1475-600	.30	15,000	White	2.16	1.93

TRANSLUCENT 28 V, .04 A (Fig. 4)

507-3917-0971-600	.34	4000	Red	$2.16	$1.93
507-3917-0972-600	.34	4000	Green	2.16	1.93
507-3917-0973-600	.34	4000	Amber	2.16	1.93
507-3917-0975-600	.34	4000	White	2.16	1.93

TRANSLUCENT 28 V, .04 A (Fig. 1)

507-3917-1471-600	.34	4000	Red	$2.16	$1.93
507-3917-1472-600	.34	4000	Green	2.16	1.93
507-3917-1473-600	.34	4000	Amber	2.16	1.93
507-3917-1475-600	.34	4000	White	2.16	1.93

TRANSLUCENT 28 V, .04 A (Fig. 1)

507-3918-1471-600	.30	7000	Red	$2.16	$1.93
507-3918-1472-600	.30	7000	Green	2.16	1.93
507-3918-1473-600	.30	7000	Amber	2.16	1.93
507-3918-1475-600	.30	7000	White	2.16	1.93

INCANDESCENT CARTRIDGES 6 V TO 120 V (Fig. 6)

Type No. Clear	Volts	C.P.	Life Hours	Net Each, Lots of 1-9	10-24	25-99	100-249
507-5819-0747-600	6	0.7	5000	$3.48	$2.79	$2.37	$1.99
507-5820-0747-600	12	2.1	5000	3.48	2.79	2.37	1.99
507-5821-0747-600	28	1.2	5000	3.48	2.79	2.37	1.99
507-5822-0747-600	48	1.5	5000	3.48	2.79	2.37	1.99
507-5823-0747-600	60	2.2	5000	3.64	3.30	2.98	2.73
507-5824-0747-600	120	1.5	5000	3.48	2.79	2.37	1.99

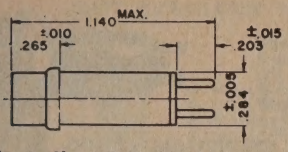


Fig. 1. Short Cylindrical Lens

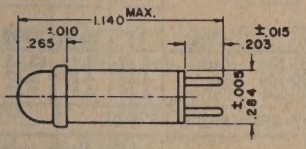


Fig. 7. Short Stovepipe Lens

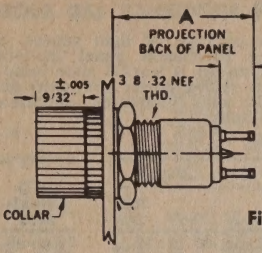


Fig. C.

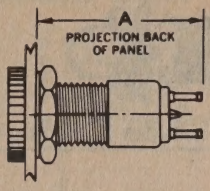


Fig. G.

SOLID-STATE CARTRIDGES

Light source is a solid-state lamp that provides the advantages of low power with extremely long life and is compatible with integrated circuits (can be driven directly by RTL, DTL, or TTL logic). May be used as direct replacements for existing cartridges using an incandescent lamp operating from a DC power source. An internal Fresnel ring pattern in the lens design assures maximum distribution of the light output. Cartridge is supplied in a black anodized finish that produces a high contrast ratio. To facilitate proper installation of the cartridge, the polarity is marked (+) on the cartridge housing and the terminal base is keyed.

SHORT CYLINDRICAL 3.6 V DC (Fig. 1)

Type No.*	Lens Color	Net Each, Lots of 1-9	10-24	25-99
507-4756-3331-500	Red	$3.03	$2.54	$2.17
507-4856-3332-500	Green	3.34	2.80	2.38
507-4956-3333-500	Yellow	3.34	2.80	2.38

*To order cartridge with stovepipe lens, change -3331- to -3731-; prices are the same.

SHORT CYLINDRICAL 5 V DC (Fig. 1)

Type No.*	Lens Color	Net Each, Lots of 1-9	10-24	25-99
507-4757-3331-500	Red	$3.03	$2.54	$2.17
507-4857-3332-500	Green	3.34	2.80	2.38
507-4957-3333-500	Yellow	3.34	2.80	2.38

*To order cartridge with stovepipe lens, change -3331- to -3731-; prices are the same.

SHORT CYLINDRICAL 6 VDC (Fig. 1)

Type No.*	Lens Color	Net Each, Lots of 1-9	10-24	25-99
507-4758-3331-500	Red	$3.03	$2.54	$2.17
507-4858-3332-500	Green	3.34	2.80	2.38
507-4958-3333-500	Yellow	3.34	2.80	2.38

*To order cartridge with stovepipe lens, change -3331- to -3731-; prices are the same.

SHORT CYLINDRICAL 10 VDC (Fig. 1)

Type No.*	Lens Color	Net Each, Lots of 1-9	10-24	25-99
507-4759-3331-500	Red	$3.03	$2.54	$2.17
507-4859-3332-500	Green	3.34	2.80	2.38
507-4959-3333-500	Yellow	3.34	2.80	2.38

*To order cartridge with stovepipe lens, change -3331- to -3731-; prices are the same.

SHORT CYLINDRICAL 14 VDC (Fig. 1)

Type No.*	Lens Color	Net Each, Lots of 1-9	10-24	25-99
507-4760-3331-500	Red	$3.03	$2.54	$2.17
507-4860-3332-500	Green	3.34	2.80	2.38
507-4960-3333-500	Yellow	3.34	2.80	2.38

*To order cartridge with stovepipe lens, change -3331- to -3731-; prices are the same.

SHORT CYLINDRICAL 28 VDC (Fig. 1)

Type No.*	Lens Color	Net Each, Lots of 1-9	10-24	25-99
507-4761-3331-500	Red	$3.34	$2.80	$2.39
507-4861-3332-500	Green	3.68	3.08	2.67
507-4961-3333-500	Yellow	3.68	3.08	2.67

*To order cartridge with stovepipe lens, change -3331- to -3731-; prices are the same.

DATALAMP HOLDERS

Datalamp holders are available with or without screw-on collar. The use of either is dependent on the desired front-of-panel appearance. The standard black anodized flange nut and collar produce the desired maximum contrast. In addition, the terminals of the holder are marked "A" and "B". The "A" terminal would denote positive polarity. This feature assures proper installation and wiring.

Datalamp Holder Style	Accepts Cartridge Fig. Number*	Turret Terminals Type No.	Solder Cup Terminals Type No.	Dim. A Max.
C	1, 2, 4, 7	508-8738-504	508-7538-504	5 7/64"
G	1, 2, 4, 7	250-8738-14-504	250-7538-14-504	1 1/32"
C	3, 5	508-8745-504	508-7545-504	6 3/64"
G	3, 5	250-8745-14-504	250-7545-14-504	1 1/8"
G	6	250-8758-33-504	250-7558-33-504	1 21/32"

*See preceding page for Figs. 1 through 6.

TURRET TERMINALS

Type No.	Description	Net Each, Lots of 1-9	10-24	25-99
508-8738-504	With collar	$3.14	$2.50	$2.11
250-8738-14-504	Without collar	2.79	2.20	1.87
508-8745-504	With collar	3.14	2.50	2.11
250-8745-14-504	Without collar	2.79	2.20	1.87
250-8758-33-504	Without collar	3.19	2.51	2.15

SOLDER CUP TERMINALS

Type No.	Description	Net Each, Lots of 1-9	10-24	25-99
508-7538-504	With collar	$3.14	$2.50	$2.11
250-7538-14-504	Without collar	2.79	2.20	1.87
508-7545-504	With collar	3.14	2.50	2.11
250-7545-14-504	Without collar	2.79	2.20	1.87
250-7558-33-504	Without collar	3.19	2.51	2.15

CAPS FOR ABOVE HOLDERS WITHOUT COLLARS

Translucent Type No.*	Lens Color	Net Each, Lots of 1-9	10-24	25-99	100-249
250-1471-500	Red	$1.07	.84	.72	.63
250-1472-500	Green	1.07	.84	.72	.63
250-1473-500	Amber	1.07	.84	.72	.63
250-1475-500	White	1.07	.84	.72	.63

*To order transparent lens, change -1471- to -3331-; prices are the same.

CARTRIDGE CONNECTORS

515-0050

Molded phenolic with solder lug terminals of beryllium copper with cadmium plating and elongated slots.

Type No.	Net Each, Lots of 1-9	10-24	25-99	100-249
515-0074	$0.47	$0.39	$0.35	$0.30
515-0050	.47	.39	.35	.30

515-0012

Aluminum sleeve with black anodized finish. Insulation of black molded phenolic. Solder cup terminals of phosphor bronze, gold plated.

Type No.	Net Each, Lots of 1-9	10-24	25-99	100-249
515-0012	$1.56	$1.20	$0.97	$0.78

SPRING CLIP

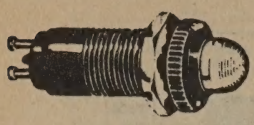
515-0051

Effective when conventional mounting is not practical. For all Dialight plug-in neon, incandescent and solid-state lamps and cartridges. Self-retaining. Made of heat treated spring steel.

Type No.	Net Each, Lots of 1-9	10-24	25-99	100-249
515-0051	$0.26	$0.21	$0.19	$0.09

DIALIGHT ULTRA-MINIATURE INDICATOR LIGHTS

DIALCO®



HIGH EFFICIENCY LED DIODELITES

Complete package of light source, housing and lens. Ready for permanent panel mounting. Light source (high brightness) is a solid state lamp that provides the advantages of low power with extremely long life and is compatible with integrated circuits. Mount in 3/8" clearance hole.

SHORT CYLINDRICAL 3.6 VDC

LED Brightness	Type No.	Color	Net Each, Lots of 1-9	10-24	25-99	100-249
High eff.	249-7867-3331-504	Red	$4.37	$3.66	$3.15	$2.82
High eff.	249-7967-3332-504	Green	4.80	4.01	3.47	3.10
High eff.	249-8067-3333-504	Yellow	4.80	4.01	3.47	3.10

SHORT STOVEPIPE 3.6 VDC

LED Brightness	Type No.	Color	Net Each, Lots of 1-9	10-24	25-99	100-249
High eff.	249-7867-3731-504	Red	$4.37	$3.66	$3.15	$2.82
High eff.	249-7967-3732-504	Green	4.80	4.01	3.47	3.10
High eff.	249-8067-3733-504	Yellow	4.80	4.01	3.47	3.10

SHORT CYLINDRICAL 5 VDC

LED Brightness	Type No.	Color	Net Each, Lots of 1-9	10-24	25-99	100-249
High eff.	249-7868-3331-504	Red	$4.37	$3.66	$3.15	$2.82
High eff.	249-7968-3332-504	Green	4.80	4.01	3.47	3.10
High eff.	249-8068-3333-504	Yellow	4.80	4.01	3.47	3.10

SHORT STOVEPIPE 5 VDC

LED Brightness	Type No.	Color	Net Each, Lots of 1-9	10-24	25-99	100-249
High eff.	249-7868-3731-504	Red	$4.37	$3.66	$3.15	$2.82
High eff.	249-7968-3732-504	Green	4.80	4.01	3.47	3.10
High eff.	249-8068-3733-504	Yellow	4.80	4.01	3.47	3.10

SHORT CYLINDRICAL 6 VDC

LED Brightness	Type No.	Color	Net Each, Lots of 1-9	10-24	25-99	100-249
High eff.	249-7869-3331-504	Red	$4.37	$3.66	$3.15	$2.82
High eff.	249-7969-3332-504	Green	4.80	4.01	3.47	3.10
High eff.	249-8069-3333-504	Yellow	4.80	4.01	3.47	3.10

SHORT STOVEPIPE 6 VDC

LED Brightness	Type No.	Color	Net Each, Lots of 1-9	10-24	25-99	100-249
High eff.	249-7869-3731-504	Red	$4.37	$3.66	$3.15	$2.82
High eff.	249-7969-3732-504	Green	4.80	4.01	3.47	3.10
High eff.	249-8069-3733-504	Yellow	4.80	4.01	3.47	3.10

SHORT CYLINDRICAL 10 VDC

LED Brightness	Type No.	Color	Net Each, Lots of 1-9	10-24	25-99	100-249
High eff.	249-7870-3331-504	Red	$4.37	$3.66	$3.15	$2.82
High eff.	249-7970-3332-504	Green	4.80	4.01	3.47	3.10
High eff.	249-8070-3333-504	Yellow	4.80	4.01	3.47	3.10

SHORT STOVEPIPE 10 VDC

LED Brightness	Type No.	Color	Net Each, Lots of 1-9	10-24	25-99	100-249
High eff.	249-7870-3731-504	Red	$4.37	$3.66	$3.15	$2.82
High eff.	249-7970-3732-504	Green	4.80	4.01	3.47	3.10
High eff.	249-8070-3733-504	Yellow	4.80	4.01	3.47	3.10

SHORT CYLINDRICAL 14 VDC

LED Brightness	Type No.	Color	Net Each, Lots of 1-9	10-24	25-99	100-249
High eff.	249-7871-3331-504	Red	$4.37	$3.66	$3.15	$2.82
High eff.	249-7971-3332-504	Green	4.80	4.01	3.47	3.10
High eff.	249-8071-3333-504	Yellow	4.80	4.01	3.47	3.10

SHORT STOVEPIPE 14 VDC

LED Brightness	Type No.	Color	Net Each, Lots of 1-9	10-24	25-99	100-249
High eff.	249-7871-3731-504	Red	$4.37	$3.66	$3.15	$2.82
High eff.	249-7971-3732-504	Green	4.80	4.01	3.47	3.10
High eff.	249-8071-3733-504	Yellow	4.80	4.01	3.47	3.10

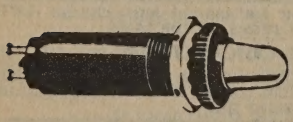
SHORT CYLINDRICAL 28 VDC

LED Brightness	Type No.	Color	Net Each, Lots of 1-9	10-24	25-99	100-249
High eff.	249-7872-3331-504	Red	$4.73	$3.97	$3.43	$3.06
High eff.	249-7972-3332-504	Green	5.20	4.37	3.75	3.37
High eff.	249-8072-3333-504	Yellow	5.20	4.37	3.75	3.37

SHORT STOVEPIPE 28 VDC

LED Brightness	Type No.	Color	Net Each, Lots of 1-9	10-24	25-99	100-249
High eff.	249-7872-3731-504	Red	$4.73	$3.97	$3.43	$3.06
High eff.	249-7972-3732-504	Green	5.20	4.37	3.75	3.37
High eff.	249-8072-3733-504	Yellow	5.20	4.37	3.75	3.37

DATALITES WITH PERMANENT NEON LAMPS



Lamps are built-in, not replaceable. Mount in 3/8" clearance hole. Rugged, long-life T-2 neon lamp. Resistors to MIL-R-11 specification. Lightweight construction of aluminum with black anodized finish. Plastic lens gives wide angle visibility. Two insulated terminals of low carbon steel, solder plated. With mounting hardware.

HIGH BRIGHTNESS UNIT W/C2A (NE-2H) LAMP 110-125 VAC, 5000 APPROXIMATE HOURS

Conforms to MIL-L-3661 specification. Stovepipe lens and built-in 22K resistor. 1 25/64" × 1/2" overall.

Type No.	Color	Net Each, Lots of 1-9	10-24	25-99	100-249
249-7866-0931-514	Red	$3.74	$3.18	$2.77	$2.39
249-7866-0933-514	Amber	3.74	3.18	2.77	2.39
249-7866-0935-514	White	3.74	3.18	2.77	2.39
249-7866-0937-514	Clear	3.74	3.18	2.77	2.39

Conforms to MIL-L-3661 specification. Cylindrical lens and built-in 22K resistor. 1 25/64" × 1/2" overall.

Type No.	Color	Net Each, Lots of 1-9	10-24	25-99	100-249
249-7866-1431-514	Red	$3.74	$3.18	$2.77	$2.39
249-7866-1433-514	Amber	3.74	3.18	2.77	2.39
249-7866-1435-514	White	3.74	3.18	2.77	2.39
249-7866-1437-514	Clear	3.74	3.18	2.77	2.39

STANDARD BRIGHTNESS UNIT W/A9A (NE-2E) LAMP 105-125 V 25,000 APPROXIMATE HOURS

Short stovepipe lens and built-in 100K resistor. 1 25/64" × 1/2" overall.

Type No.	Color	Net Each, Lots of 1-9	10-24	25-99	100-249
249-7841-0931-574	Red	$3.74	$3.18	$2.77	$2.39
249-7841-0933-574	Amber	3.74	3.18	2.77	2.39
249-7841-0935-574	White	3.74	3.18	2.77	2.39
249-7841-0937-574	Clear	3.74	3.18	2.77	2.39

Short cylindrical lens and built-in 100K resistor. 1 25/64" × 1/2" overall.

Type No.	Color	Net Each, Lots of 1-9	10-24	25-99	100-249
249-7841-1431-574	Red	$3.74	$3.18	$2.77	$2.39
249-7841-1433-574	Amber	3.74	3.18	2.77	2.39
249-7841-1435-574	White	3.74	3.18	2.77	2.39
249-7841-1437-574	Clear	3.74	3.18	2.77	2.39

Green or blue lenses are not recommended for use with neon lamps.

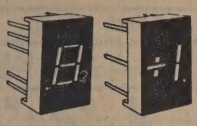
PRICES LISTED ARE FOR GUIDANCE ONLY

DIALIGHT

LED READOUTS & DISPLAYS

DIALCO®

.300" CHARACTER HEIGHT



- High Brightness
- Low Power Requirements
- Standard 14-Pin DIP
- Single Plane Wide Angle Visibility
- Compatible with TTL & DTL Circuits

Solid-state LED readout. Compatible with most TTL and DTL circuits. Typical static forward voltage, 1.7 V.

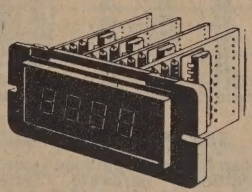
Type No.	Description	Net Each, Lots of 1-9	10-99	100-249
745-0017	Numeric display	$2.89	$1.73	$1.42
745-0018	+/– Display	2.89	1.73	1.42

CONNECTOR FOR ABOVE DISPLAYS

Type No.	Net Each, Lots of 1-9	10-24	25-99	100-249
501-0701-009	$2.10	$1.86	$1.55	$1.32

COMPLETE ASSEMBLIES

Displays with decoder driver are supplied with stylish black bezel for simplified panel mounting of multidigit groupings. Displays feature a bright, highly legible character in a 7-segment format. .300" high character. User has the option of hard wiring to the board or using edge card connector.

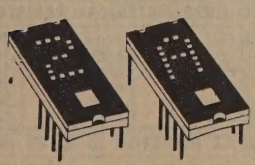


Type No.	No. of Characters	Net Each
749-1501-001	1	$19.36
749-1502-001	2	32.88
749-1503-001	3	46.39
749-1504-001	4	59.90
749-1505-001	5	73.43
749-1506-001	6	86.94
749-1507-001	7	100.46
749-1508-001	8	113.97
749-1509-001	9	127.49

CARD EDGE CONNECTORS

Type No.	Description	Net Each, Lots of 1-9	10-24	25-99	100-249
501-0700-005	Solder pins	$4.40	$4.14	$3.62	$3.30
501-0700-009	PC or wire wrap	4.40	4.14	3.62	3.30

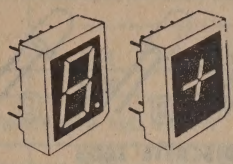
NUMERIC DISPLAY—.270"



Solid-state visible displays with integral TTL MSI circuit chip with latch, decoder and driver. .270" high character. Left-hand decimal point. Supply voltage V_{CC}, continuous 5.5 V.

Type No.	Description	Net Each, Lots of 1-9	10-24	25-99	100-249
745-0008	BCD display	$13.57	$10.52	$10.52	$9.82
745-0009	Pulse count display	13.57	10.52	10.52	9.82
501-0702-009	Connector	2.40	2.07	1.74	1.47

.600" CHARACTER HEIGHT



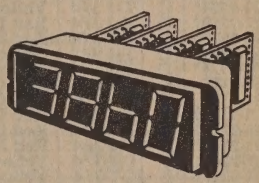
- GaP Red LED
- Large .600" Character
- Common Anode Construction
- Seven-Segment Format with Decimal Point
- Low Power Requirement, 10 mA per Segment

Solid-state LED readout. Low power requirement, typically 10 mA per segment. Typical static forward voltage, 2 V.

Type No.	Description	Net Each, Lots of 1-9	10-24	25-99	100-249
730-6001	Numeric display	$6.07	$4.63	$4.41	$3.80
730-6005	+/– Display	7.28	5.63	5.29	4.58

COMPLETE ASSEMBLIES

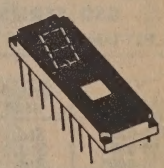
Displays with decoder driver are supplied with stylish black bezel for simplified panel mounting of multidigit groupings. Displays feature a bright, highly legible character in a large 7-segment format. .600" high character. User has the option of hard wiring to the board or using edge card connectors.



Type No.	No. of Characters	Net Each
739-0260-601	2	$46.64
739-0360-601	3	67.03
739-0460-601	4	87.42
739-0560-601	5	107.83
739-0660-601	6	128.22
739-0760-601	7	148.62
739-0860-601	8	169.01
739-0960-601	9	189.41

HEXADECIMAL DISPLAY—.270"

Solid-state. Integral TTL MSI circuit chip with latch, decoder and driver to accept, store and display 4-bit binary data. .270" high character. Left and right hand decimals. Operates from 5 volt or 6 volt supply.



Type No.	Description	Net Each, Lots of 1-9	10-24	25-99	100-249
745-0007	Display	$13.57	$10.52	$10.52	$9.82
501-0701-009	Connector	2.10	1.86	1.55	1.32

5 X 7 DOT MATRIX ALPHANUMERIC DISPLAY

Solid state. 0.300" high character. 5 × 7 array with X-Y select and decimal. Compatible with USASCII and EBCDIC codes. Left-hand decimal point. Typical static forward voltage, 1.6 V.

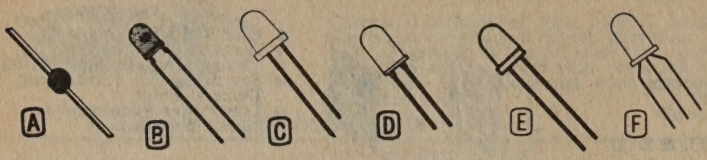
Type No.	Description	Net Each, Lots of 1-9	10-24	25-99	100-249
745-0005	Dot matrix	$6.93	$6.36	$6.36	$5.20
501-0701-009	Connector	2.10	1.86	1.55	1.32

DIALIGHT

DISCRETE LEDs AND INDICATORS

DIALCO®

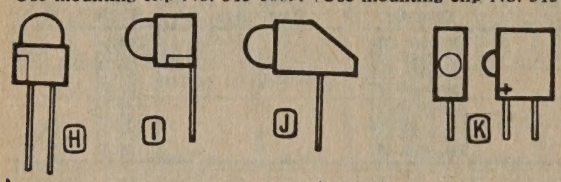
SOLID-STATE LED LAMPS



DISCRETE LEDS

Type No.	Fig.	Pkg.	Lens Color	Typ. Fwd. V/mA	Typ. Lum. mcd	Net Each, Lots of 1-9	10-99	100-999	1000-2499
521-9185	A	T-3/4	Red Non-diff.	1.6/20	0.8	$0.45	$0.45	$0.25	$0.17
521-9186	A	T-3/4	Red Diff.	1.6/20	0.8	.45	.45	.25	.17
521-9216	B	T-1	Red Diff.	1.6/20	2.0	.29	.29	.19	.15
521-9210	B	T-1	Green Diff.	2.4/20	2.0	.60	.60	.50	.40
521-9211	B	T-1	Yellow Diff.	2.2/10	2.0	.60	.60	.50	.40
521-9200*	C	T-1 3/4	Red Diff.	1.9/20	1.0	.28	.28	.21	.17
521-9165*	C	T-1 3/4	Red Diff.	1.7/20	2.0	.50	.50	.37	.33
521-9166*	C	T-1 3/4	Clear Diff.	1.7/20	2.0	.50	.50	.37	.33
521-9173*	C	T-1 3/4	Green Diff.	2.3/20	3.2	.50	.50	.37	.33
521-9253*	C	T-1 3/4	Green Non-diff.	2.3/20	8.0	.50	.50	.37	.33
521-9174*	C	T-1 3/4	Yellow Diff.	2.3/20	3.2	.50	.50	.37	.33
521-9254*	C	T-1 3/4	Yellow Non-diff.	2.3/20	8.0	.50	.50	.37	.33
521-9240†	D	T-1 3/4	Red Diff.	1.9/20	1.9	.27	.27	.21	.17
521-9212†	D	T-1 3/4	Red Diff.	1.6/20	2.0	.30	.30	.25	.20
521-9175*	D	T-1 3/4	Green Diff.	2.3/20	3.2	.50	.50	.37	.33
521-9176*	D	T-1 3/4	Yellow Diff.	2.3/20	3.2	.50	.50	.37	.33
521-9177	E	T-1 3/4	Red/Green	2.3/10	1.8	1.62	1.62	1.08	.89
521-9178	F	T-1 3/4	Red/Green	2.3/10	1.5	1.62	1.62	1.08	.89
521-9183†	D	T-1 3/4	Red Diff.	5.0/15	2.0	.60	.60	.45	.35
521-9246†	E	T-1 3/4	Red Diff.	2.2/10	4.0	.90	.85	.70	.60
521-9247†	E	T-1 3/4	Red Non-diff.	2.2/10	24.0	.90	.85	.70	.60
521-9248†	E	T-1 3/4	Yellow Diff.	2.2/10	3.0	.90	.85	.70	.60
521-9249†	E	T-1 3/4	Yellow Non-diff.	2.2/10	16.0	.90	.85	.70	.60
521-9250†	E	T-1 3/4	Green Diff.	2.4/10	3.0	.90	.85	.70	.60
521-9251†	E	T-1 3/4	Green Non-diff.	2.4/10	16.0	.90	.85	.70	.60

*Use mounting clip No. 515-0005. †Use mounting clip No. 515-0004.



550 SERIES CIRCUIT BOARD INDICATORS

LED lamps with a high light level for back panel illumination.

Type No.	Brightness	Color	Fig.	Net Each, Lots of 1-99	100-999	1000-2499
550-0204	Std.	Green	H	$0.65	$0.50	$0.43
550-0304	Std.	Yellow	H	.65	.50	.43
550-0404	Std.	Red	H	.54	.37	.32
550-0504*	Std.	Red	H	.80	.66	.57
550-0205	Std.	Green	I	.65	.50	.43
550-0305	Std.	Yellow	I	.65	.50	.43
550-0405	Std.	Red	I	.54	.37	.32
550-0505*	Std.	Red	I	.80	.66	.57
550-0206	Std.	Green	J	.65	.50	.43
550-0306	Std.	Yellow	J	.65	.50	.43
550-0406	Std.	Red	J	.54	.37	.32
550-0506*	Std.	Red	J	.80	.66	.57
550-2204	High	Green	H	.78	.59	.49
550-2304	High	Yellow	H	.78	.59	.49
550-2404	High	Red	H	.78	.59	.49
550-2205	High	Green	I	.78	.59	.49
550-2305	High	Yellow	I	.78	.59	.49
550-2405	High	Red	I	.78	.59	.49
550-2206	High	Green	J	.78	.59	.49
550-2306	High	Yellow	J	.78	.59	.49
550-2406	High	Red	J	.78	.59	.49

*With integral resistor for 5 V operation.

555 SERIES CIRCUIT BOARD INDICATORS

Red LED logic state indicators. May be used as fault indicators when troubleshooting complex circuits.

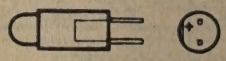
Type No.	Volts at mA	Fig.	Net Each, Lots of 1-9	10-24	25-99	100-249
555-2001	1.7 at 40*	K	$1.00	$0.91	$0.83	$0.76
555-2002	3.6 at 20	K	1.11	1.01	.92	.84
555-2007	5.0 at 3	K	1.11	1.01	.92	.84
555-2003	5.0 at 6.5	K	1.11	1.01	.92	.84
555-2004	5.0 at 16†	K	1.11	1.01	.92	.84
555-2005	10 at 14	K	1.11	1.01	.92	.84
555-2006	14 at 10	K	1.11	1.01	.92	.84

*Requires external resistor. †May be operated at 6 V at 20 mA for higher brightness.

MOUNTING CLIPS FOR DISCRETE LEDS

Type No.	Net Each, Lots of 1-24	25-249	250-999	1000-2499
515-0004	$0.14	$0.08	$0.07	$0.06
515-0005	.14	.08	.07	.06

560 SERIES HIGH BRIGHTNESS LED BI-PIN LAMPS



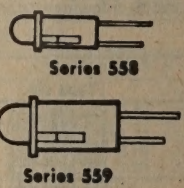
Interchangeable with T-1 3/4 incandescent lamps. With built-in resistor for operation at 5 volts. Available without resistor for operation at other voltage levels. Wide (diffused) or narrow (non-diffused) beam angle. Short lead denotes cathode.

Type No.	Lens	Net Each, Lots of 1-9	10-24	25-99
560-0103	Red	$1.12	$1.05	$0.98
560-0203	Green	1.12	1.05	.98
560-0303	Yellow	1.12	1.05	.98
560-0403	Red*	1.12	1.05	.98
560-0503	Green*	1.12	1.05	.98
560-0603	Yellow*	1.12	1.05	.98

*Non-diffused lens for wide beam angle; all others diffused lens for narrow beam angle.

558 AND 559 SERIES SNAP-IN INDICATORS

Snap-in mounting requires no additional hardware. Series 558 mounts in 0.156" hole; Series 559 mounts in 0.250" hole. Available with straight pin terminals for wire wrapping or soldering or with 6" wire leads. Black housing enhances contrast ratio. Polarity is identified. High brightness LEDs provide wide angle visibility with low power requirements (15-20 mA).



558 SERIES STANDARD BRIGHTNESS LED REQUIRES EXTERNAL RESISTOR

Type No.	Color	Connections	Net Each, Lots of 1-9	10-99	100-499
558-0101-001	Red	Terms.	$0.79	$0.63	$0.42
558-0201-001	Green	Terms.	1.16	1.00	.79
558-0301-001	Yellow	Terms.	1.16	1.00	.79
558-0101-003	Red	Leads	1.19	1.03	.88
558-0201-003	Green	Leads	1.56	1.35	1.17
558-0301-003	Yellow	Leads	1.56	1.35	1.17
WITH INTEGRAL RESISTOR (5 V, 15 mA TYPICAL)					
558-0102-001	Red	Terms.	$1.05	$0.89	$0.68
558-0202-001	Green	Terms.	1.47	1.31	1.00
558-0302-001	Yellow	Terms.	1.47	1.31	1.00
558-0102-003	Red	Leads	1.54	1.33	1.14
558-0202-003	Green	Leads	1.92	1.66	1.43
558-0302-003	Yellow	Leads	1.92	1.66	1.43

559 SERIES STANDARD BRIGHTNESS LED REQUIRES EXTERNAL RESISTOR

Type No.	Color	Connections	Net Each, Lots of 1-9	10-99	100-499
559-0101-001	Red	Terms.	$0.79	$0.63	$0.42
559-0201-001	Green	Terms.	1.16	1.00	.79
559-0301-001	Yellow	Terms.	1.16	1.00	.79
559-0101-003	Red	Leads	1.19	1.03	.88
559-0201-003	Green	Leads	1.56	1.35	1.17
559-0301-003	Yellow	Leads	1.56	1.35	1.17
WITH INTEGRAL RESISTOR (5 V, 15 mA TYPICAL)					
559-0102-001	Red	Terms.	$1.05	$0.89	$0.68
559-0202-001	Green	Terms.	1.47	1.31	1.00
559-0302-001	Yellow	Terms.	1.47	1.31	1.00
559-0102-003	Red	Leads	1.54	1.33	1.14
559-0202-003	Green	Leads	1.92	1.66	1.43
559-0302-003	Yellow	Leads	1.92	1.66	1.43

559 SERIES HIGH BRIGHTNESS LED REQUIRES EXTERNAL RESISTOR

559-2101-001	Red	Terms.	$1.35	$0.95	$0.79
559-2201-001	Green	Terms.	1.35	.95	.79
559-2301-001	Yellow	Terms.	1.35	.95	.79
559-2101-003	Red	Leads	1.77	1.37	1.16
559-2201-003	Green	Leads	1.77	1.37	1.16
559-2301-003	Yellow	Leads	1.77	1.37	1.16

PRICES LISTED ARE FOR GUIDANCE ONLY

HEWLETT PACKARD Optoelectronic Products

SUBMINIATURE YELLOW LED LAMPS

HP Number	Description	Net Each, Lots of 1-99	100-999	1000-4999	5000-9999
5082-4150	Subminiature Yellow	$0.50	$0.40	$0.30	$0.25

SUBMINIATURE HIGH EFFICIENCY RED LED LAMPS

5082-4160	Subminiature Red	$0.50	$0.40	$0.30	$0.25
HLMP-6600	HER Subminiature 5 V with resistor	.68	.55	.45	.40
HLMP-6620	HER Subminiature 5 V with resistor	.68	.55	.45	.40

SUBMINIATURE GREEN LED LAMPS

5082-4190	Subminiature Green	$0.50	$0.40	$0.30	$0.25

SUBMINIATURE RED LED LAMPS

5082-4100	Subminiature Red	$0.25	$0.20	$0.16	$0.15
5082-4101	Subminiature Red (.5 mcd min.)	.30	.25	.20	.17
HLMP-6203	Three Element Array, Red, Subminiature	1.05	.90	.74	.....
HLMP-6204	Four Element Array, Red, Subminiature	1.40	1.20	.99	.....
HLMP-6205	Five Element Array, Red, Subminiature	1.75	1.50	1.23	.....

RED RECTANGULAR LAMPS

HLMP-0300	Red Rectangular LED Lamp	$0.54	$0.42	$0.34	$0.32
HLMP-0301	Red Rectangular LED Lamp	.75	.60	.50	.45

YELLOW RECTANGULAR LAMPS

HLMP-0400	Yellow Rectangular LED Lamp	$0.54	$0.42	$0.34	$0.32
HLMP-0401	Yellow Rectangular LED Lamp	.75	.60	.50	.45

GREEN RECTANGULAR LAMPS

HLMP-0500	Green Rectangular LED Lamp	$0.54	$0.42	$0.34	$0.32
HLMP-0501	Green Rectangular LED Lamp	.75	.60	.50	.45
HLMP-0503	High Perf. Green Rectangular LED Lamps	.54	.42	.34	.32
HLMP-0504	High Perf. Green Rectangular LED Lamp	.80	.64	.53	.47

HIGH EFFICIENCY RED MINIATURE LED LAMPS

HLMP-1300	HER Miniature LED Lamp	$0.33	$0.26	$0.22	$0.21
HLMP-1301	HER Miniature LED Lamp	.45	.35	.28	.26
HLMP-1302	HER Miniature LED Lamp	.60	.53	.47	.43

YELLOW MINIATURE LED LAMPS

HLMP-1400	Yellow Miniature LED Lamp	$0.33	$0.26	$0.22	$0.21
HLMP-1401	Yellow Miniature LED Lamp	.45	.35	.28	.26
HLMP-1402	Yellow Miniature LED Lamp	.60	.53	.47	.43

GREEN MINIATURE LED LAMPS

HLMP-1500	Green Miniature LED Lamp	$0.33	$0.26	$0.22	$0.21
HLMP-1501	Green Miniature LED Lamp	.45	.35	.28	.26
HLMP-1502	Green Miniature LED Lamp	.60	.53	.47	.43
HLMP-1503	High Perf. Green Miniature LED Lamp	.45	.35	.28	.26
HLMP-1523	High Perf. Green Miniature LED Lamp	.80	.64	.53	.47

RED VISIBLE LIGHT EMITTING DIODES

HP Number	Description	Net Each, Lots of 1-99	100-999	1000-4999	5000-9999
5082-4403	Red, Diffused	$0.84	$0.68	$0.51	$0.47
5082-4415	Red, Diffused, PC Mount	1.04	.90	.74	.64
5082-4440	Low Cost, Red, Diffused	.74	.57	.46	.40
5082-4444	Low Cost, PC Mount	.90	.74	.63	.57
5082-4468	Resistor, Mini LED	.75	.60	.50	.45
5082-4480	Red, Diffused, Mini LED	.30	.23	.19	.17
5082-4483	Clear, Diffused, Mini LED	.65	.50	.40	.35
5082-4484	Consumer Mini LED	.25	.20	.17	.17

MILITARY HERMETIC DISPLAYS

HP Number	Description	Net Each, Lots of 1-49
4N51-TXV (5082-7391)	Hi Rel Screened 4N51	$ 99.00
4N51-TXVB (5082-7391)	Screened 4N51 with Lot Qualification	123.00
4N52-TXV (5082-7392)	Hi Rel Screened 4N52	99.00
4N52-TXVB (5082-7392)	Screened 4N52 with Lot Qualifications	123.00
4N53-TXV (5082-7393)	Hi Rel Screened 4N53	90.00
4N53-TXVB (5082-7393)	Screened 4N53 with Lot Qualifications	114.00
4N54-TXV (5082-7395)	Hi Rel Screened 4N54	104.00
4N54-TXVB (5082-7395)	Screened 4N54 with Lot Qualifications	128.00

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RED VISIBLE LIGHT EMITTING DIODES (CONTINUED)

HP Number	Description	Net Each, Lots of 1-99	100-999	1000-4999	5000-9999
5082-4486	Clear Lens Mini LED	$0.65	$0.50	$0.40	$0.35
5082-4487	Low Profile Mini LED	.25	.20	.17	.17
5082-4488	Low Profile Mini LED	.32	.27	.22	.20
5082-4494	Red, Diffused, Mini LED	.35	.28	.22	.20
5082-4707	Mounting Clip and Ring for T 1 3/4 LED Lamp	.07	.07	.07	.07
5082-4732	Voltage Sensing LED	.95	.80	.68	.62
5082-4790	Low Profile, Red	.28	.23	.21	.19
5082-4791	Low Profile, Red	.37	.30	.24	.22
5082-4850	Red, Diffused, Consumer LED	.27	.22	.20	.18
5082-4855	Red, Diffused, Consumer LED	.37	.30	.24	.22
5082-4860	Resistor LED	.80	.65	.55	.50
5082-4880	Red, Diffused	.55	.37	.34	.32
5082-4881	Red, Diffused	.68	.56	.42	.38
5082-4882	Red, Diffused	.95	.80	.58	.53
5082-4883	Clear Lens	.74	.57	.46	.40
5082-4884	Clear Lens	.84	.68	.57	.47
5082-4885	Clear Lens	.95	.80	.58	.52
5082-4886	Clear, Diffused	.74	.57	.46	.40
5082-4887	Clear, Diffused	.84	.68	.51	.47
5082-4888	Clear, Diffused	.95	.80	.58	.52
HLMP-3105	Red 5 V Resistor Lamp	.54	.42	.36	.33
HLMP-3112	Red 12 V Resistor Lamp	.54	.42	.36	.33

HIGH EFFICIENCY RED LIGHT EMITTING DIODES

5082-4650	Red, Diffused, 2.0 mcd	$0.39	$0.31	$0.28	$0.24
5082-4655	Red, Diffused, 4.0 mcd	.69	.58	.49	.43
5082-4657	Red, Non-Diffused, 12.0 mcd	.63	.50	.40	.36
5082-4658	Red, Non-Diffused, 24.0 mcd	.85	.62	.50	.47
HLMP-0301	Rectangular, Red, Diffused, 1.0 mcd	.75	.60	.50	.45
HLMP-1301	Red Mini LED	.45	.35	.28	.26
5082-4690	Low Profile, Red, Diffused, 3.5 mcd	.54	.42	.34	.31
5082-4693	Low Profile, Red, Diffused, 7.0 mcd	.69	.58	.49	.43
5082-4694	Low Profile, Red, Non-Diffused, 8.0 mcd	.63	.50	.40	.36
5082-4695	Low Profile, Red, Non-Diffused, 14.0 mcd	.85	.62	.50	.47
HLMP-3600	5 V Resistor Lamp	.68	.55	.45	.40
HLMP-4600	High Brightness Lamp	.39	.31	.28	.24
HLMP-4601	High Brightness Lamp	.75	.60	.51	.45

GREEN VISIBLE LIGHT EMITTING DIODES

5082-4950	Green, Diffused, 1.8 mcd	$0.54	$0.42	$0.34	$0.31
5082-4955	Green, Diffused, 3.0 mcd	.69	.58	.49	.43
5082-4957	Green, Non-Diffused, 9.0 mcd	.63	.50	.40	.36
5082-4958	Green, Non-Diffused, 16.0 mcd	.85	.62	.50	.47
5082-4970	Rectangular, Green, Diffused, 1.2 mcd	.75	.60	.50	.45
5082-4984	Green, Mini LED	.45	.35	.28	.26
5082-4990	Low Profile, Green, Diffused, 4.5 mcd	.54	.42	.34	.31
5082-4992	Low Profile, Green, Diffused, 7.5 mcd	.69	.70	.49	.43
5082-4995	Low Profile, Green, Non-Diffused, 6.5 mcd	.63	.54	.40	.36
5082-4997	Low Profile, Green, Non-Diffused, 11.0 mcd	.85	.70	.50	.47
HLMP-3680	5 V Resistor Lamp	.68	.55	.45	.40
HLMP-3502	High Performance Diffused Lamp	.54	.42	.34	.31
HLMP-3507	High Performance Diffused Lamp	.80	.64	.53	.47
HLMP-3517	High Performance Clear Lamp	.63	.50	.40	.36
HLMP-3519	High Performance Clear Lamp	.80	.64	.53	.47
HLMP-3567	High Perf. Clear Lamp, Low Profile	.63	.50	.40	.36
HLMP-3568	High Perf. Clear Lamp, Low Profile	.80	.64	.53	.47
HLMP-3553	High Perf. Lamp, Low Profile	.54	.42	.34	.31
HLMP-3554	High Perf. Lamp, Low Profile	.80	.64	.53	.47

YELLOW VISIBLE LIGHT EMITTING DIODES

5082-4550	Yellow, Diffused, 1.8 mcd	$0.54	$0.42	$0.34	$0.31
5082-4555	Yellow, Diffused, 3.0 mcd	.69	.58	.49	.43
5082-4557	Yellow, Non-Diffused, 9.0 mcd	.63	.50	.40	.36
5082-4558	Yellow, Non-Diffused, 16.0 mcd	.85	.62	.50	.47
5082-4570	Rectangular, Yellow, Diffused, 1.2 mcd	.75	.60	.50	.45
5082-4584	Yellow, Mini LED	.45	.35	.28	.26
5082-4590	Low Profile, Yellow, Diffused, 3.5 mcd	.54	.42	.34	.31
5082-4592	Low Profile, Yellow, Diffused, 6.0 mcd	.69	.58	.49	.43
5082-4595	Low Profile, Yellow, Non-Diffused, 6.5 mcd	.63	.50	.40	.36
5082-4597	Low Profile, Yellow, Non-Diffused, 11.0 mcd	.85	.62	.50	.47
HLMP-3650	5 V Resistor Lamp	.68	.55	.45	.40

HERMETICALLY SEALED LIGHT EMITTING DIODES

HP Number	Description	Net Ea., Lots of 1-99	100-499	500-999
1N5765	Standard Red	$ 6.00	$ 5.20	$4.70
1N6092	High Efficiency Red	6.95	5.75	5.25
1N6093	Yellow	6.95	5.75	5.25
1N6094	Green LED	6.95	5.75	5.25
5082-4420	Standard Red	6.00	5.20	4.70
5082-4520	Yellow	6.95	5.75	5.25
5082-4587	Panel Mountable, Yellow	12.70	11.05	...
5082-4620	High Efficiency Red	6.95	5.75	5.25
5082-4687	Panel Mountable, High Efficiency Red	12.70	11.05	...
5082-4787	Panel Mountable, Red	11.95	10.40	...
5082-4920	Green LED	6.95	5.75	5.25
5082-4987	Panel Mountable, Green	12.70	11.05	...
JAN1N5765	MIL Qualified, Red	8.90	7.70	6.50
JAN1N6092	MIL Qualified, High Efficiency Red	9.20	7.95	7.05
JAN1N6093	MIL Qualified, Yellow	9.20	7.95	7.05
JAN1N6094	MIL Qualified, Green	9.20	7.95	7.05
JANTX1N5765	MIL Qualified, Screened, Red	20.00	15.50	...
JANTX1N6092	MIL Qualified, Screened, High Efficiency Red	21.65	17.40	...

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NUMERIC DISPLAYS

HP Number	Description	Net Each, Lots of 1-99	100-999	1000-4999
	YELLOW 0.8"			
HDSP-4200	High Ambient Numeric with LHDP	$3.80	$3.05	$2.55
HDSP-4201	High Ambient Numeric with RHDP	3.80	3.05	2.55
HDSP-4203	High Ambient Numeric with RHDP	3.80	3.05	2.55
HDSP-4205	High Ambient Numeric with LHDP	3.80	3.05	2.55
HDSP-4206	High Ambient Numeric ±1	3.80	3.05	2.55
	RED 0.56"			
HDSP-5301	Numeric with RHDP	$2.05	$1.70	$1.40
HDSP-5303	Numeric with RHDP	2.05	1.70	1.40
HDSP-5307	Numeric ±1	2.05	1.70	1.40
HDSP-5308	Numeric ±1	2.05	1.70	1.40
	HIGH EFFICIENCY RED 0.56"			
HDSP-5501	HER Numeric with RHDP	$2.85	$2.25	$1.85
HDSP-5503	HER Numeric with RHDP	2.85	2.25	1.85
HDSP-5507	HER Numeric ±1	2.85	2.25	1.85
HDSP-5508	HER Numeric ±1	2.85	2.25	1.85
HDSP-5531	High Ambient HER Numeric with RHDP	3.25	2.55	2.13
HDSP-5533	High Ambient HER Numeric with RHDP	3.25	2.55	2.13
HDSP-5537	High Ambient HER Numeric ±1	3.25	2.55	2.13
HDSP-5538	High Ambient HER Numeric ±1	3.25	2.55	2.13
	YELLOW 0.56"			
HDSP-5701	Numeric with RHDP	$3.00	$2.35	$1.95
HDSP-5703	Numeric with RHDP	3.00	2.35	1.95
HDSP-5707	Numeric ±1	3.00	2.35	1.95
HDSP-5708	Numeric ±1	3.00	2.35	1.95
HDSP-5731	High Ambient HER Numeric with RHDP	3.40	2.65	2.23
HDSP-5733	High Ambient Numeric with RHDP	3.40	2.65	2.23
HDSP-5737	High Ambient Numeric ±1	3.40	2.65	2.23
HDSP-5738	High Ambient Numeric ±1	3.40	2.65	2.23
	GREEN 0.56"			
HDSP-5801	Numeric with RHDP	$3.72	$2.94	$2.46
HDSP-5803	Numeric with RHDP	3.72	2.94	2.46
HDSP-5807	Numeric ±1	3.72	2.94	2.46
HDSP-5808	Numeric ±1	3.72	2.94	2.46
	HIGH EFFICIENCY RED 0.8"			
HDSP-3400	Numeric with LHDP	$2.85	$2.35	$1.90
HDSP-3401	Numeric with RHDP	2.85	2.35	1.90
HDSP-3403	Numeric with RHDP	2.85	2.35	1.90
HDSP-3405	Numeric with LHDP	2.85	2.35	1.90
HDSP-3406	Numeric ±1	2.85	2.35	1.90
	HIGH EFFICIENCY RED 0.3"			
HDSP-3530	High Ambient Numeric with LHDP	$3.30	$2.60	$2.05
HDSP-3531	High Ambient Numeric with RHDP	3.30	2.60	2.05
HDSP-3533	High Ambient Numeric with RHDP	3.30	2.60	2.05
HDSP-3536	High Ambient Numeric ±1	3.30	2.60	2.05
	HIGH EFFICIENCY RED 0.43"			
HDSP-3730	High Ambient Numeric with LHDP	$3.45	$2.75	$2.20
HDSP-3731	High Ambient Numeric with RHDP	3.45	2.75	2.20
HDSP-3733	High Ambient Numeric with RHDP	3.45	2.75	2.20
HDSP-3736	High Ambient Numeric ±1	3.45	2.75	2.20
	HIGH EFFICIENCY RED 0.8"			
HDSP-3900	High Ambient Numeric with LHDP	$3.80	$3.05	$2.55
HDSP-3901	High Ambient Numeric with RHDP	3.80	3.05	2.55
HDSP-3903	High Ambient Numeric with RHDP	3.80	3.05	2.55
HDSP-3905	High Ambient Numeric with LHDP	3.80	3.05	2.55
HDSP-3906	High Ambient Numeric ±1	3.80	3.05	2.55
	YELLOW 0.3"			
HDSP-4030	High Ambient Numeric with LHDP	$3.30	$2.60	$2.15
HDSP-4031	High Ambient Numeric with RHDP	3.30	2.60	2.15
HDSP-4033	High Ambient Numeric with RHDP	3.30	2.60	2.15
HDSP-4036	High Ambient Numeric ±1	3.30	2.60	2.15
	YELLOW 0.43"			
HDSP-4130	High Ambient Numeric with LHDP	$3.60	$2.80	$2.25
HDSP-4131	High Ambient Numeric with RHDP	3.60	2.80	2.25
HDSP-4133	High Ambient Numeric with RHDP	3.60	2.80	2.25
HDSP-4136	High Ambient Numeric ±1	3.60	2.80	2.25

0.29" NUMERIC DISPLAYS

HP Number	Description	Net Each, Lots of 1-99	100-499
HDSP-0760	HER Low Power Numeric with RHDP	$21.16	$16.79
HDSP-0761	HER Low Power Numeric with LHDP	21.16	16.79
HDSP-0762	HER Low Power Hexadecimal	23.35	17.48
HDSP-0763	HER Low Power High Brightness/Over Range	15.30	12.36
HDSP-0770	HER High Brightness Numeric with RHDP	21.16	16.79
HDSP-0771	HER High Brightness Numeric with LHDP	21.16	16.79
HDSP-0772	HER High Brightness Hexadecimal	23.35	17.48

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SIGNALING LIGHT EMITTING DIODES

HP Number	Description	Net Each, Lots of 1-99	100-999	1000-4999	5000-9999
HEMT-3300	670 nm Emitter in T-1 3/4 Package	$ 1.25	$ 0.90	$ 0.75	$ 0.69
HEMT-6000	700 nm Emitter in a Subminiature Package	1.05	.75	.60	.57

ALPHANUMERIC DISPLAYS

HP Number	Description	Net Each, Lots of 1-9	10-99	100-249	250-999
HDSP-2000	Red .15" 4-Character, Dot Matrix with Electronics	$33.00	$33.00	$29.00	$26.50
		1-24	25-99	100-249	250-999
HDSP-6504	4-Character, 16 Segment Red	$22.00	$20.00	$16.80	$14.55
HDSP-6505	2nd Lens for HDSP-6504	.85	.80	.75	.72
		1-12	13-49	50-124	125-499
HDSP-6508	8-Character, 16 Segment Red	$44.00	$40.00	$33.60	$29.15
HDSP-6509	2nd Lens for HDSP-6508	.85	.80	.75	.72

RED HIGH RELIABILITY NUMERIC DISPLAYS WITH ELECTRONICS

HP Number	Description	Net Each, Lots of 1-33	1-99
5082-7001	3-Character	$230.00	.....
5082-7010	1-Character	230.00	$ 77.00
5082-7011	± Sign	230.00	64.20

RED 0.27" ALPHANUMERIC DISPLAYS

HP Number	Description	Net Each, Lots of 1-3	4-33
5082-7100	3-Character	$ 76.20	$ 61.00
		1-2	3-24
5082-7101	4-Character	$101.60	$ 81.30
		1	2-19
5082-7102	5-Character	$127.00	$101.60

RED LARGE MONOLITHIC DISPLAYS

HP Number	Description	Net Each, Lots of 1-19	20-199	200-999
5082-7265/7285	5 Digits, 0.175" Character	$ 16.20	$ 13.10	$ 11.25
		1-6	7-66	67-333
5082-7275/7295	15 Digits, 0.175" Character	$ 46.80	$ 37.50	$ 31.95

RED 0.29" NUMERIC DISPLAYS WITH ELECTRONICS

HP Number	Description	Net Each, Lots of 1-99	100-499	500-999
5082-7300	Standard Right Hand Decimal Point	$ 17.25	$ 13.50	$ 12.00
5082-7302	Standard Left Hand Decimal Point	17.25	13.50	12.00
5082-7304	Standard ± Sign	12.40	10.00	8.50
5082-7340	Standard Hexadecimal, 0-9, A-F	18.25	13.60	12.65
5082-7356	Industrial Right Hand Decimal Point	19.50	15.50	14.15
5082-7357	Industrial Left Hand Decimal Point	19.50	15.50	14.15
5082-7358	Industrial ± Sign	14.10	11.40	10.00
5082-7359	Industrial Hexadecimal, 0-9, A-F	21.50	16.10	15.26
5082-7391	Hermetic Right Hand Decimal Point	55.00	.....	.....
5082-7392	Hermetic Left Hand Decimal Point	55.00	.....	.....
5082-7393	Hermetic ± Sign	46.00	.....	.....
5082-7395	Hermetic Hexadecimal, 0-9, A-F	60.00	.....	.....

RED NUMERIC PC BOARD MOUNTED DISPLAYS

HP Number	Description	Net Each, Lots of 1-12	13-124	125-624
5082-7240	8-Digit Cluster,0.102" Character	$ 9.20	$ 6.40	$ 4.96
		1-11	12-111	112-555
5082-7241	9-Digit Cluster, 0.102" Character	$ 10.35	$ 7.20	$ 5.58
		1-12	13-124	125-624
5082-7440/7448	8-Digit Cluster, 0.105" Character	$ 10.00	$ 7.44	$ 6.15
		1-11	12-111	112-555
5082-7441/7449	9-Digit Cluster, 0.105" Character	$ 11.25	$ 8.37	$ 6.95
		1-8	9-83	84-416
5082-7442/7445	12-Digit Cluster, 0.110" Character	$ 15.60	$ 12.24	$ 10.70
		1-7	8-71	72-357
5082-7444	14-Digit Cluster, 0.115" Character	$ 18.20	$ 14.28	$ 12.50
5082-7447	14-Digit Cluster, 0.115" Character	18.62	14.70	12.95
		1-6	7-62	63-312
5082-7446	16-Digit Cluster, 0.115" Character	$ 21.28	$ 16.80	$ 14.75
		1-12	13-124	125-624
HDSP-6500	Second Lens (Can be used with 5082-7440, -7441, -7240 and -7241)	$ 0.48	$ 0.45	$ 0.43

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RED NUMERIC LEAD FRAME DISPLAYS

HP Number	Description	Net Each, Lots of			
		1-33	34-166	167-333	334-1666
5082-7402/03/12/13	3-Digit Cluster, 0.110" Character	$ 9.00	$ 7.20	$ 6.60	$ 6.15
		1-24	25-124	125-249	250-1249
5082-7404/7414	4-Digit Cluster, 0.110" Character	$12.00	$ 9.60	$ 8.80	$ 8.20
		1-19	20-99	100-199	200-999
5082-7405/7415	5-Digit Cluster, 0.110" Character	$15.00	$12.00	$11.00	$10.25
			1-49	50-499	500-2499
5082-7432	2-Digit Cluster, 0.110" Character		$ 3.60	$ 3.04	$ 2.70
			1-33	34-333	334-1666
5082-7433	3-Digit Cluster, 0.110" Character		$ 5.40	$ 4.56	$ 4.00

RED 1.5" NUMERIC DISPLAYS WITH ELECTRONICS

HP Number	Description	Net Ea., 1-99
5082-7500	1.5" Character	$75.00

HIGH EFFICIENCY RED 0.3" NUMERIC DISPLAYS

HP Number	Description	Net Each, Lots of		
		1-99	100-999	1000-4999
5082-7610	Left Hand Decimal Point, Common Anode	$ 2.85	$ 2.25	$ 1.85
5082-7611	Right Hand Decimal Point, Common Anode	2.85	2.25	1.85
5082-7613	Right Hand Decimal Point, Common Cathode	2.85	2.25	1.85
5082-7616	±1, Universal Overflow, R. H. Decimal	2.85	2.25	1.85

YELLOW 0.3" NUMERIC DISPLAYS

5082-7620	Left Hand Decimal Point, Common Anode	$ 2.85	$ 2.35	$ 1.95
5082-7621	Right Hand Decimal Point, Common Anode	2.85	2.35	1.95
5082-7623	Right Hand Decimal Point, Common Cathode	2.85	2.35	1.95
5082-7626	±1 Universal Overflow, R. H. Decimal	2.85	2.35	1.95

GREEN 0.3" NUMERIC DISPLAYS

5082-7630	Left Hand Decimal Point, Common Anode	$ 2.85	$ 2.35	$ 1.95
5082-7631	Right Hand Decimal Point, Common Anode	2.85	2.35	1.95
5082-7633	Right Hand Decimal Point, Common Cathode	2.85	2.35	1.95
5082-7636	±1 Universal Overflow, R. H. Decimal	2.85	2.35	1.95

HIGH EFFICIENCY RED 0.43" NUMERIC DISPLAYS

5082-7650	Left Hand Decimal Point, Common Anode	$ 3.10	$ 3.10	$ 2.05
5082-7651	Right Hand Decimal Point, Common Anode	3.10	2.45	2.05
5082-7652	±1 Common Anode Overflow	3.10	2.45	2.05
5082-7653	Right Hand Decimal Point, Common Cathode	3.10	2.45	2.05
5082-7656	±1 Universal Overflow	3.10	2.45	2.05

YELLOW 0.43" NUMERIC DISPLAYS

5082-7660	Left Hand Decimal Point, Common Anode	$ 3.10	$ 2.45	$ 2.05
5082-7661	Right Hand Decimal Point, Common Anode	3.10	2.45	2.05
5082-7662	±1 Common Anode Overflow	3.10	2.45	2.05
5082-7663	Right Hand Decimal Point, Common Cathode	3.10	2.45	2.05
5082-7666	±1 Universal Overflow	3.10	2.45	2.05

GREEN 0.43" NUMERIC DISPLAYS

5082-7670	Left Hand Decimal Point, Common Anode	$ 3.10	$ 2.45	$ 2.05
5082-7671	Right Hand Decimal Point, Common Anode	3.10	2.45	2.05
5082-7672	±1 Common Anode Overflow	3.10	2.45	2.05
5082-7673	Right Hand Decimal Point, Common Cathode	3.10	2.45	2.05
5082-7676	±1 Universal Overflow	3.10	2.45	2.05

RED 0.3" NUMERIC DISPLAYS

5082-7730	Left Hand Decimal Point, Common Anode	$ 1.55	$ 1.30	$ 1.09
5082-7731	Right Hand Decimal Point, Common Anode	1.55	1.30	1.09
5082-7732	±1 Common Anode Overflow	1.55	1.30	1.09
5082-7736	±1 Universal Overflow	1.55	1.30	1.09
5082-7740	Right Hand Decimal Point, Common Cathode	1.55	1.30	1.09

RED 0.43" NUMERIC DISPLAYS

5082-7750	Left Hand Decimal Point, Common Anode	$ 1.85	$ 1.60	$ 1.35
5082-7751	Right Hand Decimal Point, Common Anode	1.85	1.60	1.35
5082-7752	±1 Common Anode Overflow	1.85	1.60	1.35
5082-7756	±1 Universal Overflow	1.85	1.60	1.35
5082-7660	Right Hand Decimal Point, Common Cathode	1.85	1.60	1.35

OPTOELECTRONICS APPLICATIONS MANUAL

HP Number	Description	Net Ea., 1-99
HPBK-2000	Opto/Fiber Optics Applications Manual	$27.50

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ALPHANUMERIC DISPLAYS

HP Number	Description	Net Each, Lots of 1-9	10-24	25-49	50-99	100-249
HDSP-2001	Yellow .15" 5 × 7 Display with On-Board Electronics	$ 49.00	$ 49.00	$ 49.00	$ 49.00	$ 43.00
HDSP-2002	HER, 4-Character, .15" 5 × 7 Display with On-Board Electronics	49.00	49.00	49.00	49.00	41.00
HDSP-2010	4-Character Alpha Display for Hi-Rel Applications	68.00	61.00	61.00	61.00	....
HDSP-2300	Red 4-Character, 5 × 7 Display, 0.2" with On-Board Electronics	48.00	48.00	48.00	48.00	39.00
HDSP-2301	Yellow 4-Character, 5 × 7 Display, 0.2" with On-Board Electronics	69.00	69.00	69.00	69.00	58.00
HDSP-2302	HER 4-Character, 5 × 7 Display, 0.2" with On-Board Electronics	69.00	69.00	69.00	69.00	58.00
HDSP-2416	Red 16-Character, 5 × 7 Display, 0.15"	150.00	125.00	125.00	....	....
HDSP-2424	Red 24-Character, 5 × 7 Display, 0.15"	220.00	180.00	180.00	....	....
HDSP-2432	Red 32-Character, 5 × 7 Display, 0.15"	285.00	235.00	235.00	....	....
HDSP-2440	Red 40-Character, 5 × 7 Display, 0.15"	350.00	290.00	290.00	....	....
HDSP-2470	Alphanumeric Display Controller, ASCII 64	75.00	60.00	60.00	....	....
HDSP-2471	Alphanumeric Display Controller, ASCII 128	105.00	82.00	82.00	....	....
HDSP-2472	Alphanumeric Display Controller with socket	90.00	....	....	....	....
HDSP-2490	Red 4-Character, 5 × 7 Display, 0.27" with On-Board Electronics	52.00	52.00	52.00	52.00	43.00
HDSP-2491	Yellow 4-Character, 5 × 7 Display, 0.27" with On-Board Electronics	77.00	77.00	77.00	77.00	64.00
HDSP-2492	HER 4-Character 5 × 7 Display, 0.27" with On-Board Electronics	77.00	77.00	77.00	77.00	64.00

HP Number	Description	1-12	13-49	50-124	125-499
HDSP-6300	18-Segment, 0.14" alphanumeric	$ 36.80	$ 32.80	$ 27.60	$ 24.64

HP Number	Description	1-24
HDSP-8716	16-Character, 18-Segment Display	$197.00
HDSP-8724	24-Character, 18-Segment Display	271.00
HDSP-8732	32-Character, 18-Segment Display	340.00
HDSP-8740	40-Character, 18-Segment Display	395.00

HI-REL SCREENED ALPHANUMERIC DISPLAYS

HP Number	Description	Net Each, Lots of 1-9	10-49	50-99
TXV-2010	TXV Level Screened HDSP-2010	....	$102.00	$ 88.00

HIGH EFFICIENCY RED LIGHT BARS

HP Number	Description	Net Each, Lots of 1-99	100-999	1000-4999
HLMP-2300	HER 0.2" × 0.4" Light Bar	$1.45	$1.25	$0.98
HLMP-2350	HER 0.2" × 0.8" Light Bar	2.15	1.80	1.50
HLMP-2600	HER 0.4" × 0.4" Light Bar	2.15	1.80	1.50
HLMP-2620	HER 0.4" × 0.8" Light Bar, Four Element	3.10	2.45	2.05
HLMP-2635	HER 0.4" × 0.8" Light Bar, Dual	3.10	2.45	2.05
HLMP-2655	HER 0.4" × 0.4" Light Bar	2.15	1.80	1.50
HLMP-2670	HER 0.4" × 0.8" Light Bar, Dual Squares	3.10	2.45	2.05
HLMP-2685	HER 0.4" × 0.8" Light Bar	3.10	2.45	2.05

YELLOW LIGHT BARS

HLMP-2700	0.4" × 0.8" Two Element	$2.15	$1.80	$1.50
HLMP-2720	0.4" × 0.8" Four Element	3.10	2.45	2.05
HLMP-2735	0.4" × 0.8" Dual Bar	3.10	2.45	2.05
HLMP-2755	0.4" × 0.4" Bar	2.15	1.80	1.50
HLMP-2770	0 4" × 0.8" Dual Squares	3.10	2.45	2.05
HLMP-2785	0.4" × 0.8" Bar	3.10	2.45	2.05
HLMP-2400	0.2" × 0.4" Bar	1.45	1.25	.98
HLMP-2450	0.2" × 0.8" Bar	2.15	1.80	1.50

GREEN LIGHT BARS

HLMP-2800	0.4" × 0.4" Two Element	$2.15	$1.80	$1.50
HLMP-2820	0.4" × 0.8" Two Element	3.10	2.45	2.05
HLMP-2835	0.4" × 0.8" Dual Bar	3.10	2.45	2.05
HLMP-2855	0.4" × 0.4" Bar	2.15	1.80	1.50
HLMP-2870	0.4" × 0.8" Dual Squares	3.10	2.45	2.05
HLMP-2885	0.4" × 0.8" Bar	3.10	2.45	2.05
HLMP-2500	0.2" × 0.4" Bar	1.45	1.25	.98
HLMP-2550	0.2" × 0.8" Bar	2.15	1.80	1.50

BI-COLOR LIGHT BARS

HLMP-2950	HER/Yellow 0.4" × 0.4"	$3.40	$2.75	$2.30
HLMP-2965	HER/Green 0.4" × 0.4"	3.40	2.75	2.30

PANEL AND LEGEND MOUNTS

HLMP-2598	Mounts 0.2" × 0.8" Light Bar	$0.15	$0.12	$0.11
HLMP-2599	Mounts 0.2" × 0.4" Light Bar	.15	.12	.11
HLMP-2898	Mounts 0.4" × 0.4" Light Bar	.15	.12	.11
HLMP-2899	Mounts 0.4" × 0.8" Light Bar	.15	.12	.11

BAR GRAPH ARRAYS

HDSP-4820	Red 10-Element Array	$3.40	$2.75	$2.25
HDSP-4830	HER 10-Element Array	3.90	3.35	2.75
HDSP-4840	Yellow 10-Element Array	4.70	3.95	3.25

HP Number	Description	1-99	100-249	250-499
HDSP-8820	Red 101-Element Array	$50.00	$40.00	$34.50

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OPTOCOUPLERS

HP Number	Description	Net Each, Lots of 1-99	100-999	1000-4999
HCPL-2502	Diode/Transistor, Controlled Gain	$ 4.40	$ 3.40	$ 2.80
HCPL-2530	Dual 6N135, High Speed	5.25	3.65	3.10
HCPL-2531	Dual 6N136, High Speed	6.50	4.55	3.90
HCPL-2601	High CMR, Ultra High Speed	6.85	5.70	4.75
HCPL-2602	Line Receiver Ultra High Speed Optocoupler	7.80	6.65	5.60
HCPL-2630	Dual 6N137, Ultra High Speed	9.90	8.05	7.10
HCPL-2730	Dual 6N138, High CTR	5.20	3.65	3.20
HCPL-2731	Dual 6N139, High CTR	6.45	4.55	4.00
4N45	6 PIN, High CTR	2.40	1.95	1.65
4N46	6 PIN, High CTR	2.55	2.05	1.75
4N55	High Speed Dual Hermetic	39.50	....	....
6N134	Ultra High Speed Hermetic, Dual Channel	43.25	43.25	....
6N135	High Speed	3.35	2.35	2.05
6N136	High Speed	3.60	2.55	2.20
6N137	Ultra High Speed	6.00	5.10	4.25
6N138	High CTR	2.95	2.10	1.82
6N139	High CTR	3.35	2.40	2.20
HCPL-2503	LSTTL Interface Optocoupler	3.40	2.40	2.10
HCPL-2533	Dual LSTTL Interface Optocoupler	5.80	4.10	3.55
HCPL-3700	AC/DC to Logic Threshold Sensing Optocoupler	6.00	4.45	3.65
6N140	4-Channel High Gain Hermetic Optocoupler	58.00	....	....

MILITARY HERMETIC OPTOCOUPLERS

HP Number	Description	Net Ea., Lots of 1-49	50-99
6N134 TXV	Screened, 6N134	$ 89.25	$ 74.00
6N134 TXVB	6N134 with Lot Qualification	109.25	94.00
6N140TXV	Hi Rel Screened 6N140	111.00	94.50
6N140TXVB	Screened 6N140 with Lot Qualifications	131.00	114.50
4N55-TXV	Hi Rel Screened 4N55	81.50	66.50
4N55-TXVB	Screened 4N55 with Lot Qualification	101.50	86.50

EMITTER/DETECTOR PRODUCTS

HP Number	Description	Lots of 1-9	10-99
HEDS-1000	High Resolution Optical Reflective Sensor	$28.75	$23.50
		1-99	
HEDS-3000	Digital Bar Code Wand	$ 99.50	
HEDS-3001	Bar Code Wand Replacement Tip	1.85	
HEDS-3050	Digital Bar Code	110.00	
HEDS-5000	28 mm Optical Shaft Encoder	95.00	
		1-9	
HEDS-5100	28 mm Optical Shaft Encoder Code Wheel	$ 18.90	
HEDS-5200	28 mm Optical Shaft Encoder Detector Body	63.00	
HEDS-5300	28 mm Optical Shaft Encoder Emitter End Plate	23.10	
HEDS-8900	28 mm Optical Shaft Encoder Tool Kit	198.00	
HEDS-8911	28 mm Optical Shaft Encoder Gap and Centering Set for 2 mm Shaft	21.50	
HEDS-8912	28 mm Optical Shaft Enocder Gap and Centering Set for 3 mm Shaft	21.50	
HEDS-8913	28 mm Optical Shaft Encoder Gap and Centering Set for 1/8" Shaft	21.50	
HEDS-8914	28 mm Optical Shaft Encoder Gap and Centering Set for 5/32" Shaft	21.50	
HEDS-8915	28 mm Optical Shaft Encoder Gap and Centering Set for 3/16" Shaft	21.50	
HEDS-8916	28 mm Optical Shaft Encoder Gap and Centering Set for 1/4" Shaft	21.50	
HEDS-8920	28 mm Optical Shaft Encoder Hub Puller Tool	41.00	
HEDS-8921	28 mm Optical Shaft Encoder Probe Assembly for Setting Code Wheel Gap	48.00	

OUR STOCKS ARE FULLY UP TO DATE WITH ALL THE LATEST PRODUCTS.

ASK ABOUT NEW OR UNLISTED ITEMS.

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HEWLETT PACKARD Optoelectronic Products

FIBER OPTICS

HP Number	Description	Net Each
		1-9
HFBR-0010	10 M Digital Fiber Optic Link	$ 360.00
HFBR-0100	Connector Assembly Tooling Kit	1220.00
Option 001	11 VAC U.S.A., Canada, Japan Power Cord	.....
Option 200	220 VAC U.K. Power Cord	380.00
Option 201	220 VAC Australia, New Zealand Power Cord	380.00
Option 202	220 VAC European Continent Power Cord	380.00
Option 206	220 VAC Switzerland Power Cord	380.00
Option 212	220 VAC Denmark Power Cord	380.00
HFBR-0101	Consumables Kit	95.00
HFBR-0102	Custom Tools	250.00
		1-99
HFBR-0500	Snap-In Fiber Optic 5 M Kit	$ 55.00
		1-9
HFBR-1001	Fiber Optic 100 M Digital Transmitter	$ 150.00
HFBR-1002	Fiber Optic 1000 M Digital Transmitter	225.00
		1-99
HFBR-1500	Snap-In Fiber Optic Link Transmitter	$ 23.00
HFBR-1501	Snap-In Fiber Optic Link Transmitter	27.00
		1-9
HFBR-2001	Fiber Optic Digital Receiver	$ 150.00
		1-99
HFBR-2500	Snap-In Fiber Optic Link Receiver	$ 33.00
		1-99,999
HFBR-3000	Single Channel Fiber Optic Cable	$2.00/ Meter
		1-9
Option 001	Attached Connector Set	$ 90.00
HFBR-3001	10 M Fiber Optic Cable Assembly	112.75
HFBR-3002	25 M Fiber Optic Cable Assembly	143.50
HFBR-3003	50 M Fiber Optic Cable Assembly	194.75
HFBR-3004	75 M Fiber Optic Cable Assembly	246.00
HFBR-3005	100 M Fiber Optic Cable Assembly	297.25
		1-99
HFBR-3099	Fiber Optic Connector Adapter	$ 3.75
		1-4999
HFBR-3100	Dual Channel Fiber Optic Cable	$4.50/ Meter
		1-9
Option 001	Attached Connector Set	$ 180.00
		1-9999
HFBR-3200	Single Channel Fiber Optic Cable	$2.00/ Meter
		1-4999
HFBR-3300	Dual Channel Unconnected Fiber Optic Cable	$4.50/ Meter
		10-99
HFBR-3500	Snap-In Fiber Optic Link Cable Assembly	$ 7.95
Option 001	Mandatory Cable Length Option	$1.20/ Meter
		1-99
HFBR-3501	Snap-In Fiber Optic Link 0.1 M Cable Assembly	$ 8.07
HFBR-3501	Snap-In Fiber Optic Link 0.5 M Cable Assembly	8.55
HFBR-3503	Snap-In Fiber Optic Link 1 M Cable Assembly	9.15
HFBR-3504	Snap-In Fiber Optic Link 5 M Cable Assembly	13.95
		1-4
HFBR-3590	Snap-In Fiber Optic Link 100 M Raw Cable	$ 120.00
HFBR-3589	Snap-In Fiber Optic Link 25 M Raw Cable	35.00
		1-2
HFBR-3591	Snap-In Fiber Optic Link 500 M Raw Cable	$ 500.00
		1-99
HFBR-4000	Fiber Optic Connector	$ 24.00
		1-9
HFBR-4501	Snap-In Fiber Optic Link Connector TX	$ 1.60
HFBR-45011	Snap-In Fiber Optic Link Connector RX	1.60
HFBR-4595	Snap-In Fiber Optic Link Polishing Kit	10.00

PIN PHOTODIODES

HP Number	Description	Net Ea., Lots of	
		1-9	10-99
5082-4203	TO-18 I_R Less Than 2 nA	$27.75	$22.05
5082-4204	TO-18 I_R Less Than 0.4 nA	67.75	57.50
5082-4205	0.010 Active Area, Min. Pill Pkg.	21.25	18.25
5082-4207	0.040 Active Area, TO-18	47.25	41.00
5082-4220	0.020 Active Area, TO-46	14.50	12.50

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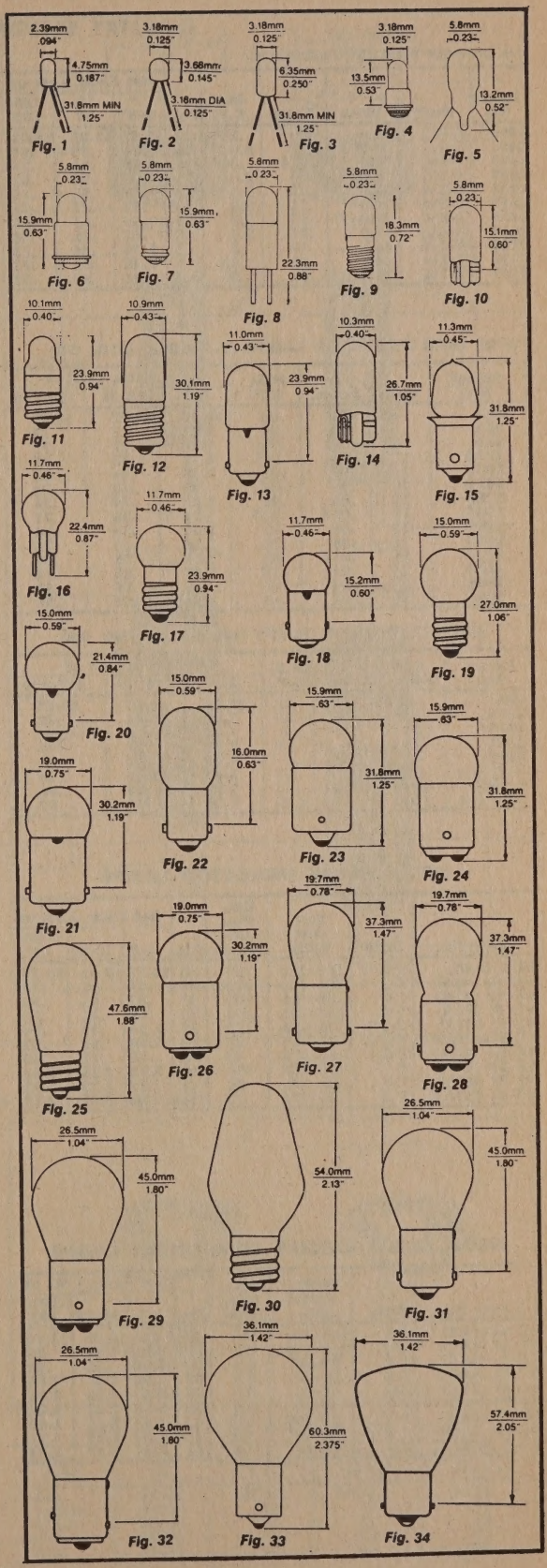
INDUSTRY STANDARD LAMPS

Available in various bulb sizes and voltages. For detailed specifications, write for catalog #302.

Lamp No.	Bulb	Volts	Amps	M.S. C.P.	Fig.	Net Each, Lots of 1-9	10-99	100-499
PR2	B-3½	2.38	.50	.80	15	$0.57	$0.45	$0.40
PR3	B-3½	3.57	.50	1.50	15	.59	.47	.41
PR4	B-3½	2.33	.27	.40	15	.59	.47	.41
PR6	B-3½	2.47	.30	.45	15	.59	.47	.41
PR7	B-3½	3.7	.30	.90	15	.68	.55	.48
PR12	B-3½	5.95	.50	3.10	15	.65	.52	.45
PR13	B-3½	4.75	.50	2.20	15	.65	.52	.45
PR18	B-3½	7.2	.55	5.5	15	.81	.65	.57
6S6	S-6	120	6W	.....	25	.84	.74	.69
7C7	C-7	115–125	7W	.....	30	.69	.61	.57
12	G-3½	6.3	.15	.35	16	.91	.73	.54
13	G-3½	3.7	.30	.98	17	.52	.41	.36
14	G-3½	2.47	.30	.50	17	.52	.41	.36
19	G-3½	14.4	.10	.90	16	1.30	1.04	.91
27	G-4½	4.9	.30	1.4	19	.98	.78	.68
31	G-4½	6.15	.30	2.0	19	1.32	1.06	.93
41	T-3¼	2.5	.50	.50	12	.75	.60	.52
43	T-3¼	2.5	.50	.50	13	.83	.67	.58
44	T-3¼	6.3	.25	.90	13	.44	.35	.31
45	T-3¼	3.2	.35	.50	13	1.26	1.01	.75
46	T-3¼	6.3	.25	.90	12	.47	.37	.33
47	T-3¼	6.3	.15	.52	13	.44	.35	.31
48	T-3¼	2.0	.06	.04	12	.95	.76	.67
49	T-3¼	2.0	.06	.04	13	.95	.76	.66
51	G-3½	7.5	.22	1.0	18	.45	.36	.32
53	G-3½	14.4	.12	1.0	18	.51	.41	.37
53X	G-3½	14.4	.12	1.0	18	.71	.57	.49
55	G-4½	7.0	.41	2.0	20	.60	.48	.42
57	G-4½	14.0	.24	2.0	20	.52	.41	.36
57X	G-4½	14.0	.24	2.0	20	.65	.52	.45
63	G-6	7.0	.63	3.0	21	.67	.54	.47
67	G-6	13.5	.59	4.0	21	.56	.44	.39
81	G-6	6.5	1.02	6.0	21	.87	.70	.61
82	G-6	6.5	1.02	6.0	26	.73	.58	.51
87	S-8	6.8	1.91	15.0	31	1.67	1.33	1.17
88	S-8	6.8	1.91	15.0	29	1.18	.95	.83
89	G-6	13.0	.58	6.0	21	.66	.53	.46
93	S-8	12.8	1.04	15.0	31	.96	.77	.67
112	TL-3	1.2	.22	.....	11	1.18	.94	.82
123	G-3½	1.25	.30	.10	17	.51	.41	.35
136	G-4½	1.25	.60	.20	19	2.09	1.67	1.46
158	T-3¼	14.0	.24	2.0	14	.71	.56	.49
161	T-3¼	14.0	.19	1.0	14	.62	.50	.43
168	T-3¼	14.0	.35	3.0	14	.64	.52	.45
194	T-3¼	14.0	.27	2.0	14	.52	.42	.36
222	TL-3	2.25	.25	.....	11	.75	.60	.52
301	G-5	28.0	.17	3.0	23	1.86	1.48	1.30
302	G-5	28.0	.17	3.0	24	1.69	1.35	1.18
303	G-6	28.0	.30	6.0	21	1.64	1.32	1.15
305	S-8	28.0	.51	15.0	31	1.84	1.47	1.28
307	S-8	28.0	.67	21.0	31	1.84	1.47	1.28
308	S-8	28.0	.67	21.0	29	2.34	1.87	1.64
309	S-11	28.0	.9	32.0	33	2.68	2.14	1.87
313	T-3¼	28.0	.17	3.5	13	.84	.67	.59
327	T-1¾	28.0	.04	.34	6	.88	.71	.62
328	T-1¾	6.0	.20	.34*	6	.81	.65	.57
330	T-1¾	14.0	.08	.5	6	1.16	.93	.81
331	T-1¾	1.35	.06	.006	6	1.70	1.36	1.19
334	T-1¾	28.0	.04	.34	7	1.54	1.23	1.07
344	T-1¾	10.0	.014	.004	6	1.91	1.53	1.33
382	T-1¾	14.0	.08	.30	6	1.42	1.14	.99
387	T-1¾	28.0	.04	.30	6	.84	.67	.58
388	T-1¾	28.0	.04	.30	6	1.72	1.38	1.20
680	T-1	5.0	.06	.03	3	1.69	1.35	1.18
682	T-1	5.0	.06	.029	4	2.89	2.31	2.02
683	T-1	5.0	.06	.05	3	1.84	1.47	1.29
685	T-1	5.0	.06	.048	4	3.48	2.78	2.43
713	T-1	5.0	.075	.09	3	1.77	1.41	1.23
714	T-1	5.0	.075	.08	4	3.48	2.78	2.43
715	T-1	5.0	.115	.15	3	2.02	1.61	1.41
718	T-1	5.0	.115	.132	4	2.74	2.19	1.91
1003	B-6	12.8	.94	15.0	27	.94	.75	.66
1004	B-6	12.8	.94	15.0	28	.94	.75	.66
1034	S-8	12.8	1.80	32.0	32	.92	.74	.64
		14.0	.59	3.0				
1076	S-8	12.8	1.80	32.0	29	1.52	1.22	1.06
1133	RP-11	6.2	3.91	32.0	34	2.10	1.68	1.46
1156	S-8	12.8	2.10	32.0	31	1.00	.80	.70
1157	S-8	12.8	2.10	32.0	32	.51	.41	.30
		14.0	.59	3.0				
1176	S-8	12.8	1.34	21.0	29	1.40	1.12	.98
		14.0	.59	6.0				
1183	RP-11	5.5	6.25	50.0	34	3.88	3.10	2.71
1195	RP-11	12.5	3.0	50.0	34	4.61	3.69	3.22
1445	G-3½	14.4	.135	.7	18	.51	.41	.36
1447	G-3½	18.0	.15	1.5	17	.71	.57	.50
1495	T-4½	28.0	.30	6.0	22	1.60	1.28	1.12
1764	T-1¾	28.0	.04	.34	5	.81	.65	.57
1784	T-1¾	6.0	.20	.60	5	1.26	1.00	.88
1813	T-3¼	14.4	.10	.86	13	.69	.55	.48
1815	T-3¼	14.0	.20	1.4	13	.79	.64	.55
1816	T-3¼	13.0	.33	3.0	13	.73	.58	.51
1819	T-3¼	28.0	.04	.34	13	.82	.66	.57
1820	T-3¼	28.0	.10	1.6	13	.82	.66	.57
1829	T-3¼	28.0	.07	1.0	13	.73	.59	.51
1847	T-3¼	6.3	.15	.38	13	.49	.39	.34

*At 5 volts.

INDUSTRY STANDARD LAMPS CONTINUED ON FOLLOWING PAGE



INDUSTRY STANDARD LAMPS (CONT'D)

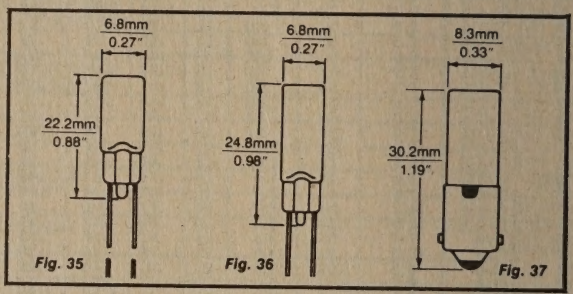
See previous page for illustrations.

Lamp No.	Bulb	Volts	Amps	M.S. C.P.	Fig.	Net Each, Lots of 1-9	10-99	100-499
1850	T-3¼	5.0	.09	.25	13	$1.31	$1.05	$0.91
1864	T-3¼	28.0	.17	3.0	13	.94	.75	.66
1869	T-1¾	10.0	.014	.004	5	1.05	.84	.73
1888	T-3¼	7.0	.50	2.0	13	.73	.58	.51
1889	T-3¼	14.0	.27	2.0	13	.64	.51	.45
1891	T-3¼	14.0	.24	2.0	13	.59	.47	.41
1893	T-3¼	14.0	.33	2.0	13	.59	.47	.41
1895	G-4½	14.0	.27	2.0	20	.52	.41	.36
2162	T-1¾	14.0	.10	.5	5	1.05	.84	.73
2182	T-1¾	14.0	.08	.30	5	1.02	.82	.72
2187	T-1¾	28.0	.04	.30	5	.81	.65	.57

Lamp No.	Bulb	Volts	Amps	M.S. C.P.	Fig.	Net Each, Lots of 1-9	10-99	100-499
6832	T-1	5.0	.06	.05	2	$2.98	$2.38	$2.08
6833	T-¾	5.0	.06	.05	1	3.70	2.96	2.58
6838	T-1	28.0	.024	.15	3	3.84	3.07	2.68
6839	T-1	28.0	.024	.15	4	5.68	4.54	3.97
7152	T-1	5.0	.115	.15	2	3.28	2.62	2.29
7327	T-1¾	28.0	.04	.34	8	.93	.74	.65
7328	T-1¾	6.0	.20	.6	8	1.07	.86	.75
7344	T-1¾	10.0	.014	.004	8	1.54	1.23	1.07
7382	T-1¾	14.0	.08	.30	8	1.16	.93	.81
7387	T-1¾	28.0	.04	.30	8	.93	.74	.65
7931	T-1¾	1.35	.06	.006	8	1.33	1.06	.93

WIRE LEAD INDICATOR LAMPS (T-2 BULB) (FIG. 35)

Lamp No.	Volts	Amps.	M.S. C.P.	Net Each, Lots of 1-9	10-99	100-499
4ES	4	.04	.03	$1.08	$0.87	$0.77
5ES	5	.04	.04	1.08	.87	.77
6ES	6	.04	.025	1.08	.87	.77
10AS	10	.01	.001	1.37	1.09	.96
10CS	10	.017	.01	1.18	.94	.82
10ES	10	.04	.07	.95	.76	.66
12ES	12	.04	.09	1.06	.85	.74
16CS	16	.017	.016	1.10	.88	.77
16ES	16	.04	.17	1.06	.85	.74
18ES	18	.04	.14	1.06	.85	.74
24CS	24	.017	.02	1.14	.91	.80
24ES	24	.04	.12	1.06	.85	.74
28ES	28	.04	.25	.95	.76	.66
48ES	28	.04	.44	1.29	1.03	.90



WIRE LEAD PILOT LAMPS (T-2 BULB) (FIG. 36)

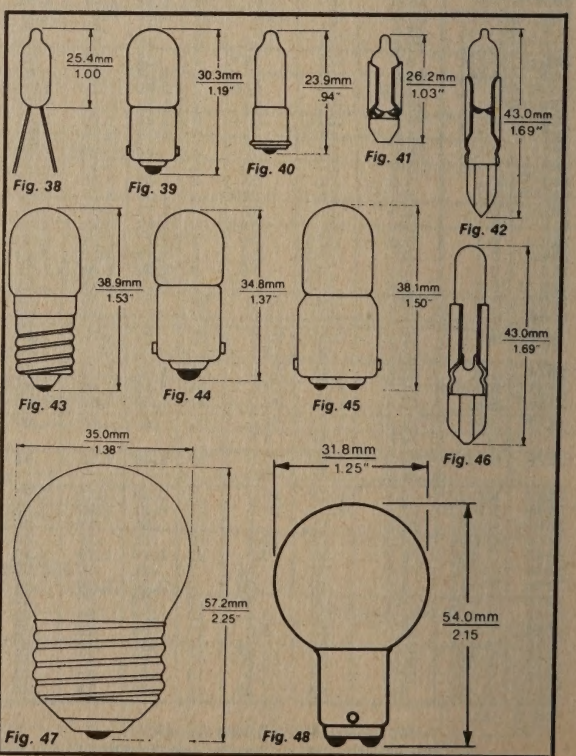
Lamp No.	Volts	Amps	M.S. C.P.	Net Each, Lots of 1-9	10-99	100-499
6PS	6	.14	.12	$1.08	$0.87	$0.77
12PS	12	.17	.35	1.06	.85	.74
24PS	24	.073	.5	1.06	.85	.74
28PS	28	.04	.29	1.06	.85	.74
48PS	48	.053	.7	1.06	.85	.74
60PS	60	.05	.73	1.33	1.06	.93
120PS	120	.025	.36	1.18	.95	.84
120PS/6	120	.052	1.43	1.18	.94	.82

MINIATURE BAYONET PILOT LAMPS (T2½ BULB) (FIG. 37)

Lamp No.	Volts	Amps	M.S. C.P.	Net Each, Lots of 1-9	10-99	100-499
6MB	6	.140	.12	$1.64	$1.31	$1.14
12MB	12	.170	.35	1.64	1.31	1.14
24MB	24	.073	.50	1.56	1.25	1.09
28MB	28	.040	.29	1.64	1.31	1.14
48MB	48	.053	.70	1.71	1.37	1.20
60MB	60	.050	.73	1.75	1.40	1.23
90MB	90	.033	.37	1.64	1.31	1.14
120MB	120	.025	.36	1.68	1.34	1.17
120MB/6	120	.052	1.43	1.68	1.34	1.17

NEON GLOW INDICATOR LAMPS

Lamp No.	Bulb	Circuit Volts	Ext. Res. (K-ohms)	Fig.	Net Each, Lots of 1-9	10-99	100-499
NE-2 (A1A)	T-2	105–125	150	38	$0.51	$0.41	$0.36
NE-2A (A2A)	T-2	105–125	220	38	.51	.41	.36
NE-2V (A2B)	T-2	105–125	100	38	.51	.41	.36
NE-2E (A9A)	T-2	105–125	100	38	.51	.41	.36
NE-51 (B1A)	T-3¼	105–125	220	39	1.14	.91	.80
NE-51H (B2A)	T-3¼	105–125	27	39	1.14	.91	.80
NE-2H (C2A)	T-2	105–125	30	38	.51	.41	.36
NE-2D (C7A)	T-2	105–125	100	40	2.98	2.38	2.08
NE-2J (C9A)	T-2	105–125	30	40	2.75	2.20	1.92
NE-84 (K1A5)	T-2	105–125	30	41	2.12	1.69	1.48



NEON GLOW CIRCUIT COMPONENT LAMPS

Lamp No.	Bulb	Start. Volts (DC)	Nom. Cur. (mA)	Fig.	Net Each, Lots of 1-9	10-99	100-499
NE-96 (4AB)	T-2	120–150	0.5	38	$4.14	$3.31	$2.90
NE-97 (4AC)	T-2	110–140	0.5	38	1.33	1.06	.93
NE-23 (5AB)	T-2	60–90	0.3	38	1.20	.96	.84
NE-68 (5AC)	T-2	60–90	0.3	38	1.55	1.24	1.08
NE-81 (5AG)	T-2	64–80	0.3	38	2.02	1.62	1.41
NE-76 (5AG-A)	T-2	68–76	0.4	38	3.16	2.53	2.21
NE-83 (5AH)	T-2	60–100	5.0	38	1.43	1.15	1.00
NE-86 (5AJ)	T-2	55–90	1.5	38	3.07	2.45	2.14
NE-4 (8AB)	T-2	60–90	0.3	42	4.77	3.82	3.33

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INDICATOR CARTRIDGE LAMPS (T-2 BULB) (FIG. 50)

Lamp No.	Volts	Amps.	Average End F.C.	Net Each, Lots of 1-9	10-99	100-499
901	4	.04	145	$2.13	$1.71	$1.49
905	5	.04	225	2.13	1.71	1.49
909	6	.04	160	2.13	1.71	1.49
913	10	.01	—	2.13	1.71	1.49
914	10	.017	10	2.13	1.71	1.49
915	10	.04	540	2.13	1.71	1.49
918	12	.04	550	2.13	1.71	1.49
925	16	.017	75	2.13	1.71	1.49
926	16	.04	750	2.13	1.71	1.49
930	18	.04	800	2.13	1.71	1.49
933	24	.017	200	2.13	1.71	1.49
934	24	.04	650	2.13	1.71	1.49
938	28	.04	1500	2.13	1.71	1.49
941	48	.04	3000	2.13	1.71	1.49

SOCKETS FOR INDICATOR CARTRIDGE LAMPS (FIG. 51)

Part No.	Overall Length	Mtg. Hole Dia.	Terminals	Net Each, Lots of 1-9	10-99	100-499
SM1	1 11/64"	.375"	Turret	$3.03	$2.42	$2.12
SM1A	1 11/64"	.375"	Solder	3.03	2.42	2.12

PILOT CARTRIDGE LAMPS (T-2 BULB) (FIG. 52)

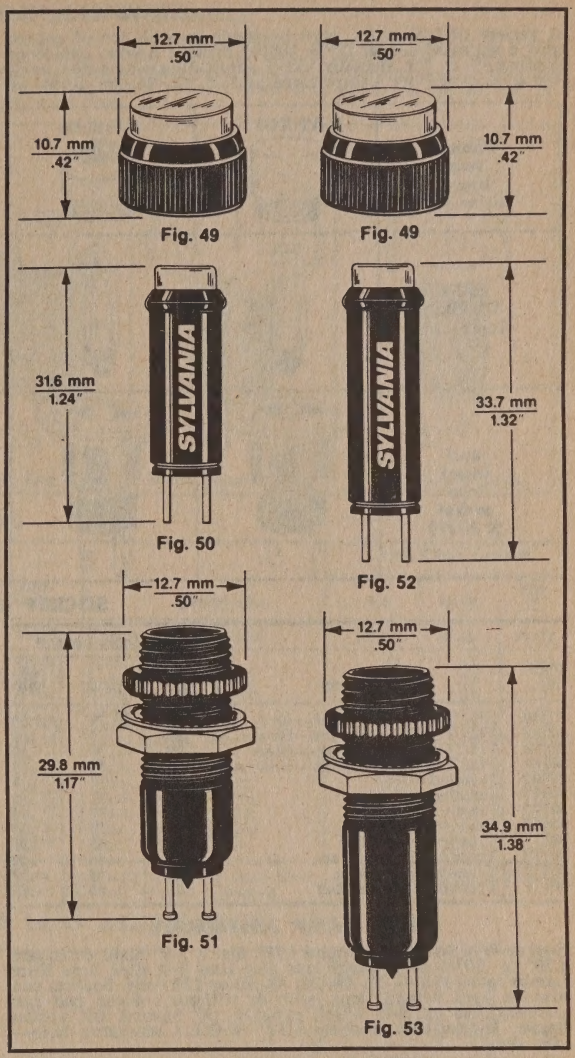
Lamp No.	Volts	Amps	Avg. End F.C.	Net Each, Lots of 1-9	10-99	100-499
6PC	6	.8	550	$2.02	$1.62	$1.41
12PC	12	2	2400	2.02	1.62	1.41
24PC	24	1.7	3000	2.02	1.62	1.41
28PC	28	1.1	1500	2.02	1.62	1.41
48PC	48	2.5	1500	2.02	1.62	1.41
60PC	60	3	1800	2.02	1.62	1.41
120PC	120	3	1000	2.06	1.65	1.44

SOCKETS FOR PILOT CARTRIDGE LAMPS (FIG. 53)

Part No.	Overall Length	Mtg. Hole Dia.	Terminals	Net Each, Lots of 1-9	10-99	100-499
SM2	1 3/8"	.375"	Turret	$3.03	$2.43	$2.12
SM2A	1 3/8"	.375"	Solder	3.03	2.43	2.12

LENSES FOR ABOVE SOCKETS (FIG. 49)

Lens Color	Lens No. Transparent	Lens No. Translucent	Net Each, Lots of 1-9	10-99	100-499
Amber	30140	.....	$0.99	$0.79	$0.69
Clear	30141	.....	.99	.79	.69
Red	30142	30147	.99	.79	.69
Blue	30143	30148	.99	.79	.69
Green	30144	30149	.99	.79	.69
Yellow	.....	30145	.99	.79	.69
White	.....	30146	.99	.79	.69

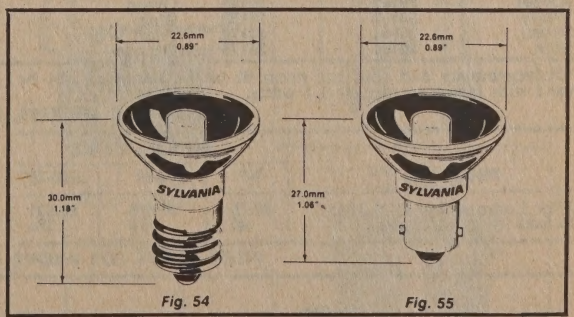


ANNUNCIATOR LAMPS AND COLOR CAPS

Long life annunciator lamps are designed for use in elevator panels, pushbutton stations, indirect decorative lighting and general signalling applications where a relatively high candlepower miniature light source is necessary. A high degree of light control is made possible by a self-contained aluminized reflector. Unique lighting and signalling effects are attainable using pyrex color caps shown in the chart. Ordering Data: For clear lamps, specify lamp number. For colored lamps, specify color as follows: 6RB/Red, etc. Caps are cemented to lamps when ordered in this manner. Caps may also be ordered separately.

ANNUNCIATOR LAMPS (FIGS. 54 AND 55)

Lamp No.	Base	Volts	Amps	Watts	Net Each, Lots of 1-9	10-99	100-499
6RC	Cand. Screw	6	.14	.8	$2.52	$2.01	$1.76
12RC	Cand. Screw	12	.17	2	2.52	2.01	1.76
24RC	Cand. Screw	24	.073	1.7	2.52	2.01	1.76
28RC	Cand. Screw	28	.04	1.1	2.52	2.01	1.76
60RC	Cand. Screw	60	.050	3	2.52	2.01	1.76
120RC	Cand. Screw	120	.025	3	2.18	1.75	1.52
6RB	Min. Bay	6	.140	.8	2.52	2.01	1.76
12RB	Min. Bay	12	.17	2	2.52	2.01	1.76
24RB	Min. Bay	24	.073	1.7	2.52	2.01	1.76
28RB	Min. Bay	28	.04	1.1	2.52	2.01	1.76
60RB	Min. Bay	60	.05	3	2.52	2.01	1.76
120RB	Min. Bay	120	.025	3	2.18	1.75	1.52

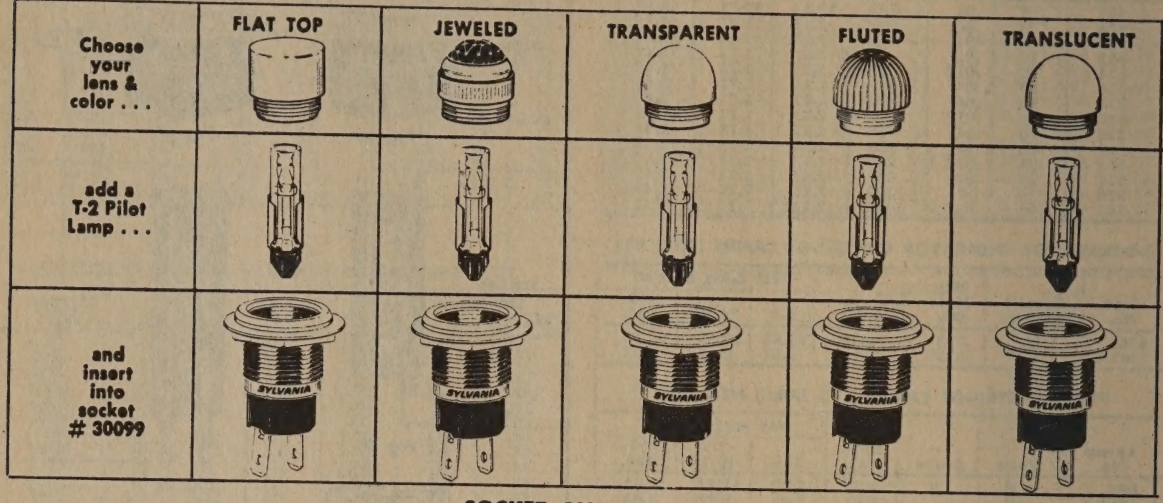


COLOR CAPS FOR ANNUNCIATOR LAMPS

Cap Color	Cap No.	Net Each, Lots of 1-9	10-99	100-499
Red	38071	$1.02	$0.82	$0.71
Yellow	38072	.56	.45	.39
White	38073	.56	.45	.39
Green	38074	.56	.45	.39
Blue	38075	.56	.45	.39

UNIVERSAL PILOT LAMP HOUSING

A variety of lens styles, each available in a choice of colors, plus a standard socket (P/N 30099) provide a wide choice of configurations for virtually every application when used with T-2 slide base Pilot Lamps rated at 5, 6, 12, 24, 28, 48, 60 or 120 volts. **Dimensions: Lenses**—Height, .38"; diameter, .63". **Socket**—Front of panel to end of terminals, .91"; mounting hole, .75" dia.

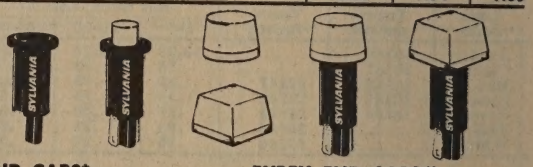


SOCKET AND LENSES

Part No.	Lens Type	Net Each, Lots of 1-9	10-99	100-499
30200	Flat Top Translucent—Red	$0.99	$0.79	$0.69
30212	Flat Top Translucent—Green	.99	.79	.69
30213	Flat Top Translucent—Blue	.99	.79	.69
30214	Flat Top Translucent—Yellow	.99	.79	.69
30100	Jeweled—Red	.99	.79	.69
30102	Jeweled—Green	.99	.79	.69
30103	Jeweled—Blue	.99	.79	.69
30106	Jeweled—Amber	.99	.79	.69
30110	Transparent—Red	.56	.45	.39
30112	Transparent—Green	.56	.45	.39
30113	Transparent—Blue	.56	.45	.39
30111	Transparent—Amber	.56	.45	.39
30114	Transparent—Yellow	$0.56	$0.45	$0.39
30116	Transparent—Clear	.56	.45	.39
30120	Fluted—Red	.50	.40	.35
30122	Fluted—Green	.50	.40	.35
30124	Fluted—Blue	.50	.40	.35
30126	Fluted—Amber	.50	.40	.35
30125	Fluted—Clear	.50	.40	.35
30130	Dome Translucent—Red	.53	.42	.37
30132	Dome Translucent—Green	.53	.42	.37
30131	Dome Translucent—Yellow	.53	.42	.37
30133	Dome Translucent—White	.53	.42	.37
30099	Pilot Lamp Socket	2.30	1.84	1.60

PILOT LAMP ASSEMBLIES

Socket P/N 30152 plus round (.70" dia. × .48" high) or square (.70" × .70" × .48" high) lens also uses T-2 slide base Pilot Lamps rated at 5, 6, 12, 24, 28, 48, 60 or 120 volts. Sockets can also be used without lens, with or without colored end cap covering end of bulb which extends .18" beyond .09" socket flange. **Dimensions:** Socket—1.31" M.O.L.; mounting hole—.50" dia.



LENSES

Color	Ordering Number: Round Lens	Square Lens
Red	30160	30170
Clear	30161	30171
Amber	30162	30172
White	30163	30173
Green	30164	30174
Blue	30165	30175

POLYCARBONATE END CAPS*

Color	Ordering Number
Red	38001
Yellow	38002
White	38003
Green	38004
Blue	38005
Pearl White	38006
Orange	38007

PYREX END CAPS#

Color	Ordering Number
Red	38071
Yellow	38072
White	38073
Green	38074
Blue	38075

*Polycarbonate end caps are press fit to the lamp; cannot be used with lamps rated over 1.1 watts.

#Pyrex end caps must be cemented to the lamp with a translucent silicone rubber adhesive.

PRICES FOR SOCKETS, LENSES AND END CAPS

Description	Net Each, Lots of 1-9	10-99	100-499
Pilot Lamp socket P/N 30152	$0.75	$0.596	$0.521
Lenses (round or square)	.40	.316	.276
Pyrex end cap, red	$0.93	$0.745	$0.651
All others	.51	.412	.359
Polypropylene end caps	.30	.243	.213

PILOT LAMPS FOR ABOVE HOUSING AND ASSEMBLIES

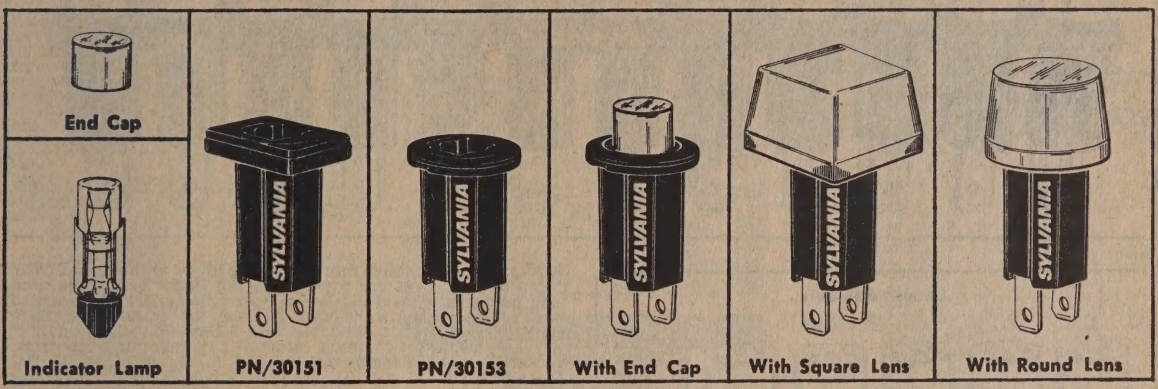
Lamp No.	Design: Volts	Amps	Watts	Filament	M.S. C.D.	Average End Foot Candles	Rated Average Life (Hours)	Net Each, Lots of 1-9	10-99	100-499
5SLB	5	.12	.6	C-2V	. . .	1,600	2,500	$1.37	$1.10	$0.96
6PSB	6	.14	.8	C-2F	.12	500	20,000	1.43	1.14	.99
6SLB	6	.144	.6	C-2V	. . .	1,700	2,500	1.37	1.10	.96
12PSB	12	.17	2.0	C-2F	.35	2,000	12,000	1.43	1.14	.99
24PSB	24	.073	1.7	C-2F	.50	3,000	10,000	1.43	1.14	.99
28PSB	28	.04	1.1	C-2F	.29	1,600	5,000	1.43	1.14	.99
48PSB	48	.053	2.5	C-7A	.7	1,800	7,500	1.43	1.14	.99
60PSB	60	.05	3.0	C-7A	.73	2,600	7,500	1.64	1.31	1.14
120PSB	120	.025	3.0	CC-7A	.36	1,200	10,000	1.61	1.29	1.12

PRICES LISTED ARE FOR GUIDANCE ONLY

SINGLE SOCKET INDICATOR LAMP ASSEMBLIES

Available sockets include P/N 30153 (round flange) and P/N 30151 (rectangular flange). Sockets may be used with or without colored lens cap covering end of bulb which extends .18" beyond .09" flange.

Socket P/N 30153 (round flange) can also be used with round (.70" dia. × .48" high) or square (.70" × .70" × .48" high) lenses. Both sockets 1.14" M.O.L. Mounting hole, .50" dia. Sockets accept T-2 lamps rated 4, 5, 6, 10, 12, 14, 16, 18, 24, 28 or 48 volts.



PRICING

Part Number	Description	Net Each, Lots of 1-9	10-99	100-499
30151	Socket, rectangular flange	$0.82	$0.65	$0.57
30153	Socket, round flange	.82	.65	.57
38001	End cap, (*), red	.33	.26	.23
38002	End cap, (*), yellow	.33	.26	.23
38003	End cap, (*), white	.33	.26	.23
38004	End cap, (*), green	.33	.26	.23
38005	End cap, (*), blue	.33	.26	.23
38006	End cap, (*), pearl white	.33	.26	.23
38007	End cap, (*), orange	.33	.26	.23
38071	End cap, Pyrex, red	1.02	.82	.71
38072	End cap, Pyrex, yellow	.56	.45	.39
38073	End cap, Pyrex, white	.56	.45	.39
38074	End cap, Pyrex, green	.56	.45	.39
38075	End cap, Pyrex, blue	$0.56	$0.45	$0.39
30160	Lens, round, red	.43	.34	.30
30161	Lens, round, clear	.43	.34	.30
30162	Lens, round, amber	.43	.34	.30
30163	Lens, round, white	.43	.34	.30
30164	Lens, round, green	.43	.34	.30
30165	Lens, round, blue	.43	.34	.30
30170	Lens, square, red	.43	.34	.30
30171	Lens, square, clear	.43	.34	.30
30172	Lens, square, amber	.43	.34	.30
30173	Lens, square, white	.43	.34	.30
30174	Lens, square, green	.43	.34	.30
30175	Lens, square, blue	.43	.34	.30

*Polycarbonate end caps are press fit to the lamp; cannot be used with lamps rated over 1.1 watts.

Pyrex end caps must be cemented to the lamp with a translucent silicone rubber adhesive.

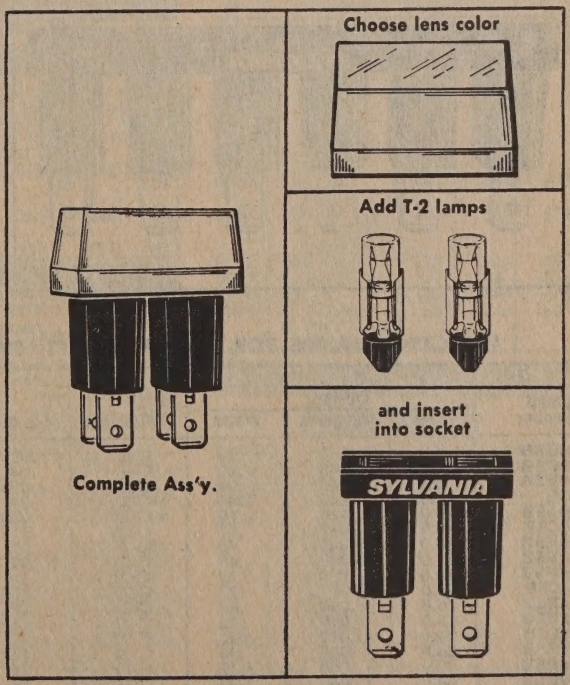
TWIN LIGHT INDICATOR LAMP ASSEMBLIES

TWIN LIGHT LENSES

Ordering Number	Color	Net Each, Lots of 1-9	10-99	100-499
30180	Red	$0.90	$0.72	$0.63
30182	Amber	.90	.72	.63
30183	White	.90	.72	.63
30184	Green	.90	.72	.63
30185	Blue	.90	.72	.63

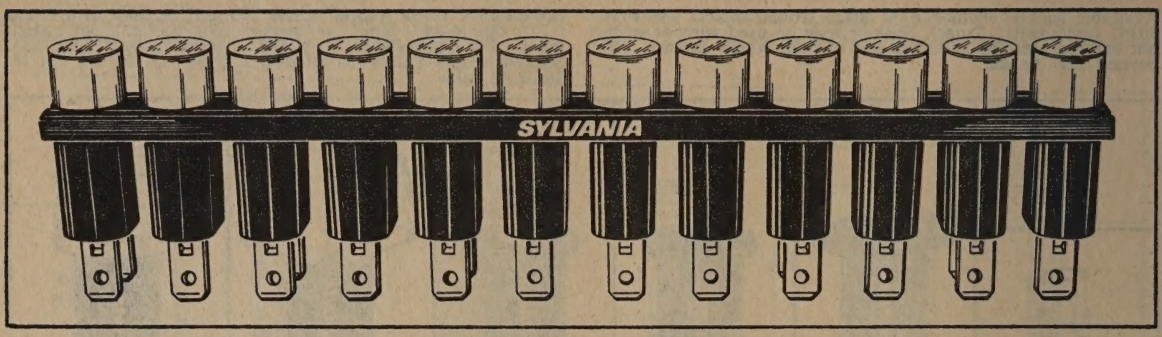
TWIN LIGHT SOCKETS

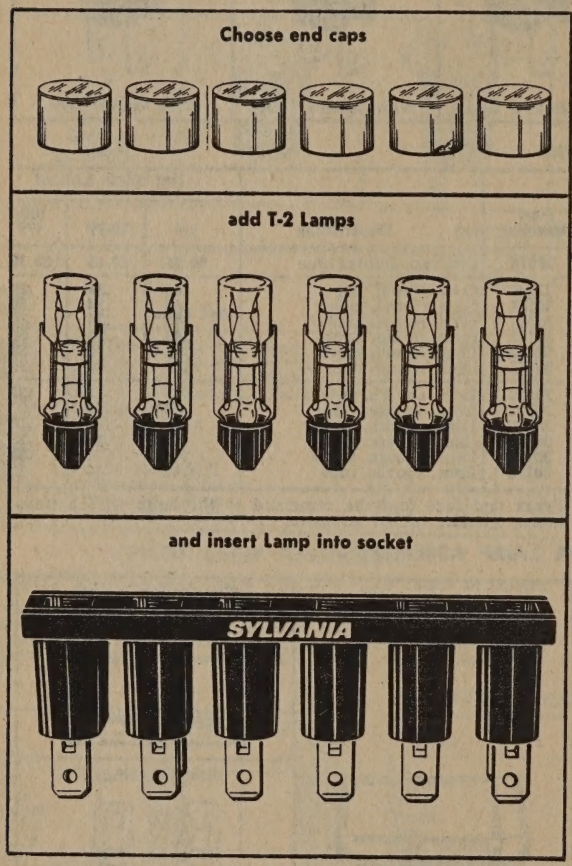
Ordering Number	Description	No. of Contacts	Net Each, Lots of 1-9	10-99	100-499
31351	Both sides common	2	$1.91	$1.59	$1.39
31352	One side common	3	1.91	1.59	1.39
31353	Individual contacts	4	1.91	1.59	1.39



INDICATOR LAMPS FOR ABOVE ASSEMBLIES WILL BE FOUND ON FOLLOWING PAGE.

STRIP SOCKET ASSEMBLIES





Strip socket assemblies may be used with or without end caps. Polypropylene caps are press fit to the lamp; cannot be used with lamps rated over 1.1 watts. Pyrex caps must be cemented to the lamp with a translucent silicone rubber adhesive. Strip socket assemblies are available with 2 thru 12 sockets on 1/2" or 3/4" centers; common ground or individual contacts. Sockets accept T-2 lamps rated at 4, 5, 6, 10, 12, 14, 16, 18, 24, 28 or 48 volts.

INDICATOR LAMP STRIP SOCKETS

Number of Sockets	Ordering Number			
	1/2" Centers		3/4" Centers	
	Common Ground	Individual Contacts	Common Ground	Individual Contacts
2	31301	31311	31321	31337
3	31302	31312	31322	31338
4	31303	31313	31323	31334
5	31304	31314	31324	31339
6	31305	31315	31325	31333
7	31306	31316	31326	31340
8	31307	31317	31327	31341
9	31308	31318	31328	31342
10	31309	31319	31329	31343
11	31310	31320	31330	31344
12	31250	33250	31275	33275

SOCKET STRIP PRICING

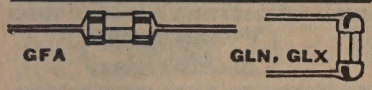
Number of Sockets	Net Each, Lots of		
	1-9	10-99	100-499
2	$1.99	$1.59	$1.39
3	2.97	2.38	2.07
4	3.94	3.16	2.76
5	4.92	3.94	3.44
6	5.89	4.72	4.12
7	6.87	5.50	4.80
8	7.85	6.28	5.48
9	8.82	7.06	6.17
10	9.80	7.84	6.85
11	10.77	8.62	7.53
12	6.14	4.91	4.29

INDICATOR LAMPS FOR SINGLE SOCKET, TWIN LIGHT AND STRIP SOCKET ASSEMBLIES

Lamp Number	Design			Filament	M.S.C.D.	Average End Foot Candles	Rated Average Life (Hrs.)	Net Each, Lots of		
	Volts	Amperes	Watts					1-9	10-99	100-499
4ESB	4.0	.040	.16	C-6	.03	200	10,000	$1.56	$1.25	$1.09
5ESB	5.0	.040	.20	C-6	.04	225	8,000	1.56	1.25	1.09
6ESB	6.0	.040	.24	C-2V	.025	250	10,000	1.37	1.09	.96
53B	6.0	.240	1.44	C-2V	.24	2,000	5,000	1.43	1.14	.99
10ASB	10.0	.010	.10	C-2F	.001	.....	50,000	1.75	1.40	1.23
10CSB	10.0	.017	.17	C-2V	.01	60	20,000	1.56	1.25	1.09
10ESB	10.0	.040	.40	C-2V	.07	450	10,000	1.43	1.14	.99
12ESB	12.0	.040	.48	C-2V	.09	650	10,000	1.45	1.16	1.02
14FSB	14.0	.080	1.12	C-2F	.50	4,000	500	1.49	1.19	1.04
16CSB	16.0	.017	.27	C-2F	.016	80	15,000	1.56	1.25	1.09
16ESB	16.0	.040	.64	C-2F	.17	800	7,500	1.43	1.14	.99
18ESB	18.0	.040	.72	C-2F	.14	850	5,000	1.43	1.14	.99
24CSB	24.0	.017	.42	C-2F	.02	100	15,000	1.49	1.19	1.04
24ESB	24.0	.040	.96	C-2F	.12	850	8,000	1.43	1.14	.99
28ESB	28.0	.040	1.12	C-2F	.25	1,500	6,000	1.43	1.14	.99
48ESB	48.0	.040	1.92	CC-2F	.44	3,000	5,000	1.60	1.28	1.12

Buss® and Fusetron® Fuses, Holders

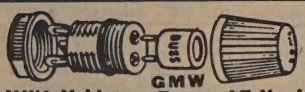
TRON SUBMINIATURE PIG-TAIL FUSES



Glass-tube construction with 1½" leads of #24 tinned copper for 1/100–5 amp ratings, #18 tinned copper for 7–15 amp ratings. Hermetically sealed. Color coded to indicate amp ratings. For circuits with fault current of 50 amps or less (1/100–5 amps for 125 V or less, 7–15 amps for 32 V or less). GLN, GLX body, .140" x .3"; GFA body, .145" x .3". GFA, UL Recognized.

Buss No.	Amperes	Net Each ♦	Net Each ■
GLN	1/100	$3.67	$3.08
GLN	1/32, 1/20, 1/16, 1/10, 3/10, 4/10, 7, 8, 10, 15	3.07	2.60
GLX	2/10, 1/4, 1/2, 6/10, 3/4, 1, 1½, 2, 3, 4, 5	4.39	3.70
GFA	1/200, 1/100, 1/64, 1/32, 1/20, 1/16, 1/10, 1/8, 15/100, 2/10, 1/4, 3/10, 4/10, 1/2, 6/10	1.36	1.14
GFA	3/4, 1, 1½, 2, 3, 4, 5, 7, 8, 10, 12, 15	1.25	1.06

SUBMINIATURE PRONG TYPE UNIT



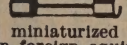
Rated 125 V max; fault current under 300 A. Open at 200% in 10 sec. Use AF knob for waterproof. Body .27" dia., .25" long. GMW and HWA* devices UL Recognized.

Buss No.	Amperes	Net Each ♦	Net Each ■
GMW	1/200,1/100, 1/64, 1/32, 1/16	$2.30	$1.94
GMW	1/10, 1/8, 2/10, 1/4, 3/10, 4/10, 1/2, 6/10, 3/4, 1, 1½, 2, 3, 4, 5	1.73	1.46
HWA*	Holder, fits all GMW	2.17	1.85
HWA†	Holder, fits all GMW	1.93	1.65
AF	Knob only, fits HWA	.27	.24

*With AF knob. †Without AF knob.

13/64 x 45/64 inch FUSES

(5 mm X 20 mm)

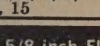


Protection of miniaturized circuits commonly used in foreign equipment. Carry 100% open at 200% in 10 sec.

Buss No.	Amperes	Net Each ♦	Net Each ■
GMA	1/8, 1/10, 2/10	$0.934	$0.813
GMA	1/4, 3/10, 4/10, 1/2, 6/10, 7/10, 3/4, 8/10	.725	.626
GMA	1, 1-2/10, 1 1/8, 1-6/10, 2, 2½, 3, 3½, 4, 5, 6, 7, 8, 10, 15	.64	.524

1/4 x 5/8 inch FUSES

FAST ACTING FUSES

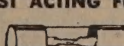


Glass tube, ¼" x ⅝". Rated 32 V, carry 110%, open at 135% in 1 hour.

AGA	1, 1½, 2, 2½, 3	$0.253	$0.222
AGA	5, 6, 7, 7½, 10, 15, 20, 25, 30	.187	.155

1/4 x 7/8 inch FUSES

FAST ACTING FUSES



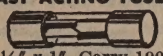
Glass tube, rated 32 V; carry 110%, open at 135% in 1 hour.

AGW	1, 1½, 2, 2½, 3, 4	$0.253	$0.222
AGW	5, 6, 7½, 15, 20, 30	.187	.155

♦Less than $150 net. ■$150 net and over.

1/4 x 1 inch FUSES

FAST ACTING FUSES



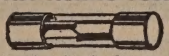
Glass tube, ¼" x 1". Carry 100%, open at 200% in 5 sec. Up to ½ A sizes have bridge elements, others have straight-through element. UL Listed to 5 amps.

Buss No.	Amperes	Volts	Net Each ♦	Net Each ■
AGX	1/500	250	$4.08	$3.43
AGX	1/200	250	1.78	1.50
AGX	1/100, 1/32	250	1.38	1.18
AGX	1/16	250	.725	.626
AGX	1/10, 1/8, 3/16, 2/10	250	.614	.499
AGX	¼, 3/10, ⅜, 4/10, ½, ¾	250	.352	.278
AGX	1, 1½, 2, 3, 4	125*	.253	.222
AGX	5, 6, 7, 8	32†	.187	.155
AGX	20, 25, 30		.187	.155
AGX	10, 15, 30	32	.165	.155
AGX	35, 50	32	.253	.222

*1A, 250. †5A, 125.

1/4 x 1-1/4 inch FUSES

FAST ACTING FUSES



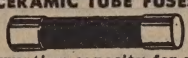
Glass tube, ¼" x 1¼". Carry 110%, open at 135% in 1 hour or less. 1/500 to 2 amp sizes will open at 200% in 5 seconds or less. 1/500 to 1/32 amp have bridge construction; all others straight-through element.

AGC	1/500	250*	$4.08	$3.43
AGC	1/200	250*	1.78	1.49
AGC	1/100	250*	1.38	1.18
AGC	1/32, 1/20	250*	1.22	1.06
AGC	1/16, 1/8, 15/100, 175/1000, 3/16, 1/10, 2/10	250*	.614	.499
AGC	¼, 3/10, ⅜, 4/10, 45/100, ½, 6/10, ¾, 8/10	250*	.363	.278
AGC	1, 2, 3, 4	250*	.242	.211
AGC	5, 6, 7, 8, 9	32‡	.187	.155
AGC	10, 12, 14, 15	250*	.165	.144
AGC	20, 25	32‡	.165	.144
AGC	30	32‡	.165	.144
AGC	35	32‡	.242	.211

*UL Listed. ‡UL Recognized.

1/4 x 1-1/4 inch FUSES

CERAMIC TUBE FUSES

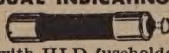


High interrupting capacity for use on circuit delivering as high as 25,000 amps at 125 V, or 10,000 amps at 250 V. ¼" x 1¼". Carry 110%, open at 135% in 1 hour. Up to 15 amp size UL Listed.

ABC	¼, ½, ¾, 1, 1½, 2, 2½, 3, 4	250	$0.495	$0.433
ABC	5, 6, 7, 8, 10, 12, 15	250	.440	.366
ABC	25, 30, 20	125	.783	.662

1/4 x 1-1/4 inch FUSES

VISUAL INDICATING FUSES



For use with HLD fuseholder. Bright red dot on indicating pin extends from end of fuse when fuse is open even after power is off. Rated 125 V or less, carries 110%, opens at 135% in 1 hour or less. Only 1/2" x 1¼". UL Listed to 5 amps.

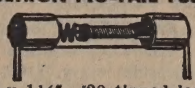
Buss No.	Amperes	Net Each ♦	Net Each ■
GBA	¾	$1.61	$1.34
GBA	1, 1½, 2, 2½, 3, 4, 5	1.22	1.04
GBA	6, 8, 10, 15	1.57	1.33

Fiber tube with silver plated indicating pin which extends when fuse is blown. To 5 A may be used to actuate a signal when used in HKA fuseholder or Signal Fuse Block. Dual tube construction over 5 amps. Under 8 amps, 125 V; 8 amps up, 32 V. Size ¼" x 1¼". UL Listed to 5 amps.

GLD	½, ¾, 1, 1½, 2, 3, 4, 5	$1.50	$1.27
GLD	6, 8, 10, 12, 15, 20, 25, 30	1.67	1.39

1/4 x 1-1/4 inch FUSES

FUSETRON PIG-TAIL FUSES



Body ¼" x 1¼", #20 tinned leads, 1¼", 1/100 to 2-8/10 same as MDL type; 3 to 7 amps same as MDX type. UL Listed.

Buss No.	Amperes	Volts	Net Each ♦	Net Each ■
MDV	1/100, 1/8	250	$1.26	$1.08
MDV	1/8, 1/10, 1/6, 15/100, 175/1000, 1/4, 2/10, 1/4, 3/10, 3/8, 4/10, 1/2, 6/10, 3/4, 8/10, 1	250	.944	.812
MDV	1¼, 1½, 1-6/10, 1-8/10, 2, 2¼	125	.924	.770
MDV	2½, 2-8/10, 3, 3-2/10, 3½, 4, 5, 6, 6¼, 7	125	.762	.652

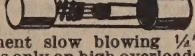
PIG-TAIL FUSES

Glass tube ¼" x 1¼" with 1¼" leads of #20 tinned wire. Carry 110%, open 135% in 1 hour. 250 V. UL Listed.

Buss No.	Amperes	Net Each ♦	Net Each ■
GJV	1/16, 1/8, 2/10	$0.857	$0.704
GJV	¼, 3/10, ⅜, ½, ¾	.594	.488
GJV	1, 1½, 1¾, 2, 2½, 3	.462	.389
GJV	4, 5, 6, 7, 8, 10	.484	.411

1/4 x 1-1/4 inch FUSES

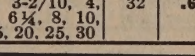
FUSETRON GLASS TUBE FUSES



Dual-element slow blowing ¼" x 1¼". Link opens only on high overloads; thermal cutout functions on low overloads (cannot operate fast on any load). Carry 110%, open at 135% in 1 hour. MDL to 2-8/10 A and MDX 3 to 7 A UL Listed; MDL 8 to 30 A UL Recognized. MDL type has longer time lag than MDX type.

Buss No.	Amperes	Volts	Net Each ♦	Net Each ■
MDL	1/100, 1/8	250	$0.999	$0.845
MDL	1/8, 1/10, 1/6, 15/100, 175/1000, 1/4, 2/10, 1/4, 3/10, 3/8, 4/10, 1/2, 6/10, 7/10, 3/4, 8/10, 1	250	.758	.649
MDX	1¼, 1½, 1-6/10, 2	250	.803	.671
MDL	1-2/10, 1¼, 1½, 1-6/10, 1-8/10, 2	125	.715	.627
MDL	2½, 2-8/10	125	.641	.53
MDX	3, 3-2/10, 4, 5	125	.64	.529
MDX	6¼, 7	125	.695	.596
MDL	3, 3-2/10, 4, 5, 6¼, 8, 10, 15, 20, 25, 30	32	.641	.53

1/4 x 1-1/4 inch FUSES



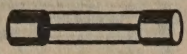
Fusetron dual-element fuse, slow-blowing type, ceramic tube. Carry 110%, open at 135% in 1 hour. UL Recognized to 20 A.

Buss No.	Amperes	Volts	Net Each ♦	Net Each ■
MDA	1/100, 1/32	250	$1.37	$1.15
MDA	1/16, 1/10, 1/8, 15/100, 175/1000, 3/16, 2/10, 1/4, 3/10, 3/8, 4/10, 1/2, 6/10, 3/4, 8/10	250	.989	.835
MDA	1, 1¼, 1½, 1-6/10, 2	250	1.07	.901
MDA	2½, 3, 4, 5, 6¼, 7, 8, 10, 12, 15, 20, 25, 30	125	.782	.661

Buss® and Fusetron® Fuses, Holders

9/32 x 1-1/4 inch FUSES

AGS GLASS TUBE FUSES



Test specification; carry, 110%, open at 135% within 1 hour except 35 and 40 amp units which open at 300% in 2 to 4 seconds when tested in standard 30-amp test circuit. **Note:** These units in sizes larger than 30 amps are not recommended for use in fuse clips or fuseholders as clips will not carry the high currents.

Buss No.	Amperes	Volts	Net Price For ♦	Net Price For ■
AGS	1/16	...	$1.31	$1.09
AGS	1/8	...	.924	.77
AGS	1/4, 1/2, 1, 2, 2 1/2, 3, 4	...	.506	.433
AGS	5, 6, 8, 10, 15	...	.363	.300
AGS	20, 25, 30	...	.297	.266
AGS	35, 40, 50	...	.407	.366

9/32 x 1-1/4 inch FUSES

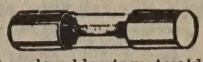
CERAMIC TUBE FUSES

Carry at 110%, open at 135% in one hour; 30 and 40 amp units open at 300% in 2 to 4 seconds when tested in standard 30-amp test circuit.

ABS	1, 2, 3	250	$0.847	$0.726
ABS	5, 6, 8, 10	250	.813	.692
ABS	15, 20, 25, 30	125	.847	.726
ABS	40	32	.915	.772

9/32 x 1-1/4 inch FUSES

FUSETRON DUAL-ELEMENT FUSES

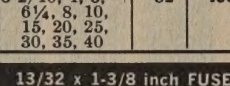


Glass tube, slow-blowing. Avoids needless blows from starting currents or surges, yet provides protection against short circuits or continuous overloads. Carry 110%, open at 135% in one hour. Approximate blowing time, 25 sec at 200% load, 8 sec at 300% load, 3 sec at 500% load.

MDM	1/10, 15/100, 2/10, 1/4, 3/10, 4/10, 1/2, 6/10, 3/4, 8/10, 1	250	$0.999	$0.845
MDM	1 1/4, 1-6/10, 2	125	.999	.845
MDM	2 1/2, 2-8/10, 3	125	.803	.671
MDM	3-2/10, 4, 5, 6 1/4, 8, 10, 15, 20, 25, 30, 35, 40	32	.803	.671

13/32 x 1-3/8 inch FUSES

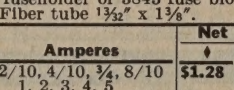
"QUICK-BLOWING" 600 V FUSES



Designed to protect circuits where quick-blowing characteristics are desired. Use HPC-L fuseholder or 3845 fuse block. UL Listed. Fiber tube 13/32" x 1 3/8".

Buss No.	Amperes	Net Each ♦	Net Each ■
BBS	2/10, 4/10, 3/4, 8/10 1, 2, 3, 4, 5	$1.28	$1.09
BBS	6, 7, 8, 10, 15, 20, 25, 30	1.28	1.09

13/32 x 1-1/2 inch FUSES



Glass tube; carry 110%, open at 135% in one hour. Below 4 amp sizes UL Listed.

Buss No.	Amperes	Volts	Net Each ♦	Net Each ■
AGU	1, 2, 3, 4, 5, 8, 10, 15	250	$0.571	$0.477
AGU	20, 25, 30, 35, 40, 50, 60	32	.506	.422

♦Less than $150 net. ■$150 net and over.

13/32 x 1-1/2 inch FUSES

MIDGET TYPE FUSES

Up to 15 amp size UL Listed.

Buss No.	Amperes	Volts	Net Each ♦	Net Each ■
BAF	1, 3, 6, 6 1/4	250	$0.671	$0.572
BAF	10, 12, 15, 20, 25, 30	125	.528	.444

INDICATING, LAMINATED TUBE FUSES

Red button on indicating pin extends from end of fuse when fuse is blown. Units are built in accordance with Navy Specifications. These units may be used in Buss HPC-C fuseholders. Voltage, (1-15 amps), 250, others, 125 V.

MIN	1, 2, 3, 5, 10, 15, 20, 25, 30	$1.52	$1.32

SIGNAL OR VISUAL INDICATING FUSES

MIC fuses: Silver-plated indicating pin may be used as visual indicator, or to actuate a signal. **MIJ** fuses: Similar to MIC type, specially designed for complex circuitry as in compuyers. Under 20 A, 250 V; 20 A up, 32 V. UL Listed to 15 amps.

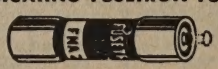
MIC	1, 2, 3, 5, 10, 15, 20, 25, 30	$1.58	$1.34
MIJ	1, 2, 5, 10, 15	1.98	1.67

FUSETRON FIBER TUBE FUSES

Dual-element slow-blowing type, 11/16" x 1 1/2" overall. Fuse link operates only on very high overloads or short circuits; thermal cutout functions on low overloads (cannot operate quickly on any overload, thus providing longer time lag). Carry 110%, open at 135% in 1 hour. 125 and 250 volt sizes UL Listed.

Buss No.	Amperes	Volts	Net Each ♦	Net Each ■
FNM	1/10, 15/100, 2/10, 1/4, 3/10, 4/10, 1/2, 6/10 8/10	250	$1.42	$1.18
FNM	1, 1 1/8, 1 1/4, 1-4/10, 1 1/2, 1-6/10 1-8/10, 2, 2 1/4, 2 1/2, 2-8/10, 3, 3-2/10, 3 1/2, 4, 4 1/2, 5, 5-6/10, 6, 6 1/4, 7, 8, 9, 10, 12, 15, 20, 25, 30	125	1.37	1.13

INDICATING FUSETRON FUSES



Similar to FNM types. Indicating pin extends from fuse when fuse blows. Use in signal fuse block or HPC-C fuseholder (larger than 10 amps units cannot be used in HPC-C). UL Listed in 0–15 amp sizes.

FNA	1/10, 15/100, 2/10, 1/4, 3/10, 4/10, 1/2, 6/10, 8/10, 1, 1 1/8, 1 1/4, 1-4/10, 1 1/2, 1-6/10, 1-8/10, 2, 2 1/4, 2-8/10, 3, 3-2/10, 3 1/2, 4, 4 1/2, 5, 5-6/10, 6, 6 1/4, 7, 8, 10	$2.52	$2.11
FNA	12, 15, 20, 25, 30	2.82	2.37

13/32 x 1-1/2 inch FUSES

HIGH INTERRUPTING CAPACITY FUSES

Type KTK—For use on circuits as high as 100,000 amps at 600 volts or less, AC only. Glass fiber melamine tubes and sand filler surrounding a silver fuse element. **Amperes:** 1/10, 1/8, 2/10, 1/4, 3/10, 1/2, 3/4, 1, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4, 5, 6, 7, 8, 9, 10, 12, 15. Net Each, less than $150 net, **$3.33**; $150 net and over, **$2.80.** UL Listed.

TYPE C AND N FUSES, HOLDERS

C, N — HC, HN

Matched glass fuses and fuseholders for specific size ranges. **Type N** fuses are dual-element time-delay or slow-blowing type. 0 to 1 1/4 amp sizes, 1/4" x 1 1/4"; 1-3/10 to 7 amp sizes, 1/4" x 1 1/4". **Type C** fuses are single-element quick-blowing type. 0 to 3 1/2 amp sizes, 1/4" x 1 1/4"; 3-6/10 to 10 amp sizes, 1/4" x 1 1/4". Holders rated at 250 volts. Fuses UL Listed, holders UL Recognized.

TYPE N FUSES

Amperes	Holder No. HN-	Volts	Net Each ♦	Net Each ■
1/16, 1/10, 15/100, 2/10, 1/4, 3/10	0 to 3/10	250	$0.618	$0.504
4/10	3/10 to 1/2	250	.618	.504
1/2	3/10 to 1/2	250	.618	.504
6/10	1/2 to 3/4	250	.618	.504
7/10, 3/4	1/2 to 3/4	250	.618	.504
8/10, 1	3/4 to 1 1/4	250	.618	.504
1 1/4	3/4 to 1 1/4	250	.618	.504
1 1/2	3/4 to 1 1/4	250	.618	.504
1-6/10	1-3/10 to 1 3/4	125	.618	.504
1 3/4	1 3/4 to 2 1/2	125	.618	.504
2	1 3/4 to 2 1/2	125	.618	.504
2 1/2	1 3/4 to 2 1/2	125	.618	.504
2-8/10	2 1/2 to 3 1/2	125	.618	.504
3	2 1/2 to 3 1/2	125	.618	.504
3-2/10	2 1/2 to 3 1/2	125	.618	.504
3 1/2	2 1/2 to 3 1/2	125	.618	.504
4	3 1/2 to 5	125	.618	.504
5	3 1/2 to 5	125	.618	.504
6	5 to 7	125	.618	.504
7	5 to 7	125	.618	.504

TYPE C FUSES

Amperes	Holder No. HC-	Volts	Net Each ♦	Net Each ■
1/16	0 to 3/10	250	$0.638	$0.562
1/8	0 to 3/10	250	.638	.562
1/8, 3/16	0 to 3/10	250	.638	.562
1/4	0 to 3/10	250	.638	.562
3/10	0 to 3/10	250	.638	.562
3/8	3/10 to 1/2	250	.638	.562
1/2	3/10 to 1/2	250	.638	.562
3/4	1/2 to 3/4	250	.638	.562
1	3/4 to 1 1/4	250	.638	.562
1 1/4	3/4 to 1 1/4	250	.638	.562
1 1/2	1 1/4 to 1 3/4	250	.638	.562
1 3/4	1 1/4 to 1 3/4	250	.638	.562
2	1 3/4 to 2 1/2	250	.638	.562
2 1/2	1 3/4 to 2 1/2	250	.638	.562
3	2 1/2 to 3 1/2	250	.638	.562
3 1/2	2 1/2 to 3 1/2	250	.638	.562
4	3-6/10 to 5	250	.638	.562
5	3-6/10 to 5	250	.638	.562
6	5 to 7	250	.632	.562
7	5 to 7	250	.638	.562
8	7 to 10	250	.638	.562
10	7 to 10	250	.638	.562

Type HC and Type HN Fuseholders—All sizes (specify). Net Each, less than $150 net, **$0.64**; $150 net and over, **$0.56.**

HIGH VOLTAGE FUSES

Designed for protection of circuits up to 20 kW on DC and 30 kVA on AC.

Buss No.	Amperes	V	Net Each ♦	Net Each ■
HVA	1/8, 1/2, 3/4, 1, 1 1/2, 2	1000	$1.44	$1.19
HVB	1/2, 3/4, 1, 1 1/2, 2	2500	1.70	1.41
HVJ	1/8, 1/2, 1/4, 3/8, 1/2, 3/4, 1, 1 1/2, 2	5000	2.84	2.38
HVL	1/8, 1/2, 1/4, 3/8, 1/2, 3/4, 1, 1 1/2, 2	10K	4.51	3.78

PRICES LISTED ARE FOR GUIDANCE ONLY

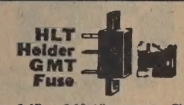
Buss® and Fusetron® Fuses, Holders

SFE STANDARD FUSES

Different amperages are different lengths, making it impossible to over-fuse. Glass tube, ¼" dia. Carry 110%, open at 135% in 1 hour. Made to SAE specifications and UL Listed, 32 volts or less.

Buss No.	Amperes	Lgth. In.	Net Each ♦	Net Each ■
SFE	4	5/8	$0.165	$0.144
SFE	6	3/4	.165	.144
SFE	7½, 9	7/8	.165	.144
SFE	14	1 1/16	.154	.133
SFE	20	1 1/4	.154	.133
SFE	30	1 1/16	.220	.188

SIGNAL-INDICATING ALARM ACTIVATING TYPE UNIT



Takes only ¼" x 1 15/16" space. Color indicator. Rated 300 V or less; 100% for 10 min.; open at 150% in 5 min. UL Recognized.

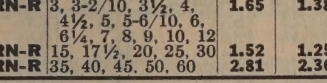
Buss No.	Amperes and Color of Indicator	Net Each ♦	Net Each ■
GMT	18/100*, ¼†, ½‡, 65/100§, ¾#, 1•, 1⅛▲, 2■, 3♦, 5ɪ, 7½‡, 10**	$1.39	$1.16
HLT	Holder, fits all GMT	1.41	1.18

Color of Indicator: *Yellow; †violet; ‡red; §black; #brown; •gray; ▲white; ■orange; ♦blue; ɪgreen; ‡black-white; **red-white.

FUSETRON DUAL-ELEMENT FUSES

Long time-lag prevents useless shut-downs caused by ordinary fuses opening on starting currents or other harmless overloads, yet protects against short-circuits. On normal installations will guard motors against burnout from overloads or single phasing. UL Listed. For motor running and circuit protection up to 250 volts.

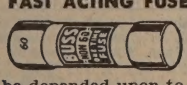
Buss No.	Amperes	Net Each ♦	Net Each ■
FRN-R	1/10, 15/100, 2/10, 3/10, 4/10, ½, 6/10, 8/10, 1, 1¼, 1-4/10, 1½, 1-6/10, 1-8/10, 2, 2¼, 2½, 2-8/10	$1.81	$1.51
FRN-R	3, 3-2/10, 3½, 4, 4½, 5, 5-6/10, 6, 6¼, 7, 8, 9, 10, 12	1.65	1.38
FRN-R	15, 17½, 20, 25, 30	1.52	1.25
FRN-R	35, 40, 45, 50, 60	2.81	2.36



FRN-R	70, 80, 90, 100	$6.32	$5.28

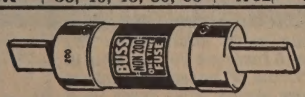
BUSS ONE-TIME FUSES

FAST ACTING FUSE



Each can be depended upon to operate as intended under all service conditions to 250 V. UL Listed.

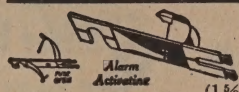
Buss No.	Amperes	Net Each ♦	Net Each ■
NON	1, 2, 3, 4, 5, 6, 7, 8, 10, 12	$0.541	$0.45
NON	15, 20, 25, 30	.466	.396
NON	35, 40, 45, 50, 60	.731	.636



NON	70, 80, 90, 100	$3.22	$2.70

♦Less than $150 net. ■$150 net and over.

GRASSHOPPER FUSES



Alarm activating and signal indicating. Length: 1 13/64", except 35D (1 5/8"), 35E (1 13/64").

Buss No.	Amps	Blowing Time Amp	Blowing Time Sec.	Net Each ♦	Net Each ■
35A*	1⅛#	2	90	$1.10	$0.941
35B*	1⅛**	2	90	1.10	.941
35B*	2**	3	180	1.10	.941
35C*	2#	3	180	1.10	.941
35D*	1⅛**	2	90	2.08	1.76
35E*	3**	4	300	1.10	.941
35F*	⅛#	¾	9	1.10	.941
35G*	3**	4½	300	1.10	.941
35H*	5**	6½	300	1.10	.941
35J†	½#	¾	90	1.57	1.32
35K†	1⅛#	2	180	2.08	1.76
35L†	2#	3	180	2.08	1.76
35M†	3**	4½	300	1.93	1.60
35N†	5**	6½	300	1.93	1.60
35P†	¾#	1⅛	90	1.47	1.23
35R*	18/100#	.270	90	1.47	1.23
35S†	¼#	.375	90	1.57	1.32
35T*	65/100#	1.1	180	1.57	1.32

Volts: *90 or less. †160 or less. Mounting Screw: #No. 10. **No. 6.

TRON® RECTIFIER FUSES

For Protection of Semiconductor Rectifiers and Similar Applications

Especially designed for protection of semiconductor rectifiers, thyristors and other solid state devices. High interrupting capacity and very fast clearing to restrict let-through current and energy to very low values. Give safe short-circuit protection for systems with fault current to 200 kA at 600 volts or less. Carry 100%, open at 1000 secs between 150% and 180% of rating; open within 1 sec. at 250% of rating. **GBB** series UL Recognized.

GBB SERIES

Size, 1¼" lg. x ¼" dia.

Buss No.	Amperes	Max. Volts	Net Ea.♦
GBB	¼, 1, 1¼, 2, 3, 4, 5, 6, 7, 8, 9, 10	130	$1.96
GBB	12, 15, 20, 25, 30	65	1.96

KAA SERIES

Size, 1½" lg. x 13/32" dia. Also available up to 1000 amps; prices on request.

KAA	½, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 20, 25, 30	130	$2.80

KAW SERIES

Size, 1½" lg. x 13/32" dia.

KAW	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 20, 25, 30	130	$2.88

KAB SERIES

Size, 9/16" dia. x 2" lg., values to 30 amps; 1 7/32" dia. x 3 1/8" lg., 70 amps to 200 amps. Also available up to 800 amps; prices on request.

KAB	½, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 17½, 20, 25, 30	250	$ 3.17
KAB	70, 80, 90, 100, 125, 150, 175, 200	250	14.39

KAC SERIES

Size, 2 7/8" lg. x 9/16" dia. Also available up to 800 amps; prices on request.

KAC	1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 15, 17½, 20, 25, 30	600	$ 4.72

BLOCKS FOR TRON® RECTIFIER FUSES

Buss No.	No. Poles	For Fuse* No.	For Fuse* Amp	Base Size, In.	Net Ea.♦
4515	1	KAA	1–30	¾ x2 3/16	$1.87
4525	2	or		1 5/16 x2 3/16	3.65
4535	3	KAW		2 1/16 x2 3/16	5.37
4386	1	KAB	1–30	¾ x3 ¼	2.78
4287	2			2 x3 ½	5.37
3959	3			3 x3 ½	8.39
3556	1	KAB	70–100	1½ x3 ⅛	6.09
3521	3			5 2 3/32 x3 ⅛	18.20
3595	1	KAC	1–30	1¼ x3 ½	4.47
3528	2			2½ x3 ½	8.83

***GBB** series, use any BUSS block for ¼ x 1¼ in. fuses.

BLOCKS FOR 1/4 x 5/8 inch FUSES

Buss No.	No. of Poles	Terminal Type	Net Ea.♦
4511	1	Screw	$1.24
4521	2	Screw	2.44
4531	3	Screw	3.73

BLOCKS FOR 1/4 x 7/8 inch FUSES

Buss No.	No. of Poles	Terminal Type	Net Ea.♦
4393	1	None	$0.688
4398	1	Solder	.688
4399	1	Screw	1.01
4401	2	Solder	1.19
4402	2	Screw	1.96
4403	3	Solder	1.81
4404	3	Screw	2.93
4485	2	Solder	1.19
4517	1	Screw	1.24
4520	1	Solder	.688
4537	3	Screw	3.73

BLOCKS FOR 1/4 x 1 inch FUSES

Buss No.	No. of Poles	Terminal Type	Net Ea.♦
3828-1	1	Solder	$0.628
3828-2	2	Solder	.981
3828-3	3	Solder	1.64
3828-4	4	Solder	2.01
3828-5	5	Solder	2.48
3828-6	6	Solder	2.95
3828-7	7	Solder	3.32
3828-8	8	Solder	3.76
3828-9	9	Solder	4.25
3828-10	10	Solder	4.72
3828-12	12	Solder	5.71
4393	1	None	.688
4398	1	Solder	.688
4399	1	Screw	1.01
4401	2	Solder	1.19
4402	2	Screw	1.96
4403	3	Solder	1.81
4404	3	Screw	2.93
4485	2	Solder	1.19
4514	1	Screw	1.24
4520	1	Solder	.688
4524	2	Screw	2.44
4534	3	Screw	3.73

BLOCKS FOR 1/4 x 1-1/4 inch FUSES

Buss No.	No. of Poles	Terminal Type	Net Ea.♦
4405	1	Solder	$0.688
4408	2	Solder	1.19
4411	3	Solder	1.81
4512	1	Screw	1.24
4522	2	Screw	2.44

Buss® and Fusetron® Fuses, Holders

BLOCKS FOR ¼ x 1¼ INCH FUSES (CONT'D)

All have molded black phenolic bases with corrosion resistant Albaloy plated spring clips.

SOLDER TERMINAL TYPE ON SMALL BASE

Buss No.	No. of Poles	Base Size, Inches	Net Ea.♦
3823-1	1	½ x 1⅝	$0.572
3823-2	2	1⅛ x 1⅝	.895
3823-3	3	1¾ x 1⅝	1.49
3823-4	4	2⅜ x 1⅝	1.83
3823-5	5	3 x 1⅝	2.26
3823-6	6	3⅝ x 1⅝	2.68
3823-7	7	4¼ x 1⅝	3.01
3823-8	8	4⅞ x 1⅝	3.41
3823-9	9	5½ x 1⅝	3.87
3823-10	10	6⅛ x 1⅝	4.29
3823-11	11	6¾ x 1⅝	4.71
3823-12	12	7⅜ x 1⅝	5.19

SCREW TERMINAL TYPE ON FULL BASE

3833-1	1	25/32 x 2⅜	$0.980
3833-2	2	1 11/16 x 2⅜	2.18
3833-3	3	2 19/32 x 2⅜	3.56
3833-4	4	3⅓ x 2⅜	4.44
3833-5	5	4 13/16 x 2⅜	5.52
3833-6	6	5 11/16 x 2⅜	6.62
3833-7	7	6 7/32 x 2⅜	7.72
3833-8	8	7⅛ x 2⅜	8.80
3833-9	9	8 1/32 x 2⅜	9.95
3833-10	10	8 15/16 x 2⅜	11.12
3833-11	11	9 27/32 x 2⅜	12.15
3833-12	12	10¾ x 2⅜	13.28

BLOCKS FOR 9/32 x 1-1/4 inch FUSES

Buss No.	No. of Poles	Terminal Type	Net Ea.♦
4413	1	Solder	$1.01
4414	1	Solder	1.01
4415	1	Screw	1.74
4416	2	Solder	1.96
4418	2	Screw	3.07
4481	1	Screw	1.74
4482	2	Screw	3.07
4483	3	Screw	4.61

BLOCKS FOR 13/32 x 1-3/8 inch FUSES

UL Recognized.

Buss No.	No. of Poles	Terminal Type	Net Ea.♦
3845	1	Screw	$2.17

BLOCKS FOR 13/32 x 1-1/2 inch FUSES

Buss No.	No. of Poles	Terminal Type	Net Ea.♦
2807	1	Screw	$2.05
2808	2	Screw	3.33
2809	3	Screw	4.60
2810	1	Pressure lug	3.97
2811	2	Pressure lug	7.82
2812	3	Pressure lug	11.83
3792	1	Screw	2.17
4421	1	Solder	1.44
4422	1	Solder	1.44
4423	1	Screw	1.58
4424	2	Solder	2.93
4427	2	Screw	3.07
4428	3	Solder	4.24
4429	3	Screw	4.61
4439	3	Screw	6.21
4415	1	Screw	1.87
4525	2	Screw	3.65
4535	3	Screw	5.37
4575	2	Screw	3.83

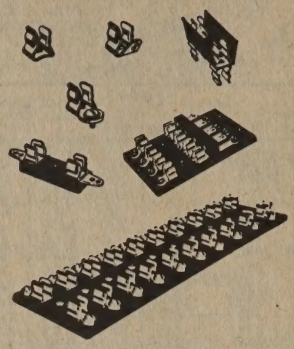
POLARIZED BLOCKS FOR SILICON RECTIFIERS

Buss No.	No. of Poles	Terminal Type	Net Ea.♦
3794	1	Solder	$0.648
3795	2	Solder	1.11

BLOCKS FOR HIGH VOLTAGE FUSES

Buss No.	No. of Poles	For Fuse	Net Ea.♦
4528	1	Buss HVA	$3.37
4529	1	Buss HVB	5.00
4530	1	Buss HVJ	6.99

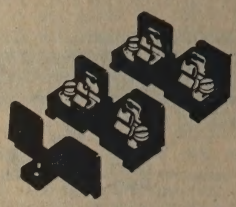
♦Less than $150 net. ■$150 net and over.



Fuse Clips and Blocks

Plug Fuses

Fustat Fuses



Add-on Fuse Block

BLOCKS FOR 13/32 x 1-1/2 inch FUSES

SIGNAL FUSE BLOCK

Base dimensions, 2.688″ x 4.375″. For use with BUSS FAN and FNJ indicating fuses.

Buss No.	No. of Poles	Terminal Type	Net Ea.♦
3839	4	Screw	$13.84

ADD-ON FUSE BLOCKS

Make fuse block of any number of poles. Each single pole nests against next one; new poles can be added at any time. Order one end barrier plus any number of poles. Marking strip available to identify poles. Rated 30 A at 600 V. UL Recognized.

Buss No.	Description	Terminal Type	Net Ea.♦
3742	End barrier only	.....	$0.448
3743	One pole block only	Screw	2.90
3723	Marking strip, 50″	.....	1.35

BUSS FUSE CLIPS

Buss No.	Description	For Fuse Dia., In.	Net Ea.♦
3434	Insul. twin clip	¼	$0.529
5681-15	Clip	¼	.112
5678-14	Clip and terminal	¼	.123
5682-01	Clip	¼	.213
5682-41	Clip	¼	.091
5682-44	Clip	¼	.091
4567	Clip assembly	¼	.303
4583	Clip assembly	¼	.336
5682-02	Clip	¼	.213
5672-11	Clip	9/32	.157
5674-41	Clip	9/32	.145
4560	Clip assembly	9/32	.538
4585	Clip assembly	9/32	.738
5674-01	Clip	9/32	.347
5956-16	Clip	13/32	.134
5960-61	Clip	13/32	.191
5960-07	Clip	13/32	.593
5960-63	Clip	13/32	.191
4561	Clip assembly	13/32	.538
4586	Clip assembly	13/32	.897
5960-09	Clip	13/32	.593

CLEAR WINDOW PLUG FUSE

Shockproof fuses are insulated with porcelain-like high voltage power lines. Top cap protects fingers from shock and cuts. Always fit fuseholders. UL Listed.

Buss No.	Amperes	Net Each ♦	Net Each ■
W	1, 2, 3, 5, 6, 8, 10	$0.317	$0.267
W	15, 20, 25, 30	.238	.213

FUSETRON DUAL-ELEMENT PLUG FUSES

Time-delay fuses recommended by N.E. Code. Will not blow under motor-starting or other current surges, yet provides full protection against heavy currents or short circuits. Rated up to 125 V. UL Listed.

Buss No.	Amperes	Net Each ♦	Net Each ■
T	3/10, 4/10, ½, 6/10, 8/10, 1, 1-⅛, 1-¼, 1-4/10, 1-6/10, 1-8/10, 2, 2-¼	$1.27	$1.05
T	2½, 2-8/10, 3-2/10, 3½, 4, 4½, 5, 5-6/10, 6¼, 7, 8, 9, 10, 12, 14	1.27	1.05
T	15, 20, 25, 30	.661	.53

FUSTAT FUSES AND ADAPTERS

Time-delay fuses with type S base recommended by N.E. Code. Prevents overfusing when used with proper size adapter. Rated up to 125 V. UL Listed. Adapters not included with Fustat fuses; order separately and specify size.

Fustat Fuses, Amps	Adapter	Fustat Fuses, Amps	Adapter
S3/10	SA1*	S3½	SA4
S4/10	SA1*	S4	SA4
S½	SA1*	S4½	SA5§
S6/10	SA1*	S5	SA5§
S8/10	SA1*	S5-6/10	SA6¼♯
S1	SA1*	S6¼	SA6¼♯
S1⅛	SA1¼*	S7	SA8
S1¼	SA1¼*	S8	SA8
S1-4/10	SA1-6/10*	S9	SA10•
S1-6/10	SA1-6/10*	S10	SA10•
S1-8/10	SA2	S12	SA15▲
S2	SA2	S14	SA15▲
S2¼	SA2½†	S15	SA15▲
S2½	SA2½†	S20	SA20
S2-8/10	SA3-2/10‡	S25	SA30■
S3-2/10	SA3-2/10‡	S30	SA30■

*Adapter also takes all smaller sizes. †Also takes 2, 1-8/10 sizes. ‡Also takes 2½, 2¼, 2, 1-8/10 sizes. §Also takes 4, 3½ sizes. ♯Also takes 5, 4½, 4, 3½ sizes. •Also takes 8, 7 sizes. ▲Also takes 10, 9, 8, 7 sizes. ■Also takes 20 size.

Buss Fustats—3/10 through 14 amp sizes. Net Each, less than $150 net..... **$1.28**

Buss Fustats—15 through 30 amp sizes. Net Each, less than $150 net..... **$.673**

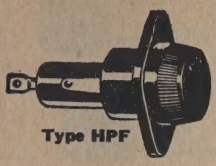
Fustat Adapters—SA1 through SA10. Net Each, less than $150 net..... **$.638**

FUSE ASSORTMENT

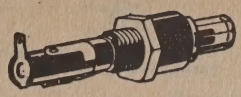
Sturdy metal stand holds 130 fuses (5 fuses per box, 26 sizes in individual 5″ boxes). Inventory feature shows what fuses need reordering.

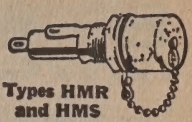
Buss No. 130—Net■. **$54.48**

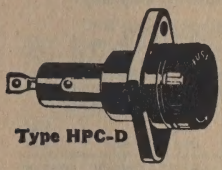
Buss® Fuseholders


Type HPF

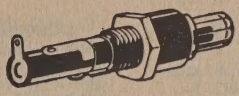
Types HC and HN


Type HKL

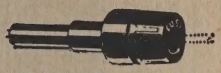

Types HMR and HMS

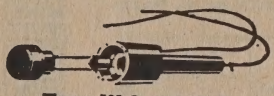

Type HPC-D

Series HJ and HK


Type HKA

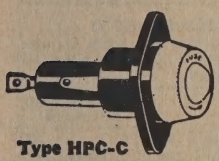
Series HR

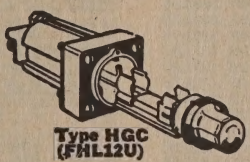

Series HH and HI

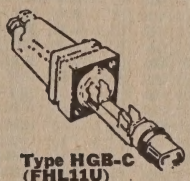

Types HLQ and HLR

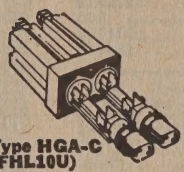
Series HCM

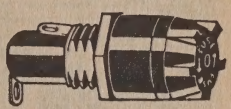
Type HLD No. 5487


Type HPC-C


Type HGC (FHL12U)


Type HGB-C (FHL11U)


Type HGA-C (FHL10U)


Type HTA

Fuse voltage on lamp indicating holders shows operating range for lamp indication.

Fuse voltage on non-indicating holders shows maximum voltage of fuses commercially available that will fit holders.

LAMP-INDICATING FOR 1/4 x 1 inch FUSES

Buss No.	Type of Mount	Fuse Voltage	Cur. Cap.	Net Ea.♦
HJL	Panel	100–250	20 A	$5.67

SIGNAL ACTIVATING-LAMP INDICATING FOR 1/4 x 1-1/4 inch INDICATING FUSES

Buss No.	Type of Mount	Fuse Voltage	Cur. Cap.	Net Ea.♦
HKA	Panel	125 or less	5 A	$11.24

LAMP INDICATING FOR 1/4 x 1-1/4 inch FUSES

Buss No.	Type of Mount	Fuse Voltage	Cur. Cap.	Net Ea.♦
HGA	Panel	100–250	30 A	$16.95
HGA-C	Panel	100–250	30 A	18.73
HGB*	Panel	100–250	30 A	14.30
HGB-C	Panel	100–250	30 A	15.76
HKL	Panel	100–250	20 A	5.03
HKL-X	Panel	100–250	20 A	5.03
HKR	Panel	24–32	20 A	8.12
HKT	Panel	10–14	20 A	8.12
HKU	Panel	4–6	20 A	8.12
HKX	Panel	24–32	20 A	8.12

*UL Recognized.

VISUAL INDICATING FOR 1/4 x 1-1/4 inch FUSES

Buss No.	Type of Mount	Fuse Voltage	Cur. Cap.	Net Ea.♦
HLD*	Panel	125 or less	30 A	$1.34

*UL Recognized.
♦Less than $150 net. "$150 net and over.

NON-INDICATING FOR 1/4 x 1 inch FUSES

Buss No.	Type of Mount	Fuse Voltage	Cur. Cap.	Net Ea.♦
HDI	Inline	250 or less	15 A	$0.475
HHI	Inline	250 or less	15 A	.714
HJM*	Panel	125 or less	30 A	1.13
HJM-CC	Panel	125 or less	30 A	1.13
HJM-H	Panel	125 or less	30 A	1.27
9969	Spring nut for panel mounting inline holder			.108

*UL Recognized.

SHIELDED NON-INDICATING FOR 1/4 x 1-1/4 INCH FUSES

Buss No.	Type of Mount	Fuse Voltage	Cur. Cap.	Net Ea.♦
HMR	Panel	250 or less	30 A	$13.44

NON-INDICATING FOR 1/4 x 1-1/4 inch FUSES

Buss No.	Type of Mount	Fuse Voltage	Cur. Cap.	Net Ea.♦
HCM	Panel	250 or less	18 A	$1.76
HDJ	Inline	250 or less	15 A	.475
HHJ	Inline	250 or less	15 A	.714
HKP*	Panel	250 or less	30 A	1.13
HKP-CC	Panel	250 or less	30 A	1.13
HKP-H	Panel	250 or less	30 A	1.27
HLF*	Panel	250 or less	30 A	1.13
HMB*	Panel	250 or less	30 A	1.13
HTA*	Panel	250 or less	15 A	1.13
9969	Spring nut for panel mounting inline holders			.108
HMJ	HDJ holder†			1.04
HRJ	HHJ holder†			1.32

*UL Recognized. †w/SFE-20 fuse, wire leads.

LAMP INDICATING FOR 13/32 x 1-1/2 inch FUSES

Buss No.	Type of Mount	Fuse Voltage	Cur. Cap.	Net Ea.♦
HGC	Panel	200–500	30 A	$17.98

NON-INDICATING FOR 13/32 x 1-1/2 inch FUSES

UL Recognized.

Buss No.	Type of Mount	Fuse Voltage	Cur. Cap.	Net Ea.♦
HPC-D	Panel	250 or less	30 A	$ 6.32

NON-INDICATING FOR 9/32 x 1-1/4 inch FUSES

Buss No.	Type of Mount	Fuse Voltage	Cur. Cap.	Net Ea.♦
HCM	Panel	250 or less	18 A	$ 1.76

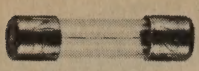
SHIELDED NON-INDICATING FOR 1/4 x 1 inch FUSES

Buss No.	Type of Mount	Fuse Voltage	Cur. Cap.	Net Ea.♦
HMS	Panel	250 or less	30 A	$13.44

OTHER STANDARD AND SPECIAL FUSES, BLOCKS AND HOLDERS

If the fuses, fuse blocks and holders shown do not fit your requirements ask for information on other types. Fuses and fuse mountings to meet JAN and Military specifications also available. If you have a special problem in protection, send description or sketch giving number of circuits, type of fuse, terminals, etc., desired. We welcome such inquiries.

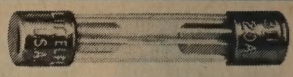
LITTELFUSE Tracor — QUALITY FUSES



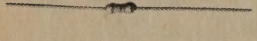
5 mm × 20 mm Fuses

Microfuse (273 Series)

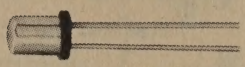
1AG (301 Series)



3AG 32 V (311 Series)



Picofuse (Axial leads)



Microfuse (278 Series)

7AG (303 Series)

3AG 250 V (312 Series)

5 × 20 MM SUBMINIATURE FUSES

A must for servicing European electronic equipment. **Size:** 5 mm × 20 mm (.2" × .8").

MEDIUM ACTING (250 V) TYPE M

Blow Time: 1/32 thru 1/10 amp—100%, life; 210%, 2 min. max.; 400%, 0.04 to 0.50 sec. 1/8 thru 1-1/4 amp—100%, life; 210%, 2 min. max.; 400%, 0.06 to 2.00 sec. 1/6 thru 5 amps—100%, life; 210%, 30 min. max.; 400%, 0.06 to 2.00 sec.

211.031 thru 211.100—Net per 5.....$13.22
Net per 1000; 1-99.....$2644.00
100-499.....$2203.00
211.200 thru 211005—Net per 5.....3.20
Net per 1000; 1-99.....$640.00
100-499.....$533.00

L.F. No	Amp Rtg.	L.F. No.	Amp Rtg.	L.F. No.	Amp Rtg.
211.031	1/32	211.600	6/10	211004	4
211.100	1/10	211.800	8/10	211005	5
211.200	2/10	211001	1		
211.250	¼	2111.25	1-¼		
211.300	3/10	21101.6	1-6/10		
211.400	4/10	211002	2		
211.500	½	211003	3		

FAST ACTING (250 V) TYPE F

Blow Time: 1/10 thru 6 amps—100%, life; 210%, 30 min. max.; 400%, 0.3 sec. max.

L.F. No.	Amp Rating	Net per 5	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
212.100	1/10	$4.67	$934.00	$813.00
212.125	⅛	4.67	934.00	813.00
212.200	2/10	4.67	934.00	813.00
212.250	¼	3.63	725.00	626.00
212.315	.315	3.63	725.00	626.00
212.400	4/10	3.63	725.00	626.00
212.500	½	3.63	725.00	626.00
212.630	.630	3.63	725.00	626.00
212.700	7/10	3.63	725.00	626.00
212.800	8/10	3.63	725.00	626.00
212001	1	3.20	640.00	524.00
2121.25	1-¼	3.20	640.00	524.00
21201.6	1-6/10	3.20	640.00	524.00
212002	2	3.20	640.00	524.00
21202.5	2-½	3.20	640.00	524.00
212003	3	3.20	640.00	524.00
212004	4	3.20	640.00	524.00
212005	5	3.20	640.00	524.00
21206.3	6.3	3.20	640.00	524.00

SLO BLO FUSES (250 V) TYPE T

Blow Time: 1/10 thru 1-¼ amp—100%, life; 210%, 2 min.-max.; 400%, 0.3 to 2 sec. 1-6/10 thru 6 amps—100%, life; 210%, 30 min. max.; 400%, 0.3 to 3 sec.

213.100 thru 211.800—Net per 5.....$6.45
Net per 1000; 1-99.....$1290.00
100-499.....$1100.00
213001 thru 213006—Net per 5.....$4.01
Net per 1000; 1-99.....$801.00
100-499.....$685.00

L.F. No	Amp Rtg.	L.F. No.	Amp Rtg.	L.F. No.	Amp Rtg.
213.100	1/10	213.630	.630	21302.5	2-½
213.125	⅛	213.700	7/10	2133.15	3.15
213.200	2/10	213.800	8/10	213004	4
213.250	¼	213001	1	213005	5
213.300	3/10	2131.25	1-¼	21306.3	6-3/10
213.400	4/10	21301.6	1-6/10		
213.500	½	213002	2		

MICROFUSE SUBMINIATURE FUSES

For PC and other min. space uses. Plug-in types use holder; pigtail types for soldering. Short circuit interrupting capacity 125 V, 10,000 amps AC. **Blow Specs:** 100%, 4-hour min.; 200%, 5-sec. max. **Size:** ¼" dia. × 11/32" (fuse body). Plug-in, transparent cap type listed. Use prefix **272** for plug-in, metal cap; prefix **279** for pigtail, transparent cap; prefix **278** for pigtail, metal cap. **UL Recognized.**

Plug-In L.F. No.	Amp Rating	Net per 5	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
273.002	1/500	$19.39	$3877.00	$3231.00
273.005	1/200	19.39	3877.00	3231.00
273.010	1/100	19.39	3877.00	3231.00
273.015	1/64	19.39	3877.00	3231.00
273.031	1/32	19.39	3877.00	3231.00
273.050	1/20	7.95	1590.00	1325.00
273.062	1/16	7.95	1590.00	1325.00
273.100	1/10	7.95	1590.00	1325.00
273.125	⅛	7.95	1590.00	1325.00
273.200	2/10	7.95	1590.00	1325.00
273.250	¼	7.95	1590.00	1325.00
273.300	3/10	7.95	1590.00	1325.00
273.400	4/10	7.95	1590.00	1325.00
273.500	½	7.95	1590.00	1325.00
273.600	6/10	7.95	1590.00	1325.00
273.700	7/10	7.95	1590.00	1325.00
273.750	¾	7.95	1590.00	1325.00
273.800	8/10	7.95	1590.00	1325.00
273001	1	7.95	1590.00	1325.00
27301.5	1-½	7.95	1590.00	1325.00
273002	2	7.95	1590.00	1325.00
273003	3	7.95	1590.00	1325.00
273004	4	7.95	1590.00	1325.00
273005	5	7.95	1590.00	1325.00

SUBMINIATURE PICOFUSES (125 V)

Blow Time: 4 hours minimum at 100% of rating; 5 secs. max. at 200%. Amperage printed on body; can be color-coded at additional cost. Ceramic body only 9/32" lg. × 5/64" dia.; tin-coated copper leads .025" dia. Order **275** (prefix) for axial leads 19/16" long for diode clip or in-circuit mounting; **276** for radial leads 1⅜" long for use in printed circuits or receptacles. **UL Recognized thru 10 amps.**

275.062 thru 275.500—Net per 5.....$5.98
Net per 1000; 1-99.....$1196.00
100-499.....$997.00
275.750 thru 275010—Net per 5.....$4.30
Net per 1000; 1-99.....$859.00
100-499.....$716.00
275012 thru 275015—Net per 5.....$5.08
Net per 1000; 1-99.....$1015.00
100-499.....$846.00

L.F. No.	Amp Rtg.	L.F. No.	Amp Rtg.	L.F. No.	Amp Rtg.
275.062	1/16	27501.5	1-½	275007	7
275.125	⅛	275002	2	275010	10
275.250	¼	27502.5	2-½	270512	12*
275.375	⅜	275003	3	275015	15*
275.500	½	27503.5	3-½	275020	20*
275.750	¾	275004	4	275025	25*
275001	1	275005	5	275030	30*

*32 volt.

1AG FUSES (32 V)

Blow Time: 110%, 4-hr. min.; 135%, 1 hr. max.; 200%, 10-sec. max. Lg. 5/8", dia. ¼".

L.F. No.	Amp Rating	Net per 5	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
301001	1	$1.27	$253.00	$222.00
30101.5	1-½	1.27	253.00	222.00
301002	2	1.27	253.00	222.00
301005	5	.94	187.00	155.00
301006	6	.94	187.00	155.00
30107.5	7-½	.94	187.00	155.00
301010	10	.94	187.00	155.00
301015	15	.94	187.00	155.00
301020	20	.94	187.00	155.00
301025	25	.94	187.00	155.00
301030	30	.94	187.00	155.00

7AG FUSES (32 V)

Blow Time: 110%, 4-hr. min.; 135%, 1 hr. max.; 200%, 10-sec. max. Lg. 7/8", dia. ¼".

L.F. No.	Amp Rating	Net per 5	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
303001	1	$1.27	$253.00	$222.00
30301.5	1-½	1.27	253.00	222.00
30302.5	2-½	1.27	253.00	222.00
303003	3	1.27	253.00	222.00
303004	4	1.27	253.00	222.00
303005	5	1.27	253.00	222.00
303006	6	1.27	253.00	222.00
303015	15	.94	187.00	155.00
303020	20	.94	187.00	155.00
303030	30	.94	187.00	155.00

SFE AUTO FUSES (32 V)

Blow Time: 110%, 4-hour min.; 135%, 0-1 hour; 150%, 20 amps or less 0-15 sec., 30 amps 0-30 sec. Dia. ¼". **UL Listed.**

L.F. No.	Amp Rtg.	Lgth. In.	Net per 5	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
307004	4	5/8	$.83	$165.00	$144.00
307006	6	¾	.83	165.00	144.00
307007.5	7½	⅞	.77	154.00	133.00
307009	9	⅞	.77	154.00	133.00
307014	14	1 1/16	.77	154.00	133.00
307020	20	1¼	.77	154.00	133.00
307030	30	1 7/16	1.10	220.00	188.00

3AG FUSES (32 V)

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 10-sec. max. Length 1¼", dia. ¼". **UL Listed thru 30 amps.**

L.F. No.	Amp Rating	Net per 5	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
311004	4	$1.21	$242.00	$211.00
311005	5	.94	187.00	155.00
311006	6	.94	187.00	155.00
311007	7	.94	187.00	155.00
311007.5	7-½	.94	187.00	155.00
311008	8	.94	187.00	155.00
311010	10	.83	165.00	144.00
311012	12	.83	165.00	144.00
311015	15	.83	165.00	144.00
311025	25	.83	165.00	144.00
311030	30	.83	165.00	144.00
311035	35	1.21	242.00	211.00

3AG FUSES (250 V)

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 5-sec. max. Length 1¼", dia. ¼". **UL Listed and CSA certified thru 8 amps.**

312.010	1/100	$8.56	$1712.00	$1427.00
312.031	1/32	6.85	1369.00	1141.00
312.062	1/16	3.07	614.00	499.00
312.100	1/10	3.07	614.00	499.00
312.125	⅛	3.07	614.00	499.00
312.150	15/100	3.07	614.00	499.00
312.175	.175	3.07	614.00	499.00
312.187	3/16	3.07	614.00	499.00
312.200	2/10	3.07	614.00	499.00
312.250	¼	1.82	363.00	278.00
312.300	3/10	1.82	363.00	278.00
312.375	⅜	1.82	363.00	278.00
312.500	½	1.82	363.00	278.00
312.600	6/10	1.82	363.00	278.00
312.750	¾	1.82	363.00	278.00
312001	1	1.21	242.00	211.00
3121.25	1-¼	1.21	242.00	211.00
31201.5	1-½	1.21	242.00	211.00
31201.6	1-6/10	1.21	242.00	211.00
312002	2	1.21	242.00	211.00
31202.5	2-½	1.21	242.00	211.00
312003	3	1.21	242.00	211.00
312004	4	1.38	275.00	244.00
312005	5	1.38	275.00	244.00
312006	6	1.38	275.00	244.00
312007	7*	1.38	275.00	244.00
312008	8*	2.15	429.00	377.00
312010	10*	2.15	429.00	377.00

*125 volt.

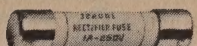
PRICES LISTED ARE FOR GUIDANCE ONLY

3AG SLO-BLO (313 Series)

3AB Ceramic (314 Series)

3AG Pigtail (318 Series)

3AG SLO-BLO Pigtail (315 Series)



3AB Rectifier (322 Series)

8AG (361 Series)

3AG SLO BLO FUSES (250 V)

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 5-sec. min. Length 1¼", dia. ¼". **UL Listed and CSA Certified thru 7 amps. UL Recognized 8 thru 30 amps.**

L.F. No.	Amp Rating	Net per 5	Net per 1000, Lots of 1-99	100-499
313.010	1/100	$5.00	$999.00	$845.00
313.031	1/32	5.00	999.00	845.00
313.040	4/100	5.00	999.00	845.00
313.062	1/16	3.79	758.00	649.00
313.100	1/10	3.79	758.00	649.00
313.125	⅛	3.79	758.00	649.00
313.150	15/100	3.79	758.00	649.00
313.175	.175	3.79	758.00	649.00
313.187	3/16	3.79	758.00	649.00
313.200	2/10	3.79	758.00	649.00
313.250	¼	3.79	758.00	649.00
313.300	3/10	3.79	758.00	649.00
313.375	⅜	3.79	758.00	649.00
313.400	4/10	3.79	758.00	649.00
313.500	½	3.79	758.00	649.00
313.600	6/10	3.79	758.00	649.00
313.700	7/10	3.79	758.00	649.00
313.750	¾	3.79	758.00	649.00
313.800	8/10	3.79	758.00	649.00
313001	1	3.79	758.00	649.00
31301.2	1-2/10	3.58	715.00	627.00
3131.25	1-¼	3.58	715.00	627.00
31301.5	1-½	3.58	715.00	627.00
31301.6	1-6/10	3.58	715.00	627.00
31301.8	1-8/10	3.58	715.00	627.00
313002	2	3.58	715.00	627.00
3132.25	2-¼	3.58	715.00	627.00
31302.5	2-½	3.21	641.00	530.00
31302.8	2-8/10	3.21	641.00	530.00
313003	3	3.21	641.00	530.00
31303.2	3-2/10	3.21	641.00	530.00
313004	4	3.21	641.00	530.00
313005	5	3.21	641.00	530.00
3136.25	6-¼	3.21	641.00	530.00
313007	7	3.21	641.00	530.00
313008	8*	3.21	641.00	530.00
313010	10*	3.21	641.00	530.00
313012	12*	3.21	641.00	530.00
313015	15*	3.21	641.00	530.00
313020	20*	3.21	641.00	530.00
313025	25*	3.21	641.00	530.00
313030	30*	3.21	641.00	530.00

*32 volt.

3AB CERAMIC BODY FUSES (250 V)

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 15-sec. max. Length 1¼", dia. ¼". **UL Listed thru 15 A. CSA Certified thru 5 amps.**

314.125	⅛	$2.48	$495.00	$433.00
314.250	¼	2.48	495.00	433.00
314.375	⅜	2.48	495.00	433.00
314.500	½	2.48	495.00	433.00
314.750	¾	2.48	495.00	433.00
314001	1	2.48	495.00	433.00
314002	2	2.48	495.00	433.00
314003	3	2.48	495.00	433.00
314004	4	2.48	495.00	433.00
314005	5	2.20	440.00	366.00
314006	6	2.20	440.00	366.00
314007	7	2.20	440.00	366.00
314008	8	2.20	440.00	366.00
314010	10	2.20	440.00	366.00
314012	12	2.20	440.00	366.00
314015	15	2.20	440.00	366.00
314020	20	3.92	783.00	662.00
314025	25*	3.92	783.00	662.00
314030	30*	3.92	783.00	662.00

*125 volt.

3AG SLO BLO PIGTAIL FUSES (250 V)

Blow Time: 110%, 4-hr. min.; 135%, 1 hr. max.; 200%, 5-sec. min. Lg. 1¼", dia. ¼", 1½" pigtails. **UL Listed and CSA Certified.**

L.F. No.	Amp Rating	Net per 5	Net per 1000, Lots of 1-99	100-499
315.010	1/100	$6.30	$1260.00	$1080.00
315.031	1/32	6.30	1260.00	1080.00
315.040	4/100	6.30	1260.00	1080.00
315.062	1/16	4.72	944.00	812.00

3AG SLO BLO PIGTAIL FUSES (CONT'D)

L.F. No.	Amp Rating	Net per 5	Net per 1000, Lots of 1-99	100-499
315.100	1/100	$4.72	$944.00	$812.00
315.125	⅛	4.72	944.00	812.00
315.150	15/100	4.72	944.00	812.00
315.175	.175	4.72	944.00	812.00
315.187	3/16	4.72	944.00	812.00
315.200	2/10	4.72	944.00	812.00
315.250	¼	4.72	944.00	812.00
315.300	3/10	4.72	944.00	812.00
315.375	⅜	4.72	944.00	812.00
315.400	4/10	4.72	944.00	812.00
315.500	½	4.72	944.00	812.00
315.600	6/100	4.72	944.00	812.00
315.700	7/10	4.72	944.00	812.00
315.750	¾	4.72	944.00	812.00
315.800	8/10	4.72	944.00	812.00
315001	1	4.72	944.00	812.00
31501.2	1-2/10	4.62	924.00	770.00
3151.25	1-¼	4.62	924.00	770.00
31501.5	1-½	4.62	924.00	770.00
31501.6	1-6/10	4.62	924.00	770.00
31501.8	1-8/10	4.62	924.00	770.00
315002	2	4.62	924.00	770.00
31502.25	2-¼	4.62	924.00	770.00
31502.5	2-½	3.81	762.00	652.00
31502.8	2-8/10	3.81	762.00	652.00
315003	3	3.81	762.00	652.00
31503.2	3-2/10	3.81	762.00	652.00
315004	4	3.81	762.00	652.00
315005	5	3.81	762.00	652.00
3156.25	6-¼	3.81	762.00	652.00
315007	7	3.81	762.00	652.00

3AG PIGTAIL FUSES (250 V)

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 5-sec. max. Length 1¼", dia. ¼". 1½" pigtails. **UL Listed and CSA Certified.**

318.010	1/100	$11.88	$2376.00	$1980.00
318.031	1/32	11.88	2376.00	1980.00
318.062	1/16	4.29	857.00	704.00
318.100	1/10	4.29	857.00	704.00
318.125	⅛	4.29	857.00	704.00
318.150	15/100	4.29	857.00	704.00
318.175	.175	4.29	857.00	704.00
318.187	3/16	4.29	857.00	704.00
318.200	2/10	4.29	857.00	704.00
318.250	¼	2.97	594.00	488.00
318.300	3/10	2.97	594.00	488.00
318.375	⅜	2.97	594.00	488.00
318.500	½	2.97	594.00	488.00
318.600	6/10	2.97	594.00	488.00
318.750	¾	2.97	594.00	488.00
318001	1	2.31	462.00	389.00
3181.25	1-¼	2.31	462.00	389.00
31801.5	1-½	2.31	462.00	389.00
31801.6	1-6/10	2.31	462.00	389.00
318002	2	2.31	462.00	389.00
31802.5	2-½	2.31	462.00	389.00
318003	3	2.31	462.00	389.00
318004	4	2.41	482.00	411.00
318005	5	2.41	482.00	411.00
318006	6	2.41	482.00	411.00
318007	7*	2.41	482.00	411.00
318008	8*	2.41	482.00	411.00

*125 volt.

3AB CERAMIC BODY RECTIFIER FUSES (250 V)

For protection of silicon controlled rectifiers and similar solid state devices. Extremely fast acting.

L.F. No.	Amp Rating	Net per 5	Net per 1000, Lots of 1-99	100-499
322001	1	$10.13	$2026.00	$1688.00
3221.25	1-¼	10.13	2026.00	1688.00
322002	2	10.13	2026.00	1688.00
322003	3	10.13	2026.00	1688.00
322004	4	10.13	2026.00	1688.00
322005	5	10.13	2026.00	1688.00
322006	6	10.13	2026.00	1688.00
322007	7	10.13	2026.00	1688.00
322008	8	10.13	2026.00	1688.00
322009	9	10.13	2026.00	1688.00
322010	10	10.13	2026.00	1688.00

3AB RECTIFIER FUSES (CONT'D)

L.F. No.	Amp Rating	Net per 5	Net per 1000, Lots of 1-99	100-499
322012	12*	$10.13	$2026.00	$1688.00
322015	15*	10.13	2026.00	1688.00
322020	20*	10.13	2026.00	1688.00
322025	25*	10.13	2026.00	1688.00
322030	30*	10.13	2026.00	1688.00

*65 volt.

3AB CERAMIC SLO BLO FUSES (250 V)

Blow Time: 110%, 4-hr. min.; 135%, 1 hr. max.; 200%, 5-sec. min. Lg., 1¼", dia., ¼". **UL Listed thru 8/10 amp.**

L.F. No.	Amp Rating	Net per 5	Net per 1000, Lots of 1-99	100-499
323.010	1/100	$6.85	$1370.00	$1150.00
323.031	1/32	6.85	1370.00	1150.00
323.062	1/16	4.95	989.00	835.00
323.100	1/10	4.95	989.00	835.00
323.125	⅛	4.95	989.00	835.00
323.150	15/100	4.95	989.00	835.00
323.175	.175	4.95	989.00	835.00
323.187	3/16	4.95	989.00	835.00
323.200	2/10	5.35	1070.00	901.00
323.250	¼	5.35	1070.00	901.00
323.300	3/10	5.35	1070.00	901.00
323.375	⅜	5.35	1070.00	901.00
323.400	4/10	5.35	1070.00	901.00
323.500	½	5.35	1070.00	901.00
323.600	6/10	5.35	1070.00	901.00
323.700	7/10	5.35	1070.00	901.00
323.750	¾	5.35	1070.00	901.00
323.800	8/10	5.35	1070.00	901.00
323.001	1	5.35	1070.00	901.00
32301.2	1-2/10	5.35	1070.00	901.00
3231.25	1-¼	5.35	1070.00	901.00
32301.5	1-½	5.35	1070.00	901.00
32301.6	1-6/10	5.35	1070.00	901.00
323002	2	5.35	1070.00	901.00
32302.5	2-½	3.91	782.00	661.00
32302.8	2-8/10	3.91	782.00	661.00
323003	3	3.91	782.00	661.00
32303.2	3-2/10*	3.91	782.00	661.00
323004	4*	3.91	782.00	661.00
323005	5*	3.91	782.00	661.00
3236.25	6-¼	3.91	782.00	661.00
323007	7*	3.91	782.00	661.00
323008	8†	3.91	782.00	661.00
323010	10†	3.91	782.00	661.00
323015	15†	3.91	782.00	661.00
323020	20†	3.91	782.00	661.00
323025	25†	3.91	782.00	661.00
323030	30†	3.91	782.00	661.00

*125 volt; †32 volt.

8AG INSTRUMENT FUSES (250 V)

Blow Time: 100%, 4-hour min.; 200%, 5-sec. max. Length 1", dia. ¼".

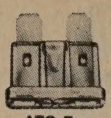
361.002	1/500	$20.16	$4031.00	$3360.00
361.005	1/200	8.98	1795.00	1496.00
361.010	1/100	8.98	1795.00	1496.00
361.015	1/64	8.98	1795.00	1496.00
361.031	1/32	8.98	1795.00	1496.00
361.062	1/16	3.72	743.00	619.00
361.100	1/100	3.09	617.00	514.00
361.125	⅛	3.09	617.00	514.00
361.187	3/16	3.09	617.00	514.00
361.200	2/10	3.09	617.00	514.00
361.250	¼	1.75	350.00	292.00
361.375	⅜	1.75	350.00	292.00
361.400	4/10	1.75	350.00	292.00
361.500	½	1.75	350.00	292.00
361.750	¾	1.75	350.00	292.00
361001	1	1.14	227.00	189.00
36101.5	1-½	1.14	227.00	189.00
361002	2	1.14	227.00	189.00
361003	3*	1.14	227.00	189.00
361004	4*	1.14	227.00	189.00
361005	5*	1.14	227.00	189.00

*125 volt.

LITTELFUSE Tracor

FUSES, CIRCUIT BREAKERS AND FUSEBLOCKS

5AG Fuses



ATO Fuses

8AG NORMAL BLO FUSES

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 10-sec. max. Length 1", dia. ¼". **UL Listed thru 5 amps. CSA Certified ⅛ thru 5 amps.**

L.F. No.	Amp Rating	Net per 5	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
362.125	⅛**	$307.00	$614.00	$499.00
362.250	¼**	176.00	352.00	278.00
362.375	⅜**	176.00	352.00	278.00
362.500	½**	176.00	352.00	278.00
362.750	¾**	176.00	352.00	278.00
362001	1**	127.00	253.00	222.00
36201.5	1-½*	127.00	253.00	222.00
362002	2*	127.00	253.00	222.00
36202.5	2-½*	127.00	253.00	222.00
362003	3*	127.00	253.00	222.00
362004	4*	.94	187.00	155.00
362005	5*	.94	187.00	155.00
362006	6*	.94	187.00	155.00
362008	8†	.94	187.00	155.00
362010	10†	.94	187.00	155.00
362012	12†	.94	187.00	155.00
362015	15†	.94	187.00	155.00
362020	20†	.94	187.00	155.00
362025	25†	.94	187.00	155.00
362030	30†	.94	187.00	155.00

**250 volt. *125 volt. † 32 volt.

4AG FUSES—CONTACT FACTORY

5AG FUSES (32 V)

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 10-sec. max. Length 1½", dia. $^{13}/_{32}$".

511010	10	$3.12	$624.00	$520.00
511015	15	3.12	624.00	520.00
511020	20	3.12	624.00	520.00
511025	25	3.12	624.00	520.00
511030	30	3.12	624.00	520.00
511035	35	3.12	624.00	520.00
511040	40	3.12	624.00	520.00
511050	50	3.12	624.00	520.00
511060	60	3.12	624.00	520.00

5AG QUICK-ACTING FUSES (250 V OR LESS)

Blow Time: 110%, 4-hour min., 135%, 1 hour max.; 200%, 5-sec. max. Length 1½", dia. $^{13}/_{32}$".

512001	1	$3.12	$624.00	$520.00
512002	2	3.12	624.00	520.00
512003	3	3.12	624.00	520.00
512004	4	3.12	624.00	520.00
512005	5	3.12	624.00	520.00
512008	8*	3.12	624.00	520.00

*125 volt.

5AG SLO BLOW FUSES (250 V OR LESS)

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 5-sec. min. Length 1½", dia. $^{13}/_{32}$".

513.500	½	$9.03	$1806.00	$1505.00
513001	1	9.03	1806.00	1505.00
513002	2	9.03	1806.00	1505.00
513003	3	8.76	1752.00	1460.00
513004	4	8.76	1752.00	1460.00
513005	5*	8.76	1752.00	1460.00
513010	10†	8.76	1752.00	1460.00
513015	15†	8.76	1752.00	1460.00
513020	20†	8.76	1752.00	1460.00
513025	25†	8.76	1752.00	1460.00
513030	30†	8.76	1752.00	1460.00

*125 volt, †32 volt.

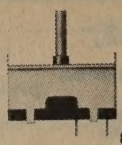
5AB CERAMIC FUSES (250 V)

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 15-sec. max. Length 1½", dia. $^{13}/_{32}$". **UL Listed thru 15 amps.**

Net per 5.....$3.85
Net per 1000; 1-99.....$769.00
100-499.....$641.00

L.F. No.	Amp Rtg.	L.F. No.	Amp Rtg.
514001	1	514007	7
514002	2	514008	8
514003	3	514010	10
514003.5	3-½	514015	15
514005	5	514020	20
514006	6	514025*	25
5146.25	6-¼	514030*	30

*125 volt.



Type T Fuseblock

815 Series Circuit Breaker

Type Q Fuseblock

Type S Fuseblock

5AB SLO BLO FUSES (CERAMIC)

Blow Time: 110%, 4-hr. min.; 135%, 1 hr. max.; 200%; 5 sec. min. Lg. 1½", dia. $^{13}/_{32}$". Voltage rating 250 V except as noted. **UL Listed thru 3½ amps.**

523.100 thru 523.800—Net per 5.....$9.36
Net per 1000; 1-9.....$1871.00
100-499.....$1559.00
523001 thru 523030—Net per 5.....$9.13
Net per 1000; 1-99.....$1825.00
100-499.....$1521.00

L.F. No.	Amp Rtg.	L.F. No.	Amp Rtg.
523.100	1/10	523003	3
523.150	15/100	52303.2	3-2/10
523.200	2/10	52303.5	3-½
523.300	3/10	523004	4
523.400	4/10	52304.5	4-½
523.500	½	523005	5
523.600	6/10	52305.6	5-6/10
523.800	8/10	5236.25	6-¼
523001	1	523007	7
5231.12	1-⅛	523008	8
5231.25	1-¼	523009	9
52301.4	1-4/10	523010	10
52301.6	1-6/10	523012	12*
52301.8	1-8/10	523015	15*
523002	2	523020	20†
5232.25	2-¼	523025	25†
52302.5	2-½	523030	30†
52302.8	2-8/10		

*125 volt. †32 volt.

ATO BLADE TYPE TERMINAL FUSES (32 V)

Blow Time: 110%, 100 hours min.; 135%, 1500 sec. max.; 200%, 5 sec. max.; 350%, 0.08 sec. min.

L.F. No.	Amp Rating	Net per 5	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
ATO003	3	$1.96	$391.00	$360.00
ATO004	4	1.96	391.00	360.00
ATO005	5	1.96	391.00	360.00
ATO07.5	7.5	1.96	391.00	360.00
ATO010	10	1.96	391.00	360.00
ATO015	15	1.96	391.00	360.00
ATO020	20	1.96	391.00	360.00
ATO025	25	1.96	391.00	360.00
ATO030	30	1.96	391.00	360.00

HEAVY DUTY MANUAL RESET CIRCUIT BREAKERS

For 125 VAC. Size, 1¾" × $^{13}/_{16}$" × ½". **UL Recognized and CSA Certified 8151.75 thru 815007.** Suffix **C** indicates individually carded.

815.650C thru 815015C—Net Ea.....$2.81
815.650 thru 81501.5—
Box of 5. Net Each.....$2.72
8151.75C thru 815007C—Net Ea.....$2.06
815.175 thru 815007—
Box of 5. Net Each.....$2.01

L.F. NO.	Nom. Trip Rating Amps	L.F. No.	Nom. Trip Rating Amps
815.650	.650	8152.75	2.75
815.800	.800	815003	3
815001	1	8153.25	3.25
8151.25	1.25	81503.5	3.5
81501.5	1.5	8153.75	3.75
8151.75	1.75	815004	4
815002	2	81504.5	4.5
8152.25	2.25	815005	5
81502.5	2.5	815006	6
81502.7	2.7	815007	7

L.F. No. 815(000) PA—Circuit Breaker Adapter Plate—Net Per 1000; Lots of 1-99.....$302.00; 100-499.....$252.00

DUAL CIRCUIT BREAKERS

Exact replacements for RCA.
Net per bubble packed card.....$3.75

L.F. No.	RCA No.	Term. 1 and 2 Hold	Term. 3 and 4 Hold
816100C	120784	1.30 A	.375 A
816101C	121719	.900 A	.325 A
816102C	1471912-4	.950 A	.400 A
816103C	130077	.175 A	.400 A

3AG FUSEBLOCKS WITH SCREW TERMINALS—TYPE T

Clips: Nickel plated spring brass. **UL Recognized.**

L.F. No.	Description	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
356001	1 pole	$1274.00	$1062.00
356002	2 pole	2538.00	2115.00
356003	3 pole	3808.00	3173.00
356012	12 pole	15,336.00	12,780.00

Note: Contact factory for pirce and availability of fuseblocks with silver plated beryllium copper clips (359 000 series)

3AG FUSEBLOCKS WITH SOLDER TERMINALS—TYPE S

Clips: Tin plated spring brass.

357001*	1 pole, molded base	$572.00	$475.00
357002*	2 pole, molded base	991.00	826.00
357003	3 pole	1490.00	1242.00
357012	12 pole	5346.00	4455.00

Note: Contact factory for price and availability of fuseblocks with silver plated beryllium copper clips (357 200 series). ***UL Recognized.**

3AG FUSEBLOCKS WITH 3/16" Q. C. TERMINALS—TYPE Q

Clips: Nickel plated spring brass.

350327*	1 pole, moldled base	$604.00	$503.00
350328*	2 pole, molded base	1186.00	988.00
351603	3 pole	2170.00	1840.00
351612	12 pole	8670.00	7310.00

***UL Recognized.**

3AG FUSEBLOCKS WITH ¼" Q.C. TERMINALS—TYPE Q

Clips: Nickel plated spring brass.

350329*	1 pole, molded base	$604.00	$503.00
350330*	2 pole, molded base	1186.00	988.00
351103	3 pole	2170.00	1840.00
351112	12 pole	8670.00	7310.00

***UL Recognized.**

3AG FUSEBLOCKS

L.F. No.	Description	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
351010	Spare, 1 pole	$2400.00	$2000.00
353001	Panel, 1 pole	4858.00	4048.00

8AG FUSEBLOCKS WITH SOLDER TERMINALS—TYPE S

Clips: Tin plated spring brass.

387001	1 pole	$635.00	$530.00
387002	2 pole	1946.00	1622.00
387003	3 pole	2831.00	2360.00
387012	12 pole	10,796.00	8997.00

5AG FUSEBLOCKS WITH SCREW TERMINALS—TYPE T

Clips: Silver plated beryllium copper.

556001	1 pole	$2806.00	$2338.00
556002	2 pole	5624.00	4687.00
556003	3 pole	8459.00	7049.00
556012	12 pole	33,983.00	28,319.00

TV SNAP-ON FUSEHOLDERS

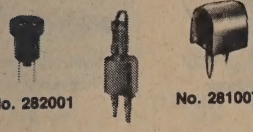
L.F. No.	Description	Net Each
094024	24 holders*	$20.00
094025	10 holders#	5.50

*Display card. #Box of 10. †Bulk.

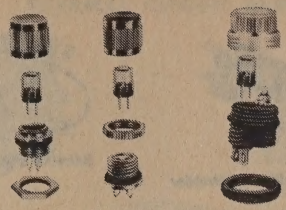
PRICES LISTED ARE FOR GUIDANCE ONLY

FUSE CLIPS AND FUSEHOLDERS

MICROFUSE HOLDERS



No. 282001 No. 281007 No. 281005



No. 281001 No. 282002 No. 284000 Series

FUSE CLIPS

Standard P.C. Board Low Profile P.C. Board Bowed Tab P.C. Board 5 mm P.C. Board

STANDARD FUSE CLIPS (SPRING BRASS NICKEL PLATED)

L.F. No.	Fuse Adaptation	Type	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
101001	SFE, 3AG, 8AG, 3AB	Ear	$ 91.00	$ 80.00
101002	SFE, 3AG, 8AG, 3AB	Earless	112.00	102.00
101003*	SFE, 3AG, 8AG, 3AG	Lug	190.00	123.00
103001	4AG, 4AB	Ear	145.00	124.00
104002	4AG, 4AB	Earless	269.00	157.00
105001	5AG	Ear	191.00	170.00
105002	5AG	Earless	134.00	113.00

*Unplated, bright dip.

STANDARD FUSE CLIPS (BERYLLIUM COPPER, SILVER PLATED)

121001	SFE, 3AG, 8AG, 3AB	Ear	$213.00	$170.00
121002	SFE, 3AG, 8AG, 3AB	Earless	213.00	170.00
121004	SFE, 3AG, 8AG, 3AB	Lug	490.00	408.00
123001	4AG, 4AB	Ear	347.00	295.00
123002	4AG, 4AB	Earless	347.00	295.00
125001	5AG, 5AB	Ear	484.00	403.00
125002	5AG, 5AB	Earless	484.00	403.00

P.C. BOARD FUSE CLIPS FOR ¼" DIAMETER FUSES

Spring brass clips unless otherwise noted.

L.F. No.	Finish	Style	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
102071	Tin plated	Ear	$ 92.00	$ 77.00
102074	Tin plated	Earless	92.00	77.00
122083*	Silver plated	Ear	247.00	215.00
122088*	Tin plated	Ear	215.00	180.00
122087*	Silver plated	Earless	247.00	215.00

*Beryllium copper.

BOWED TAB P.C. BOARD CLIPS FOR ¼" DIAMETER FUSES

Spring brass.

102078	Tin plated	Earless	$123.00	$105.00
102079	Tin plated	Ear	123.00	105.00

P.C. BOARD CLIPS FOR 5 mm DIAMETER FUSES

Spring brass.

100054	Silver plated	Ear	$140.00	$117.00
100056	Tin plated	Ear	150.00	125.00

LOW PROFILE P.C. BOARD CLIPS FOR ¼" DIAMETER FUSES

L.F. No.	Material	Finish	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
122090	Beryllium copper	Silver plated	$203.00	$169.00
102080	Spring brass	Tin plated	100.00	83.00

BAKELITE® UNIVERSAL IN-LINE FUSEHOLDER

(See photo next page.)

Comes with 15" wire loop and three different length springs for use with fuse sizes SFE 7½, 9, 14 and 20 and all 3AG fuses. (Fuses not included with holder.)

L.F. No. 150145—Net per 1000; Lots of 1-99 ..... **$1032.00**; 100-499..... **$860.00**

NYLON UNIVERSAL IN-LINE FUSEHOLDERS

(See photo next page.)

Low-cost holder with "twist-lock". Comes with 8" lead and two springs to accommodate any ¼" diameter fuse.

L.F. No. 155100—Net per 1000; Lots of 1-99 ..... **$756.00**; 100-499..... **$630.00**

BAKELITE IN-LINE FUSEHOLDERS ASSEMBLIED WITH FUSE AND 19" LEAD

L.F. No.	Fuse	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
155004A	SFE 4, 1AG	$1186.00	$988.00
155006A	SFE 6	1186.00	988.00
15507.5A	SFE 7½	1186.00	988.00
155009A	SFE 9, 7AG	1186.00	988.00
155014A	SFE 14	1186.00	988.00
155020A	SFE 20, 3AG	1186.00	988.00

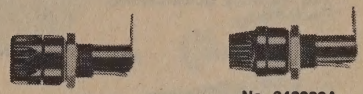
®Bakelite Corp.

NYLON IN-LINE FUSEHOLDERS ASSEMBLED WITH FUSE AND 19" LEAD

L.F. No.	Fuse	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
155104A	SFE 4	$1082.00	$902.00
155106A	SFE 6	1082.00	902.00
15517.5A	SFE 7½	1082.00	902.00
155109A	SFE 9	1082.00	902.00
155114A	SFE 14	1082.00	902.00
155120A	SFE 20	1082.00	902.00

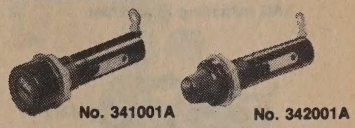
3AG MINIATURE FUSEHOLDERS

No. 342014A No. 342012A



No. 342004A No. 342022A

3AG STANDARD FUSEHOLDERS



No. 341001A No. 342001A

MICROFUSE FUSEHOLDERS

L.F. No.	Type	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
281001	Chassis mount	$710.00	$592.00
281005	P.C. board	907.00	756.00
281006A	Front panel	2069.00	1724.00
281007	P.C. board	907.00	756.00
282001A	Front panel	4931.00	4109.00
282002A	Rear panel	4931.00	4109.00
282007	RF shielded	9124.00	7603.00
282008	RF shielded	9124.00	7603.00

MICROFUSE INDICATING FUSEHOLDERS

L.F. No.	Voltage Range	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
284004A	2½-7 V	$6596.00	$5497.00
284005A	7-16 V	6596.00	5497.00
284006A	16-32 V	6596.00	5497.00
284003A	100-125 V	5743.00	4786.00

MICROFUSE INDICATING HOLDERS— RF SHIELDED

284121	2½-7 V	$71,027.00	$59,189.00
284122	7-16 V	71,027.00	59,189.00
284107	12-22 V	71,027.00	59,189.00
284108	23-33 V	71,027.00	59,189.00
284109	34-45 V	71,027.00	59,189.00
284110	46-60 V	71,027.00	59,189.00
294111	61-80 V	71,027.00	59,189.00
284112	81-90 V	45,163.00	37,636.00
284113	91-125 V	45,163.00	37,636.00

3AG PANEL FUSEHOLDERS

All holders include hardware.

L.F. No.	Type	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
340255	RF shld'd (FHN26G2)	$13,440.00	$11,300.00
340256	RF shld'd (FHN20G)	13,440.00	11,300.00
341001A*	Screw	1725.00	1438.00
342006A	Watertight	8078.00	6732.00

***UL Recognized. Certified by CSA 15 amps to 250 volts.**

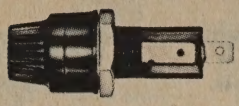
3AG MINIATURE FUSEHOLDERS

Extend only 1" behind panel. All holders include hardware. Rated at 20 amps to 250 volts. **UL Recognized and CSA certified.**

342004A	Fluted knob, right angle term	$1130.00	$939.00
342014A	Fluted knob, straight term.	1130.00	939.00
342022A	Knurled knob, right angle term.	1130.00	939.00
342012A	Knurled knob, straight term.	1130.00	939.00

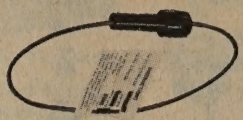
For dripproof applications, order part number with suffix **PA**, for example, **342004PA.**

FUSEHOLDERS

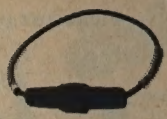


3AG Miniature Quick-Connect Fuseholder

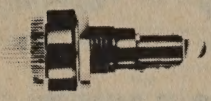
3AG Low Profile Fuseholder



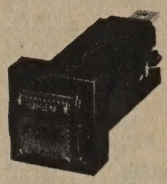
Bakelite In-Line Fuseholder



Nylon In-Line Fuseholder

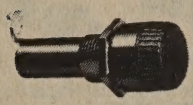


3AG Indicating Fuseholder



3AG Indicating Low Profile

No. 571007 Fuseholder for $^{13}/_{32}$" Diameter Fuses



3AG Shock-Safe Fuseholder (Hardware Included)

3AG QUICK-CONNECT FUSEHOLDERS WITH $^{3}/_{16}$" TERMINALS

Identical to 3AG Miniature Fuseholders on the previous page, but with Q.C. terminals. **Rated at 20 amps to 250 volts. UL Recognized and Certified by CSA.** All holders include hardware.

L.F. No.	Type
342028A	Fluted knob, right angle terminal
342038A	Fluted knob, straight terminals
342048A	Knurled knob, right angle terminals
342058A	Knurled knob, straight terminals

Net per 1000; Lots of 1-99.....$1340.00
100-499.....$1120.00

Note: For fuseholders with ¼" Q.C. terminals, use 342 800 Series. Example: 342826A.

3AG INDICATING FUSEHOLDERS 344(000) SERIES

For visual indication of a blown fuse. Incandescent or neon lamps. Supplied with resistor and hardware. **Rated at 20 amps to 250 volts. Certified by CSA.**

L.F. No.	Voltage	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
344006A	2½-7 V	$8120.00	$6830.00
344012A	7-16 V	8120.00	6830.00
344024A	16-32 V	8120.00	6830.00
344125A*	100-125 V	5030.00	4230.00
344250A	200-250 V	5030.00	4230.00

*UL Recognized.

3AG INDICATING FUSEHOLDERS 344(000) SERIES

Same as 344(000) Series but with different lens style.

344401A	2½-7 V	$8120.00	$6830.00
344402A	7-16 V	8120.00	6830.00
344403A	16-32 V	8120.00	6830.00
344404A	100-125 V	5030.00	4230.00
344405A*	200-250 V	5030.00	4230.00

*UL Recognized.

3AG "SHOCK SAFE" FUSEHOLDERS

Designed to meet standards set by the International Electrotechnical Commission. Used in equipment designed for sale in the European market. Absolute protection against electrical shock. **Rated at 20 amps to 300 volts. UL Recognized. Certified by CSA.** Hardware included.

345001A	Right-angle terminals	$1458.00	$1215.00
345002A	Straight terminals	1458.00	1215.00
345400	Adapter for 5 × 20 mm fuses	977.00	814.00

3AG LOW PROFILE FUSEHOLDERS

Square cap fuseholder snaps into chassis, eliminating need for mounting hardware. The cap snaps open for quick and easy fuse insertion and removal. Aesthetically styled to complement modern instrument panels.

UL Recognized. Certified by CSA. Rated at 15 amps to 250 volts. Order body and cap assemblies separately.

LOW PROFILE BODY ASSEMBLIES

L.F. No.*	Bezel Color	Net Each, Lots of 1-99	Net Each, Lots of 100-499
348610	Red	$1229.00	$1024.00
348620	Green	1229.00	1024.00
348630	Yellow	1229.00	1024.00
348640	Blue	1229.00	1024.00
348650	White	1229.00	1024.00
348670	Black	1229.00	1024.00
348690	Gray	1229.00	1024.00

*For ¼" Q.C. terminals, change the 6 to 8; example, 348810.

LOW PROFILE CAPS

L.F. No.	Color	Net Each, Lots of 1-99	Net Each, Lots of 100-499
348001	Red	$341.00	$284.00
348002	Green	341.00	284.00
348003	Yellow	341.00	284.00
348004	Blue	341.00	284.00
348005	White	341.00	284.00
348007	Black	341.00	284.00
348009	Gray	341.00	284.00

INDICATING LOW PROFILE FUSEHOLDERS

Similar to above, except holders are supplied with an indicating lamp that lights when the fuse blows. Standard body and bezel are black. Other bezel colors available to special order. Rated at 15 amps to maximum lamp voltage. *To order with ¼" Q.C. terminals, change the 6 to 8; example, 344801.

L.F. No.*	Lamp Volts	Lamp mamps	Resistor	Lens Color
	INCANDESCENT			
344601	6	40	No	Amber
344602	14	80	No	Amber
344603	28	40	No	Amber

Net per 1000; Lots of 1-99.....$5549.00;
100-499.....$4624.00

NEON				
344604	120	1.2	Yes	Clear
344605	240	.3	Yes	Clear

Net per 1000; Lots of 1-99.....$4156.00;
100-499.....$3463.00

8AG PANEL FUSEHOLDERS

Similar to the 3AG Panel Fuseholders (No. 341001A and 342001A) shown on preceding page, but designed for use with 8AG fuses. **Rated at 15 amps to 250 volts.** Hardware included. **UL Recognized and CSA Certified.**

L.F. No.	Type	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
371001A	Screw	$2743.00	$2286.00
372001A	Finger	2743.00	2286.00

No. 571007 PANEL FUSEHOLDER FOR $^{13}/_{32}$" DIAMETER FUSES

Versatile fuseholder designed for use with $^{13}/_{32}$" diameter fuses with lengths between 1⅜" and 1½", including the popular 5AG and 5AB types. **Rated at 30 amps up to 600 volts.** ¼" Q.C./solder terminals. **UL Recognized. CSA Certified.**

Other features include:

- Minimum rear panel projection and reduced overall length.
- One-piece knob insert and one-piece side terminal for improved electrical performance.
- Recessed side terminal for additional shock-safe characteristics.
- Non-movable bottom terminal to eliminate circuit wiring flexing and permit easier fuse installation.
- ¾" spacing between mounting flange and terminals to accommodate even the thickest panels.
- Engraved, ink-filled knob markings for clear, permanent identification.
- **Watertight version—#571007P.**

#571007—
Net per 1000; Lots of 1-99.....**$2508.00;**
100-499.....**$2090.00**

#571007P—
Net per 1000; Lots of 1-99.....**$2646.00;**
100-499.....**$2205.00**

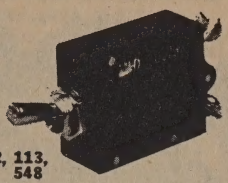
5 × 20 MM FUSEHOLDERS

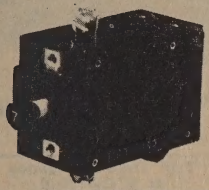
Panel fuseholders with V.D.E. Approval up to 6.3 amperes, 250 volts, for use with 5 × 20 mm fuses. Holders have solder terminals. Maximum panel thickness: $^{3}/_{16}$".

L.F. No.	Type	Net per 1000, Lots of 1-99	Net per 1000, Lots of 100-499
345401	Bayonet style knob	$2910.00	$2425.00
345402	Finger grip screw type knob	2376.00	1980.00

THERMAL CIRCUIT BREAKERS

109, 110, 842


112, 113, 548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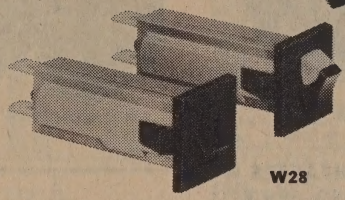
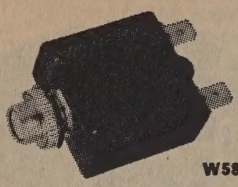
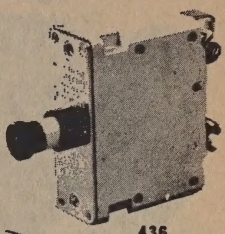
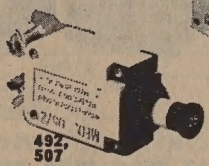

W28


W58XB


436


492, 507

MODELS 109 AND 110

Models 109 and 110 thermal circuit breakers feature a white band on the body of the reset button which becomes visible upon breaker trip. Maximum operating voltages are 50 VDC and 250 VAC (to 400 Hz). Interrupt capacity for Model 109 is 1000 amps at 125 VAC or 2000 amps at 50 VDC; 2000 amps at 250 VAC or 3500 amps at 50 VDC for Model 110. Use #8-32 screw terminals and mount with one ⅜-24 dress nut. Model 109 has screw terminals situated at 90° to each other. Model 110 has screw terminals situated parallel to each other. Size, .690″ w. x 1.600″ d. x 1.375″ h. Weight, less than 2 oz. CSA & UL recognized.

P & B Model	Rating Amps	Net Each	P & B Model	Rating Amps	Net Each
109-205-101	5	$8.75	109-235-101	35	$8.95
109-507-101	7.5	8.75	109-240-101	40	8.95
109-210-101	10	8.75	109-250-101	50	8.95
109-215-101	15	8.75	109-260-101	60	9.80
109-220-101	20	8.75	110-205-101	5	9.90
109-225-101	25	8.95	110-210-101	10	9.90
109-230-101	30	8.95			

MODEL 842

Model 842 thermal circuit breaker insures fast trip by employing a heater wire in close proximity to the thermal contact arm. Heat generated by overload currents flowing through the wire quickly activates the thermal contact and opens the circuit. Maximum operating voltages are 32 VDC and 250 VAC (to 400 Hz). Interruption capacity is over 1000% of current rating. Has #8-32 screw terminals and mounts with a single ⅜-24 dress nut. Size, .690″ w. x 1.600″ d. x 1.375″ h. Weight, less than 2 oz.

P & B Model	Rating Amps	Net Each	P & B Model	Rating Amps	Net Each
842-201-101	1	$16.45	842-203-101	3	$16.45
842-202-101	2	16.45	842-204-101	4	16.45

MODELS 112, 113 AND 548

Models 112, 113 and 548 thermal circuit breakers feature toggle trip. Model 112 has a nickel-plated brass toggle with rating marked on the end. Model 113 has a chrome-plated toggle with rating marked on the end. Model 548 has a silver toggle with no rate marking. Maximum operating voltages are 50 VDC and 250 VAC (to 400 Hz). Interrupt capacity for Model 112 is 1000 amps at 125 VAC or 2000 amps at 50 VDC; 2000 amps at 250 VAC and 3500 amps at 50 VDC for Models 113 and 548. Use #8-32 screw terminals and mount with a single dress nut. Size, .690″ w. x 1.600″ d. x 1.375″ h. Weight, less than 2 oz. UL recognized/CSA certified.

P & B Model	Rating Amps	Net Each	P & B Model	Rating Amps	Net Each
112-205-101	5	$11.05	112-250-101	50	$11.50
112-507-101	7.5	10.90	113-205-101	5	15.45
112-210-101	10	11.10	113-507-101	7.5	15.45
112-215-101	15	11.25	113-210-101	10	15.45
112-220-101	20	11.25	113-215-101	15	15.45
112-225-101	25	11.50	113-220-101	20	15.45
112-230-101	30	11.50	548-205-107	5	13.20
112-235-101	35	11.50	548-210-107	10	13.45
112-240-101	40	11.50			

MODEL 114

Model 114 thermal circuit breaker features auxiliary SPDT switch electrically isolated but mechanically connected to the breaker circuit. SPDT contacts rated 3 amps at 120 VAC or 50 VDC. Maximum operating voltages are 32 VDC and 240 VAC (to 400 Hz). Interruption capacity is over 200 amps at 240 VAC and 1000 amps at 32 VDC. Mounts with two #6-32 panel-mount screws. Termination of breaker contacts is to two #6-32 screw terminals; of the auxiliary switch, to three #53 taper receptacles. Size, .930″ w. x 1.875″ d. x 1.344″ h. Weight, less than 3 oz. UL Recognized. CSA certified.

P & B Model	Rating Amps	Net Each	P & B Model	Rating Amps	Net Each
114-201-101	1	$41.75	114-210-101	10	$41.75
114-202-101	2	42.30			

SERIES W58

Thermal circuit breakers feature recessed reset button which cannot be manually pulled out to disconnect the circuit. The button has a red band around it for visible trip indication. Maximum voltage ratings are 250 VAC and 50 VDC. Interruption capacity: 2000 amps at 50 VDC; 1000 amps at 250 VAC; all models. Quick-connect terminals on Models W58XB; #6-32 terminals on Models W58XC. Mounting is with knurled thumb on bushing. Size, .660″ w. x 1.375″ d. x 1.375″ h. Weight, less than 1.5 ozs. Models from 1 to 20 amps are UL Recognized under File E39205 and certified under CSA File 30671.

Model W58XB, 1 to 4 amps—Net Each..... **$4.54**
Model W58XB, 5 to 35 amps—Net Each..... **2.92**
Model W58XC, 1 to 4 amps—Net Each..... **6.55**
Model W58XC, 5 to 35 amps—Net Each..... **4.93**

P & B Model W58-	Rating, Amps	P & B Model W58-	Rating, Amps	P & B Model W58-	Rating, Amps
XB1A4A-1	1	XB1A4A-15	15	XC4C12A-6	6
XB1A4A-2	2	XB1A4A-20	20	XC4C12A-7	7
XB1A4A-3	3	XB1A4A-25	25	XC4C12A-8	8
XB1A4A-4	4	XB1A4A-30	30	XC4C12A-10	10
XB1A4A-5	5	XB1A4A-35	35	XC4C12A-12	12
XB1A4A-6	6	XC4C12A-1	1	XC4C12A-15	15
XB1A4A-7	7	XC4C12A-2	2	XC4C12A-20	20
XB1A4A-8	8	XC4C12A-3	3	XC4C12A-25	25
XB1A4A-10	10	XC4C12A-4	4	XC4C12A-30	30
XB1A4A-12	12	XC4C12A-5	5	XC4C12A-35	35

SERIES W28

W28 series circuit breakers are UL 1077 recognized as Supplementary Protectors, File E69543 and CSA certified as Appliance Component Protectors, File LR30671. Convenient, inexpensive alternate to twist-cap, panel mounted fuse holders and glass cartridge fuses. Single pole, thermal-type breakers occupy the same amount of space as fuse holders, and securely snap into standard panel cutouts from front of panel. Reset button can not be pulled out manually to disconnect circuit. When an overload occurs, and the breakers open, the reset button and a white indicator extend for visual trip indication. A trip-free feature allows the contacts to open even if the reset button is held manually against an overload. Max. operating voltage, 32 VDC or 250 VAC. **Interrupt Capacity:** 0.25 to 2 amp models, 6 times rated current; 3 to 15 amp models, 10 times rated current. **Reset Time:** 10–60 sec. Quick-Connect terminals on all models. Weight: approx. 0.35 oz.

Model W28XQ, 0.25 to 2 amps—Net Each..... **$4.60**
Model W28XQ, 3 to 15 amps—Net Each..... **2.60**

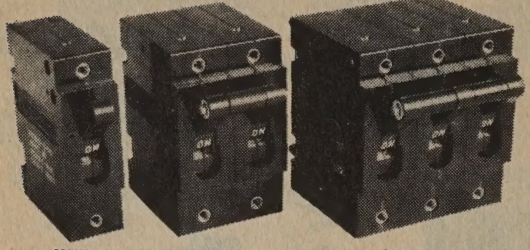
P & B Model W28-	Rating Amps	P & B Model W28-	Rating Amps	P & B Model W28-	Rating Amps
XQ1A-0.25	0.25	XQ1A-3	3	XQ1A-10	10
XQ1A-0.5	0.5	XQ1A-5	5	XQ1A-12	12
XQ1A-1	1.0	XQ1A-7	7	XQ1A-15	15
XQ1A-2	2.0	XQ1A-8	8		

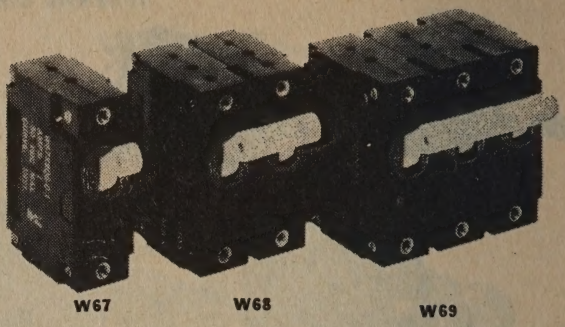
TRIP TIME vs. PERCENT OF LOAD

P & B Model	Trip Time in Sec. at 200% of Load	P & B Model	Trip Time in Sec. at 200% of Load
109	6–20	W28XQ, 0.25–2 A	4.5–20
110	6–10		
112	6–20	W28XQ, 3–15 A	2.2–15
113	6–20		
114	13–30	W58XB, 1–4 A	10–45
436	15–55		
492	15–55	W58XB, 5–35 A	6–30
507	15–55		
548	6–20	W58XC, 1–4 A	10–45
842	11–42		
		W58XC, 5–35 A	6–30

PRICES SHOWN ARE FOR REFERENCE ONLY

CURRENT PRICES WILL APPLY ON ALL LINES





MAGNETIC/HYDRAULIC CIRCUIT BREAKERS SERIES W67, W68, W69, W91, W92, W93

Magnetic-hydraulic circuit breakers designed to pass safe surge currents and momentary overloads but to trip on dangerous overloads. Trip times range from instantaneous on loads of approximately 800% of rating and higher to 20 seconds or more at 200% of load. Breakers may trip between values greater than 100% and less than 125% of rated load, but must trip at 125% of rated load and above. All models feature wipe on make and break and have a trip-free mechanism which allows the contacts to open even if manually held in the reset position. On 2- and 3-pole models, an overload in any circuit will open all circuits. All models are UL recognized as circuit protectors, File 39205, and CSA recognized as appliance component protectors, File 30671. Models W91, W92 and W93 breakers mount with #6-32 screws and have #10-32 terminal studs. **Size:** W91, .750″ w. x 1.844″ d. x 2.500″ h.; W92, 1.500″ w. x 1.844″ d. x 2.500″ h.; W93, 2.250″ w. x 1.844″ d. x 2.500″ h. Models W67, W68 and W69 breakers offer an auxiliary SPDT switch electrically isolated, rated 5 amps at 125 VAC or 1 amp at 50 VDC, and has solder terminals. **Size:** W67, .750″ w. x 1.500″ d. x 2.000″ h.; W68, 1.500″ sq. x 2.000″ h.; W69, 2.250″ w. x 1.500″ d. x 2.000″ h. **Maximum Operating Voltages:** Models from 1 to 30 amps, 250 VAC, 50/60 Hz; models from 1 to 50 amps, 65 VDC. **Auxiliary Switch Rating:** SPDT common, 5 amps at 125 VAC, 1 amp at 50 VDC. **Interrupt Capacity:** 50 VDC: W67–W69, 2000 amps; 50 VDC: W91–W93, 3500 amps; 250 VAC, 60 Hz: W67–W69 and W91–W93, 5000 amps.

W 91 X1 1 2 15
Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ

Ⓐ Circuit breaker designator
W

Ⓑ Series number
91—single pole
92—double pole
93—triple pole

Ⓒ Circuit function
X1—Series trip

Ⓓ Voltage
1—AC
5—DC

Ⓔ Trip curve
0—Instantaneous
2—Standard time delay
3—Short time delay

Ⓕ Standard ampere rating*

1	5	15	30
2	7	20	40§
3	10	25	50§

P & B Model	Net Each, Lots of					
	1-9	10-49	50-99	100-249	250-499	500-Up
W91	$17.25	$11.21	$10.18	$ 9.14	$ 8.11	$ 7.59
W92	41.40	26.91	24.43	21.94	19.46	18.22
W93	64.90	42.19	38.29	34.40	30.50	28.56

*Not all ratings available in each trip curve. §Not UL or CSA in AC models.

MODEL 436

Model 436 thermal circuit breaker has a special magnet which assists during millisecond tripping of heavy overloads. Reset button has white band around it for visible trip indication. Maximum voltage ratings are 32 VDC and 115 VAC (to 400 Hz). Will safely interrupt over 3500 amps at 115 VAC, and 6000 amps at 32 VDC. Termination to #8-32 screw terminals; mounting is with #6-32 screws. Size, .750″ w. x 1.66″ d. x 2.189″ h. Weight, less than 3 oz.

P & B Model	Rating Amps	Net Each	P & B Model	Rating Amps	Net Each
436-205-101	5	$33.15	436-220-101	20	$33.25
436-210-101	10	32.10	436-225-101	25	33.25
436-215-101	15	32.15	436-250-101	50	34.65

P & B Model	Trip Time in Sec. at 200% of Load	P & B Model	Trip Time in Sec. at 200% of Load
436-	15–55	492-	15–55

Curve	Trip Time in Seconds at % Overload				
	200%	400%	600%	800%	1000%
0*	.03‡	.015‡	.012‡	.012‡	.....
2 AC†	2.2–20	.3–2	.05–.75	.007–.15	.005–.04
2 DC	.6–8	.15–1.5	.03–.5	.004–.05	.004–.025
3 AC†	.15–1.5	.035–.25	.01–.15	.003–.08	.003–.04
3 DC	.16–1.5	.035–.25	.012–.13	.004–.05	.003–.015

*Ratings for 50/60 Hz and DC. †Ratings for 50/60 Hz. ‡Maximum value.

ORDERING INFORMATION

W 67 A2Q 1 2 20
Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ

Ⓐ Circuit breaker designator
W

Ⓑ Series number
67—single pole
68—double pole
69—triple pole

Ⓒ Circuit function
A2Q—series trip with auxiliary switch
X2Q—series trip

Ⓓ Voltage
1—AC
6—DC

Ⓔ Trip curve
0—Instantaneous
2—Standard time delay
3—Short time delay

Ⓕ Standard ampere rating*

0.5	3	10	25
1	5	15	30
2	7	20	

P & B Model	Net Each, Lots of					
	1-9	10-49	50-99	100-249	250-499	500-Up
W67A All	$19.00	$12.85	$11.21	$10.07	$ 8.93	$ 8.36
W67X ½A	16.90	10.99	9.97	8.96	7.94	7.44
W67X Others	14.10	9.17	8.32	7.47	6.63	6.20
W68X All	33.60	21.84	19.82	17.81	15.79	14.78
W69X All	52.85	34.35	31.18	28.01	24.84	23.25

*Not all ratings available in each trip curve.

MODELS 492 AND 507

Models 492 and 507 thermal circuit breakers have a white band around the base of the reset button which becomes visible upon breaker trip. Model 492 has a glass melamine barrier on one side of its housing. Maximum operating voltages are 32 VDC and 115 VAC (to 400 Hz). Will safely interrupt over 3500 amps at 115 VAC and 6000 amps at 32 VDC. Size, .750″ w. x 1.490″ d. x 1.094″ h. Weight, Less than 2 oz.

P & B Model	Rating Amps	Net Each	P & B Model	Rating Amps	Net Each
492-210-102	10	$26.10	507-220-101	20	$26.60
492-215-102	15	27.90	507-225-101	25	26.60
492-220-102	20	27.90	507-230-101	30	26.60
492-235-102	35	27.95	507-235-101	35	26.60
507-210-101	10	24.80	507-240-101	40	26.60
507-215-101	15	26.60			

PRICES SHOWN ARE FOR REFERENCE ONLY

PRICES LISTED ARE FOR GUIDANCE ONLY

alpha Mil-Spec and UL Hook-Up Wire

SPECIFICATION MIL-W-16878D HOOK-UP WIRE

TYPE B UNCOVERED PLASTIC

Single conductor stranded tinned copper, .010″ polyvinylchloride insulation. Rated 600 volts. Temp., −55° C to +105° C.

Alpha No.	MIL-W Type	Conductor Size	Conductor Strand	Nom. O.D.	Colors‡	Net per Spool 1000′	Net per Spool 100′
1850	B-32	32	7/40	.028″	1-19	$38.76	$ 6.66
1851	B-30	30	7/38	.032″	1-19	31.81	5.48
1852	B-28	28	7/36	.034″	1-19	28.06	5.21
1853	B-26	26	7/34	.038″	1-19	31.66	5.37
1854	B-24	24	7/32	.043″	1-19	28.50	5.31
1854/19	B-24	24	19/36	.043″	1-19	35.65	6.86
1855	B-22	22	7/30	.050″	1-19	31.03	6.15
1855/19	B-22	22	19/34	.050″	1-19	43.98	8.48
1856	B-20	20	7/28	.058″	1-19	38.55	7.32
1856/19	B-20	20	19/32	.058″	1-19	43.83	7.43
1857	B-18	18	7/26	.068″	1-19	47.67	7.61
1857/19	B-18	18	19/30	.068″	1-19	59.19	9.65
1858/19	B-16	16	19/29	.077″	1-19	65.02	9.94
1859/19	B-14	14	19/27	.091″	1-19	92.58	22.35

TYPE B NYLON JACKET

Same as above, but clear nylon jacket overall; 115° C.

1863	B-26	26	7/34	.044″	1-19	$ 42.15	$ 7.46
1864	B-24	24	7/32	.049″	1-19	40.39	7.06
1864/19	B-24	24	19/36	.049″	1-19	48.19	7.90
1865	B-22	22	7/30	.056″	1-19	45.58	7.74
1865/19	B-22	22	19/34	.056″	1-19	55.08	8.90
1866	B-20	20	7/28	.064″	1-19	51.37	8.10
1866/19	B-20	20	19/32	.064″	1-19	59.52	9.46
1867	B-18	18	7/26	.074″	1-19	63.85	10.26
1867/19	B-18	18	19/30	.074″	1-19	75.88	11.79
1868/19	B-16	16	19/29	.085″	1-19	80.64	10.72
1869/19	B-14	14	19/27	.099″	1-19	118.47	18.67

TYPE C UNCOVERED PLASTIC

Single conductor stranded tinned copper; .016″ polyvinylchloride insulation. Rated 1000 volts. Temp., −55° C to +105° C.

Alpha No.	MIL-W Type	Conductor Size	Conductor Strand	Nom. O.D.	Colors‡	Net per Spool 1000′	Net per Spool 100′
1830	C-24	24	7/32	.058″	1-19	$ 44.20	$ 9.10
1831	C-22	22	7/30	.064″	1-19	49.69	10.01
1832	C-20	20	7/28	.072″	1-19	60.73	11.54
1833	C-18	18	7/26	.082″	1-19	87.90	15.32
1834	C-16	16	19/29	.091″	1, 11-19	116.35	20.24
1835	C-14	14	19/27	.015″	1, 11-19	179.43	30.07
1836	C-12	12	19/25	.124″	1, 11-19	281.80	44.35

TYPE D UNCOVERED PLASTIC

Same as Type D except without nylon jacket; 105° C max.

Alpha No.	MIL-W Type	Conductor Size	Conductor Strand	Nom. O.D.	Colors*	Net per Spool 1000′	Net per Spool 100′
1870	D-24	24	7/32	.082″	1-3	$ 27.33	$ 5.53
1871	D-22	22	7/30	.088″	1-3	65.26	12.21
1872	D-20	20	7/28	.096″	1-3	79.02	14.49
1873	D-18	18	7/26	.106″	1-3	97.75	16.16
1874	D-16	16	19/29	.115″	1-3	144.79	22.70
1875	D-14	14	19/27	.129″	1-3	191.73	28.25
1876	D-12	12	19/25	.158″	1-3	297.72	43.04
1877	D-10	10	37/26	.185″	1	449.62	60.73
1878	D-8	8	133/29	.247″	1	874.69	100.00
1879	D-6	6	133/27	.290″	1	1263.06	152.73

TYPE E TEFLON® STRANDED-CONDUCTOR WIRE

Stranded or solid, silver plated copper conductor; extruded TFE Teflon insulation, Rated 600V. Temp. −65° C to +200° C.

Alpha No.	MIL-W Type	Conductor Size	Conductor Strand	Nom. O.D.	Colors‡	Spool of 100′^
5851	E-30	30	7/38	.028″	1-19	$ 17.82
5852	E-28	28	7/36	.031″	1-19	17.75
5853	E-26	26	7/34	.035″	1-19	18.71
5854	E-24	24	19/36	.040″	1-19	28.92
5854/7	E-24	24	7/32	.039″	1-19	21.89
5855	E-22	22	19/34	.046″	1-19	32.98
5855/7	E-22	22	7/30	.045″	1-19	26.17
5856	E-20	20	19/32	.054″	1-19	41.20
5856/7	E-20	20	7/28	.053″	1-19	34.87
5857	E-18	18	19/30	.064″	1-19	54.76
5858	E-16	16	19/29	.073″	1-19	67.21
5859§	E-14	14	19/27	.094″	1-6, 11-19	93.26
5859/12§	E-12	12	19/25	.113″	1, 11-19	102.16
5859/10§	E-10	10	37/26	.134″	1, 11-19	152.95

TYPE EE TEFLON® WIRE

Same as Type E, but .014″ thick extruded TFE Teflon insulation. Rated 1000 volts. Temperature, −65° C to +200° C.

Alpha No.	MIL-W Type	Conductor Size	Conductor Strand	Nom. O.D.	Colors‡	Spool of 100′^
2874	EE-24	24	19/36	.055″	1-19	$ 42.99
2875	EE-22	22	19/34	.062″	1-19	50.09
2876	EE-20	20	19/32	.070″	1-19	64.70
2877	EE-18	18	19/30	.080″	1-19	75.24
2878	EE-16	16	19/29	.089″	1, 11-19	100.00
2879§	EE-14	14	19/27	.106″	1, 11-19	113.83
2879/12§	EE-12	12	19/25	.124″	1, 11-19	168.15
2879/10§	EE-10	10	37/26	.145″	1, 11-19	202.23
2879/8♯	EE-8	8	133/29	.210″	1	572.88

§Insul., .017″ thick. ♯Insul., .020″ thick. ^Spool of 1000′ also avail.; prices on request.

SPECIFICATION MIL-W-76B PLASTIC HOOK-UP WIRE

TYPE MW (MEDIUM WALL) PLASTIC

Single conductor stranded or solid tinned copper, polyvinylchloride insulation .016″ th. Rated 1000 volts. Temp., −40° C to +80° C.

STRANDED

Alpha No.	Type MW-C	Conductor Size	Conductor Strand	Nom. O.D.	Colors‡	Net per Spool 1000′	Net per Spool 100′
1550	24(7)U	24	7/32	.059″	1-27	$ 28.60	$ 5.24
1551	22(7)U	22	7/30	.064″	1-27	32.44	5.68
1553	20(10)U	20	10/30	.073″	1-27	38.10	6.84
1555	18(16)U	18	16/30	.084″	1-27	48.70	7.86
1557	16(26)U	16	26/30	.095″	1-19	72.06	11.41
1559	14(41)U	14	41/30	.110″	1-19	109.15	15.67
1560	12(65)U	12	65/30	.125″	1-19	162.03	24.41

SOLID

Alpha No.	Type MW-C	Conductor Size	Conductor Strand	Nom. O.D.	Colors‡	Net per Spool 1000′	Net per Spool 100′
1561/24	24(1)U	24	1	.055″	1-19	$22.65	$4.99
1561	22(1)U	22	1	.060″	1-19	25.24	4.84
1563	20(1)U	20	1	.066″	1-19	31.65	5.75
1565	18(1)U	18	1	.074″	1-19	44.80	7.66

UL HOOK-UP WIRE

The special, custom or prototype, UL Listed wire you need—in ready to use form—from one foot to production requirements, produced and delivered to you fast. Stranded tinned copper, color coded polyvinylchloride insulation. Resistant to acids, alkalis, oil, flame, moisture and fungus.

300 VOLTS, 80° C, UL STYLE 1007

Temperature rating, −10° C to +80° C. Voltage rating, 300 volts. Nom. wall thickness, .016″. CSA Style TR-64, 1/64″ nom. wall thickness.

Alpha No.	Conductor Size	Conductor Strand	Nom. O.D.	Colors*	Net per Spool 1000′	Net per Spool 100′
3050	24	7/32	.057″	1-19	$27.04	$ 5.21
3051	22	7/30	.065″	1-19	32.10	5.90
3053	20	10/30	.071″	1-19	38.76	7.12
3055	18	16/30	.080″	1-19	42.96	7.44
3057	16	26/30	.095″	1-19	64.75	10.39

600 VOLTS, 105° C, UL STYLE 1015

Temperature rating, −10° C to +105° C. Voltage rating, 600 volts. Nom. wall thickness, .016″. CSA Style TEW-105, 1/32″ nom. wall thickness.

3071	22	7/30	.095″	1-10	$ 34.60	$ 5.62
3073	20	10/30	.102″	1-10	44.98	7.35
3075	18	16/30	.112″	1-10	52.12	8.83
3077	16	26/30	.125″	1-10	78.33	11.23
3079	14	41/30	.142″	1-10	104.71	15.58

SEMI-RIGID PVC, 300 VOLTS, 80° C, UL STYLE 1061

Stranded tinned copper, color coded semi-rigid polyvinylchloride insulation. Temperature rating, −10° C to +80° C. Voltage rating, 300 volts in business machine or electronic computers only. Nom. wall thickness, .009″. Applications include internal wiring of computers, electric bookkeeping, accounting machines, and other office and control equipment.

3250	24	7/32	.042″	1-10	$25.30	$3.88
3251	22	7/30	.048″	1-10	31.87	4.91
3252	20	7/28	.056″	1-10	46.36	6.93

KYNAR® WIRE, 125° C, 300 VOLTS FOR WIRE WRAP CONNECTIONS

Solid, silver-plated, oxygen-free high conductivity (OFHC) copper conductor, extruded Kynar (Polyvinylidene fluoride) insulation. Extremely tough, high cut-through resistance. Self-extinguishing, will not support combustion. Excellent ultra-violet and weathering resistance. Used in automatic wire wrapping equipment in computer and related industries. Temp. rating, through 125° C continuous (UL rated at 105° C). Nominal wall thickness, .005″. Cut lengths available, write or phone for information.

Alpha No.	Conductor Size	Nom. O.D.	Colors*	Net per Spool 1000′	Net per Spool 100′
5951	30	.020″	1-10	$ 92.77	....
5952	28	.023″	1-10	107.37	....
5953	26	.026″	1, 3-6, 9	109.81	....
5954	24	.030″	1, 3-6	135.76	....

*‡STOCK COLORS

*Specify color. ‡Prices shown are for solid colors only. Following striping charges apply for either one, two or three spiral tracers per item in any standard put-up. Plastic and nylon jacketed wire, $1.50 per 1000′; Teflon® wire, $11.25 per 1000′. Other tracer colors available at extra cost. Write for information.

No.	Color	No.	Color	No.	Color
1	White	10	Violet	19	White/Violet
2	Black	11	White/Black	20	White/Black/Red
3	Red	12	White/Red	21	White/Black/Green
4	Green	13	White/Green	22	White/Black/Yellow
5	Yellow	14	White/Yellow	23	White/Black/Blue
6	Lt. Blue	15	White/Blue	24	White/Black/Brown
7	Brown	16	White/Brown	25	White/Black/Orange
8	Orange	17	White/Orange	26	White/Black/Gray
9	Gray	18	White/Gray	27	White/Black/Violet

®Kynar of Pennwalt Corp.

SPECIFICATION MIL-W-16878D HOOK-UP WIRE

RX-7000 IRRADIATED-HEAT RESISTANT HOOK-UP WIRE

Newly developed hook-up wire with insulation made of irradiated polyvinylchloride compound (PVC) provides insulation far superior to ordinary PVC. Withstands higher temperature, and even in direct contact with a soldering iron will not shrink back, melt, blow or deform. Ideal where high reliability is essential, particularly in the wiring of tight, high density systems, appliances, computer wiring, business machines, instrumentation and control systems. Rated 600 volts, Type B; 1000 volts, Type C. Temperature, +105° C.

MIL-W-16878D TYPE B STRANDED, +105° C, 600 VOLTS

Alpha No.	Conductor Size	Conductor Strand	Nom. O.D.	Colors*	Net per Spool 1000′	Net per Spool 100′
7053	26	7/34	.038″	1-19	$ 35.64	$ 6.06
7054	24	7/32	.043″	1-19	37.63	7.39
7054/19	24	19/36	.043″	1-19	43.29	8.03
7055	22	7/30	.050″	1-19	42.61	7.72
7055/19	22	19/34	.050″	1-19	49.45	8.04
7056	20	7/28	.058″	1-19	53.01	9.01
7056/19	20	19/32	.058″	1-19	52.65	8.75
7057	18	7/26	.068″	1-19	66.70	11.17
7057/19	18	19/30	.068″	1-19	88.78	12.90
7058/19	16	19/.0117	.077″	1-19	111.28	15.34

MIL-W-16878D TYPE C STRANDED, +105° C, 1000 VOLTS

7030	24	7/32	.058″	1-19	$ 41.73	$ 7.06
7031	22	7/30	.064″	1-19	52.09	8.41
7032	20	7/28	.072″	1-19	59.02	9.56
7033	18	7/26	.082″	1-19	71.37	11.88
7034	16	19/29	.091″	1-19	103.80	14.85
7035	14	19/27	.105″	1-19	158.95	21.75
7036	12	19/25	.124″	1-19	210.43	28.17

*‡See following page for colors.

TYPE ET EXTRUDED TEFLON® WIRE

Single conductor stranded, silver-plated copper; extruded TFE Teflon insulation, .006″ thick. Rated 250 volts. Temperature, −65° C to +200° C.

Alpha No.	MIL-W Type	Conductor Size	Conductor Strand	Nom. O.D.	Colors‡	Net per Spool 1000′	Net per Spool 100′
2840/7	ET-32	32	7/40	.021″	1-10	$ 97.08	$17.73
2841/7	ET-30	30	7/38	.024″	1-10	106.24	19.36
2842/7	ET-28	28	7/36	.027″	1-10	114.06	20.78
2842/19	ET-28	28	19/40	.027″	1-10	203.01	29.79
2843/7	ET-26	26	7/34	.031″	1-10	115.75	21.08
2843/19	ET-26	26	19/38	.032″	1-10	174.49	26.21
2844/7	ET-24	24	7/32	.036″	1-10	139.53	25.43
2844/19	ET-24	24	19/36	.037″	1-10	172.26	31.36
2845/7	ET-22	22	7/30	.042″	1-10	148.11	27.01
2845/19	ET-22	22	19/34	.044″	1-10	194.76	35.49
2841/1	.....	30†	Solid	.022″	1-10	104.13	17.38
2842/1	.....	28†	Solid	.025″	1-10	101.32	16.93
2843/1	.....	26†	Solid	.028″	1-10	106.98	17.38
2844/1	.....	24†	Solid	.032″	1-10	117.45	18.71

†Solid silver plated copper conductor.

TYPE HW (HEAVY WALL) PLASTIC

Single conductor stranded tinned copper; heavy wall polyvinylchloride insulation. Nominal insulation .032″ for 22-16 cond. sizes; .045″, all other sizes. Voltage rating, 2500 V 22-16 cond. sizes; 600 V, all other sizes. Temp., −40° C to +80° C.

Alpha No.	Type HW-C	Conductor Size	Conductor Strand	Nom. O.D.	Colors*	Net per Spool 1000′	Net per Spool 100′
1571	22(7)U	22	7/30	.092″	1-6	$ 47.89	$ 9.21
1573	20(10)U	20	10/30	.100″	1-6	60.69	11.54
1575	18(16)U	18	16/30	.112″	1-6	67.71	12.05
1577	16(26)U	16	26/30	.126″	1-3	83.94	14.25
1579	14(41)U	14	41/30	.170″	1-3	150.66	24.15
1651	12(65)U	13	65/30	.186″	1-3	227.05	33.31
1653	10(105)U	10	105/30	.210″	1-3	349.87	48.81
1655	8(133)U	8	133/29	.260″	1-3	822.78	100.00

TYPE B, PRE-BONDED, UNCOVERED PLASTIC

Each strand is double tinned and then heated to bond the strands together for easy stripping. Insulation per MIL-W-16878D, .010″ polyvinylchloride. Rated 600 volts. Temp., −55° C to +105° C.

3154	B-24	24	7/32	.044″	1-19	$43.30	$ 8.63
3155	B-22	22	7/30	.051″	1-19	51.30	9.81
3156	B-20	20	7/28	.059″	1-19	67.77	12.19
3157	B-18	18	7/26	.070″	1-19	96.30	16.22

TYPE E TEFLON® SOLID-CONDUCTOR WIRE

Single solid silver-plated copper conductor; extruded TFE Teflon insulation. Rated 600 V. Temp., −65° C to +200° C.

2853/1	E-26	26	Solid	.036″	1-10	$ 90.63	$15.60
2854/1	E-24	24	Solid	.040″	1-10	100.05	15.72
2855/1	E-22	22	Solid	.045″	1-10	135.57	21.68
2856/1	E-20	20	Solid	.052″	1-10	164.10	25.17
2857/1	E-18	18	Solid	.060″	1-10	214.08	31.32

RX-7000 IRRADIATED-HEAT RESISTANT HOOK-UP WIRE MIL-W-16878D

UL STYLES 1430, 1429

Newly developed hook-up wire with insulation made of irradiated polyvinylchloride compound (PVC) provides insulation far superior to ordinary PVC. Withstands higher temperature, and even in direct contact with a soldering iron will not shrink back, melt, blow or deform. Ideal where high reliability is essential, particularly in the wiring of tight, high density systems, appliances, computer wiring, business machines, instrumentation and control systems. Rated 300 volts.

UL STYLE 1430, 105° C, 300 VOLTS

Nom. wall thickness, .016″.

Alpha No.	Conductor Size	Conductor Strand	Nom. O.D.	Colors*	Net per Spool 1000′	Net per Spool 100′
7130	24	7/32	.056″	1–19	$ 49.30	$ 8.65
7131	22	7/30	.062″	1–19	59.77	10.12
7132	20	7/28	.070″	1–19	69.94	11.68
7133	18	7/26	.080″	1–19	82.06	14.20
7134	16	19/.0117	.091″	1–19	118.95	18.36

UL STYLE 1429, 150 VOLTS, SOLID AND STRANDED, 80° C

Nom. wall thickness, .010″.

7149	26	7/34	.038″	1–19	$ 41.16	$ 7.24
7150	24	7/32	.043″	1–19	42.21	8.61
7151	22	7/30	.050″	1–19	45.90	9.03
7153	20	7/28	.068″	1–19	57.04	10.57
7155	18	7/26	.068″	1–19	74.86	12.99
7157	16	19/.0117	.077″	1–19	120.46	18.47
7161	22	Solid	.045″	1–19	36.39	8.15
7161/24	24	Solid	.040″	1–19	33.88	7.66
7163	20	Solid	.054″	1–19	63.10	10.74

TEFZEL® COMPUTER WIRE, 150° C, 300 VOLTS

Rugged, flexible wire-wrap wire. Solid silver-plated OFHC copper conductor. Tefzel insulation (copolymer of ethylene and tetra fluourethylene. Low dielectric constant of 2.6. Rated non-burning or self-extinguishing. Temp. rating, −100° C to +150° C continuous. Nom. wall thickness, .005″. Cut lengths available, write or phone for information.

1805	30	.....	.019″	1–10	$226.53	$36.05
1806	28	.....	.023″	1–10	244.14	38.38
1807	26	.....	.026″	1–10	262.65	40.82
1808	24	.....	.029″	1–10	296.04	45.32

*COLOR CODE OF CONDUCTORS

No.	Color	No.	Color	No.	Color	No.	Color
1	White	6	Lt. Blue	11	Wht/Blk	16	Wht/Brn
2	Black	7	Brown	12	Wht/Red	17	Wht/Orng
3	Red	8	Orange	13	Wht/Grn	18	Wht/Gray
4	Green	9	Gray	14	Wht/Yel	19	Wht/ Violet
5	Yellow	10	Violet	15	Wht/Blue		

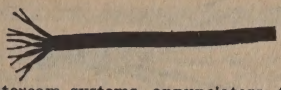
MIL-W-16878D IRRADIATED POLYOLEFIN HOOK-UP WIRE

UL STYLES 3265, 3266, 3271, 3272

Alpha No.	Conductor Size	Conductor Strand	Nom. O.D.	Net per Spool 1000′	Net per Spool 100′
UL STYLE 3265, 125° C, 150 V, CSA XLPE, 125° C, 150 V MIL-W-16878D, TYPE B, 105° C, 600 V					
7011	24	19/36	.047″	$ 78.21	$12.52
7012	22	19/34	.054″	106.95	17.14
7013	20	19/32	.062″	100.18	16.03
7014	18	19/30	.072″	130.29	20.86
7015	16	19/.0117″	.079″	161.34	25.83
UL STYLE 3266, 125° C, 300 V, CSA CL-1252, 125° C, 300 V MIL-W-16878D TYPE C, 105° C 1000 V					
7023	24	19/36	.057″	$ 82.90	$13.29
7024	22	19/34	.064″	93.39	14.96
7025	20	19/32	.072″	113.02	18.11
7026	18	19/30	.082″	144.09	23.08
7027	16	19/.0117″	.089″	177.00	28.36
UL STYLES 3271 & 3272, 125° C, 600 V, CSA CL-1251, 125° C, 600 V, MIL-W-16878D TYPE D, 105° C, 3000 V					
7044*	18	16/30	.108″	$167.41	$26.83
7045*	16	26/30	.122″	209.23	33.51
7046*	14	41/30	.139″	278.59	44.63
7047*	12	65/30	.153″	417.51	66.85
7048*	10	105/30	.192″	635.11	100.00

*Available black and white only; all others available in black, white, red, green and blue.

UNSHIELDED INTERCOM CABLE UL2576, 80° C PAIRED CONDUCTORS, PLASTIC JACKET



For balanced intercom systems, annunciators, telephones. Suitable for outdoor installation. Each conductor 22 AWG tinned copper; color-coded PVC insulation; conductors twisted into pairs; gray polyvinylchloride jacket overall. Temp., −20° C to +80° C. Conductors' Color Code available on request.

SOLID CONDUCTORS, 22 GAUGE, 150 VOLTS

Alpha No.	Conductor		Nominal			Net per Spool•	
	Pairs	Strand	Wall	Jacket	O.D.	1000′	100′
1300	1	Solid	.010″	.032″	.154″	$ 49.45	$ 8.34
1302	2	Solid	.010″	.032″	.222″	98.38	15.42
1304	3	Solid	.010″	.032″	.234″	133.05	19.46
1305	4	Solid	.010″	.032″	.252″	176.11	25.68
1306	5	Solid	.010″	.032″	.280″	211.75	28.46
1307	6	Solid	.010″	.032″	.289″	240.87	32.76
1307/9	9	Solid	.010″	.032″	.334″	360.93	47.43
1308/11	11	Solid	.010″	.032″	.354″	451.44	58.29
1309	13	Solid	.010″	.032″	.374″	524.94	67.30
1309/15	15	Solid	.010″	.032″	.397″	603.36	79.01
1310	16	Solid	.010″	.032″	.425″	760.98	100.00
1311	19	Solid	.010″	.032″	.440″	754.38	100.00
1312	23	Solid	.010″	.032″	.481″	944.01	102.09
1313	27	Solid	.010″	.040″	.521″	1077.12	112.30

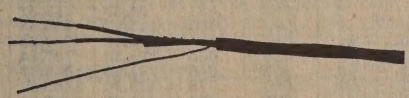
STRANDED CONDUCTORS, 22 GAUGE, 150 VOLTS

1316	1	7/30	.010″	.032″	.164″	$ 85.95	$ 13.89
1317	2	7/30	.010″	.032″	.239″	115.98	18.18
1318	3	7/30	.010″	.032″	.252″	166.62	24.26
1319	4	7/30	.010″	.032″	.274″	219.95	31.18
1320	5	7/30	.010″	.032″	.304″	281.73	37.69
1322	6	7/30	.010″	.035″	.320″	285.87	39.09
1323	9	7/30	.010″	.035″	.370″	451.35	58.48
1324	11	7/30	.010″	.035″	.400″	669.69	86.25
1325	12	Solid	.010″	.035″	.410″	602.61	80.81
1327	15	7/30	.010″	.040″	.450″	736.11	94.77
1327/19	19	7/30	.010″	.040″	.480″	957.78	105.19
1328	23	7/30	.010″	.040″	.530″	1193.94	131.20
1329	27	7/30	.010″	.040″	.708″	1439.73	152.14
1329/41	41	7/30	.010″	.040″	.710″	2789.37	301.59
1330	51	7/30	.010″	.045″	.800″	3855.49	417.24

STRANDED CONDUCTORS, 18 GAUGE, UL2464, 300 VOLTS

1131	1	Solid	.010″	.032″	.222″	$ 110.47	$ 17.87
1132	2	Solid	.010″	.035″	.347″	204.48	32.89
1133	3	16/30	.016″	.037″	.356″	340.57	46.50
1134	4	Solid	.010″	.040″	.412″	396.57	53.27
1135	5	Solid	.010″	.045″	.469″	526.17	84.01
1136	6	16/30	.016″	.045″	.540″	710.28	94.77
1138	8	Solid	.010″	.050″	.542″	825.66	100.00
1139	9	16/30	.016″	.055″	.616″	1005.21	106.18
1142	12	16/30	.016″	.055″	.654″	1338.75	146.95
1145	15	16/30	.016″	.060″	.760″	1614.19	177.24
1149	19	16/30	.016″	.070″	.830″	2100.69	230.95
1151	27	16/30	.016″	.070″	.965″	4574.82	469.69

FOIL SHIELDED JACKETED CABLE UL STYLE 2092, 2093, 2094*

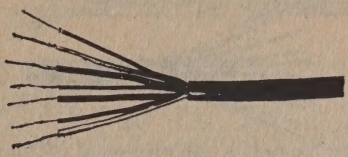


Each conductor stranded tinned copper with color-coded polyethylene insulation; cabled and wrapped Mylar supported aluminum foil shield (100% coverage) with drain wire laid parallel; aluminum foil faces outward for maximum grounding contact; chrome gray polyvinylchloride jacket overall. Lightweight; reduced cable diameter; quick, easy termination to ground. Temp., −20° C to +60° C. Jacket, .020″ thick; wall .016″ thick, nom. (2442, 2444; Jkt. .030″; wall, .020″.) **Conductors' Color Code:** 1 = Black; 2 = Red; 3 = Clear; 4 = Green. Working volts, 400.

Alpha No.	Conductor			Nom. O.D.	Color Code	Net per Spool•	
	No.	Size	Strand			1000′	100′
2400	2	24	7/32	.160″	1, 3	$ 99.19	$15.05
2401	2	22	7/30	.170″	1, 3	102.81	16.38
2402	2	22	7/30	.170″	1, 2	102.18	18.24
2403	3	22	7/30	.185″	1–3	106.77	16.27
2404	4	22	7/30	.210″	1–4	301.06	42.37
2411	2	20	10/30	.186″	1, 3	106.77	16.13
2412	2	20	10/30	.186″	1, 2	131.07	20.60
2413	3	20	10/30	.205″	1–3	127.60	19.46
2414	4	20	10/30	.225″	1–4	304.50	41.02
2421	2	18	16/30	.210″	1, 3	127.71	20.24
2422	2	18	16/30	.210″	1, 2	160.83	22.64
2423	3	18	16/30	.230″	1–3	176.25	27.74
2424	4	18	16/30	.255″	1–4	363.85	48.36
2432	2	16	26/30	.245″	1, 2	225.57	27.32
2433	3	16	26/30	.270″	1–3	310.59	41.53
2442†	2	14	41/30	.310″	1, 3	354.19	46.19
2444†	2	12	65/30	.350″	1, 3	531.52	70.42

*2 Cond.—2092; 3 Cond.—2093; 4 Cond.—2094. †Not UL listed.
•Mylar of DuPont.

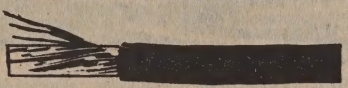
UNSHIELDED AUDIO CABLE MULTICONDUCTOR, PLASTIC JACKET #22 GAUGE, UL2576, 80° C, 150 VOLTS



For unbalanced intercom systems, low voltage relay control cable, PA systems, signal systems, electronic computors. Each conductor suitable for outdoor use. 22 AWG stranded tinned copper; color-coded polyvinylchloride insulation; conductors twisted; gray PVC jacket overall. Rated 200 volts. Temp., −20° C to +80° C. Also available in multi-conductor combination gauges. Write or phone for information and prices.

Alpha No.	Conductor		Nominal			Net per Spool•	
	No.	Strand	Wall	Jacket	O.D.	1000′	100′
1172	2	7/30	.010″	.032″	.164″	$ 56.13	$ 8.85
1173	3	7/30	.010″	.032″	.169″	70.99	10.68
1174	4	7/30	.010″	.032″	.194″	94.15	13.96
1175	5	7/30	.010″	.032″	.199″	115.66	16.89
1176	6	7/30	.010″	.032″	.209″	158.83	25.13
1177	7	7/30	.010″	.032″	.214″	175.98	25.86
1178	8	7/30	.010″	.032″	.224″	210.67	32.31
1179	9	7/30	.010″	.032″	.249″	251.25	36.75
1180	10	7/30	.010″	.032″	.259″	288.09	39.09
1181	12	7/30	.010″	.032″	.279″	337.36	45.30
1181/15	15	7/30	.010″	.032″	.304″	503.86	69.29
1181/20	20	7/30	.010″	.032″	.324″	670.75	90.04
1181/25	25	7/30	.010″	.032″	.364″	839.97	100.00
1181/30	30	7/30	.010″	.032″	.379″	935.55	103.06
1181/40	40	7/30	.010″	.032″	.439″	1276.02	140.38
1181/50	50	7/30	.010″	.035″	.500″	1550.34	161.01
1181/60	60	7/30	.010″	.035″	.530″	2175.87	261.27

SHIELDED AUDIO AND DATA CABLE WITH PLASTIC JACKET



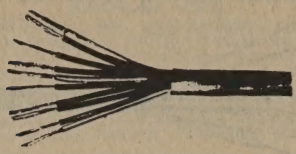
Tinned-copper conductors with color-coded polyethylene insulation, twisted into pairs. Tinned-copper 22-gauge drain wire with Mylar®-supported aluminum foil shield, aluminum facing inward. Chrome gray PVC jacket overall. Capacitance: Between cond of a pair, 25 pF/ft; single cond to shield, 45 pF/ft. For audio, RF and pulse applications requiring superior circuit isolation. **Conductors' Color Code:** Combinations 1 thru 27 per Color Code Table Two**.

UL2493, 60° C, NO SPECIFIED VOLTAGE

Alpha No.	Conductor			Nominal			Net per Spool•	
	Pairs	No.	Strand	Wall	Jacket	O.D.	1000′	100′
#22 GAUGE								
6000	3	6	Solid	.010″	.045″	.275″	$ 259.87	$ 34.96
6002	6	12	Solid	.010″	.045″	.348″	558.30	73.33
6004	9	18	Solid	.010″	.045″	.401″	794.07	99.41
6006	11	22	Solid	.010″	.045″	.434″	916.24	100.00
6008	15	30	Solid	.010″	.045″	.495″	1295.91	135.55
6010	3	6	7/30	.010″	.045″	.292″	301.90	39.64
6012	6	12	7/30	.010″	.045″	.372″	652.39	81.95
6014	9	18	7/30	.010″	.045″	.430″	931.09	106.18
6016	11	22	7/30	.010″	.045″	.467″	1139.85	119.11
6018	15	30	7/30	.010″	.060″	.563″	1462.72	151.69
6020	19	38	7/30	.010″	.060″	.590″	1949.80	205.60
6022	27	54	7/30	.010″	.060″	.697″	2854.98	285.49
#20 GAUGE								
6033	3	6	10/30	.013″	.045″	.365″	$ 374.38	$ 50.49
6036	6	12	10/30	.013″	.045″	.500″	736.71	97.84
6039	9	18	10/30	.013″	.060″	.615″	1109.25	122.79
6041	11	22	10/30	.013″	.060″	.620″	1299.37	139.81
6042	12	24	10/30	.013″	.060″	.690″	1439.73	154.83
6045	15	30	10/30	.013″	.060″	.740″	1688.44	181.69
#18 GAUGE								
6023	3	6	16/30	.016″	.045″	.392″	$ 466.14	$ 62.61
6024	6	12	16/30	.016″	.060″	.585″	983.79	108.25
6025	9	18	16/30	.016″	.060″	.630″	1440.45	159.34
6026	12	24	16/30	.016″	.070″	.765″	1976.76	216.88
6027	15	30	16/30	.016″	.070″	.830″	2390.85	262.48

•Also available in spool of 500′, prices on request.

UNSHIELDED WITH PLASTIC JACKET UL2509, 80° C, 300 VOLTS

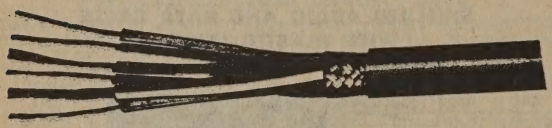


Tinned copper conductors with color-coded polyvinylchloride insulation, twisted, with gray polyvinylchloride jacket overall. Rated 350 volts except as otherwise noted. Temperature, −20° C to +80° C. For complete listing of this cable, write or phone for information.

Alpha No.	Conductor			Nominal		Net per Spool*	
	No.	Size	Strand	Wall	O.D.	1000′	100′
1793†	2	22	Solid	.010″	.130″	$ 80.13	$13.92
1797	2	18	Solid	.016″	.190″	210.57	31.94
1893†	2	22	7/30	.010″	.135″	63.18	10.36
1894†	3	22	7/30	.010″	.145″	76.41	15.29
1894/4†	4	22	7/30	.010″	.170″	104.32	15.49
1895	2	20	10/30	.016″	.180″	66.09	11.08
1896	3	20	10/30	.016″	.190″	107.16	17.07
1896/4	4	20	10/30	.016″	.215″	122.25	17.54
1897	2	18	16/30	.016″	.200″	109.69	16.74
1898	3	18	16/30	.016″	.210″	165.25	23.57
1898/4	4	18	16/30	.016″	.240″	183.25	25.50
1898/6	6	18	16/30	.016″	.290″	326.25	44.32
1898/8	8	18	16/30	.016″	.315″	443.52	56.42
1899	2	16	26/30	.016″	.225″	164.38	23.73
1891†	2	14	41/30	.016″	.260″	268.36	37.09
1891/3†	3	14	41/30	.016″	.280″	615.79	78.66

†Not UL Listed. *Also available in spool of 500′; prices on request.

SHIELDED GENERAL PURPOSE PLASTIC JACKET

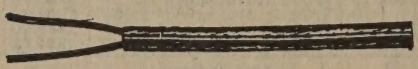


Each conductor, stranded tinned copper with color-coded polyethylene insulation .014″ thick, cabled with fillers where necessary; mylar wrap; braided, tinned copper shield; chrome gray polyvinylchloride jacket overall. Rated 600 volts. Temp., −20° C to +80° C.

Alpha No.	Conductor			Nom. Jacket		Net per Spool*	
	No.	Size	Strand	Th.	O.D.	1000′	100′
1712	2	20	26/34	.030″	.245″	$ 333.18	$ 45.26
1713	3	20	26/34	.035″	.250″	351.10	48.01
1715	4	20	26/34	.035″	.260″	393.51	53.09
1716	5	20	26/34	.035″	.275″	446.38	56.04
1717	6	20	26/34	.035″	.300″	981.72	102.03
1719	8	20	26/34	.035″	.330″	1332.16	135.21
1721	10	20	26/34	.035″	.375″	1638.75	167.68
1723	12	20	26/34	.035″	.380″	2590.12	262.66
1726	15	20	26/34	.035″	.410″	4017.30	404.91
1728	20	20	26/34	.035″	.455″	5233.15	527.62

*Also available in spool of 500′; prices on request.

PLASTIC SPEAKER CABLE COLORED AND CLEAR INSULATION

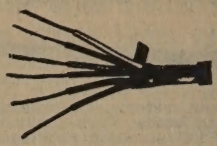


Conductors parallel, stranded bare copper, color coded polyvinylchloride insulation, conductors separate easily when slit apart. Designed for hi-fi speaker cable, miniature juke box speaker connection and rear auto speaker extension cable. Clear insulation will blend with interior room decor. Temp. rating, −20° C to +60° C. **Stock Colors:** Alpha No. **1944,** brown, black, white, gray, tan. **1945,** clear. **1948,** gray. **1949,** gray, clear. **1977,** brown, black, white, gray, clear. **1979,** clear.

Alpha No.	Conductors			Nominal O.D.	Net per Spool*	
	No.	Size	Strand		1000′	100′
1944	2*	24	7/32	.057″ x .120″	$ 27.39	$ 4.93
1945	2*	24	7/32	.057″ x .120″	29.91	6.08
1948	2*	22	Solid	.057″ x .120″	26.43	5.31
1949	2*	20	7/28	.073″ x .146″	44.98	7.59
1977	2	18	41/34	.115″ x .215″	108.70	11.88‡
1979†	2	18	41/34	.115″ x .215″	141.37	20.22‡

*1 conductor tinned, 1 bare. †UL Listed. ‡Also available in spools of 250′; prices on request.

SPIRAL SHIELDED JACKETED CABLE

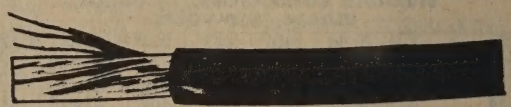


Tinned copper, stranded or solid conductor with color-coded polyvinylchloride insulation. Conductors twisted with spiral wrapped copper shield and gray polyvinylchloride jacket overall. Shield permits pigtail soldering. Strong and flexible for PA, sound, studio, amateur, and similar applications. Shield coverage, 95%. Jacket .016″ thick, nom. Temp., −20° C to +80° C. **Conductors' Color Code:** 1 = Black; 2 = Red; 3 = White; 4 = Green.

Alpha No.	Conductors			Work'g Volts	Nom. O.D.	Net per Spool*	
	No.	Size	Strand			1000′	100′
2255	2	22	Solid	350	.170″	$115.21	$ 16.89
2254/1	1	22	7/30	350	.115″	100.65	15.72
2254	2	22	7/30	350	.175″	123.10	17.82
2254/3	3	22	7/30	350	.190″	291.28	43.86
2254/4	4	22	7/30	350	.200″	493.09	69.67
2254/6	6‡	22	7/30	350	.235″	683.74	88.12
2256/1	1	20	10/30	350	.130″	112.93	18.40
2256	2	20	10/30	350	.195″	144.22	23.06
2256/3	3	20	10/30	350	.210″	334.78	46.16
2256/4	6‡	20	10/30	350	.225″	684.34	88.42
2256/6	4	20	10/30	350	.265″	888.75	100.00
2258/1	1	18	16/30	350	.135″	149.26	21.93
2258	2	18	16/30	350	.230″	189.93	27.48
2258/3	3	18	16/30	350	.235″	248.16	34.53
2258/4	4	18	16/30	350	.245″	329.86	42.73
2260	2	16	26/30	350	.240″	252.91	35.40
2260/3	3	16	26/30	350	.245″	786.15	100.00
2265*	2	14	41/30	450	.285″	771.48	99.34
2265/3*	3	14	41/30	450	.290″	816.82	100.00
2268*	2	12	65/30	450	.325″	802.62	100.00
2268/3*	3	12	65/30	450	.330″	1136.17	125.50

*Jacket, .020″ thick nom. •Also available in spool of 500′; prices on request. ‡Color Code: 5—yellow; 6—blue.

MULTIPAIR CABLE—INDIVIDUALLY FOIL SHIELDED UL STYLE 2464, 80° C, 300 V



Stranded, tinned copper conductors with color-coded .016″, nom., PVC insulation. Twisted into pairs. Mylar/aluminum foil shield with tinned copper drain wire. Gray PVC jacket.

Alpha No.	No. of Pairs	Jkt. Thk., Ins.	Nom. O.D., Ins.	Net per Spool 100′	500′	1000′
22 AWG—7/30 STRAND						
6052	2	.043	.316	$ 35.95	$ 127.56	$ 255.12
6053	3	.043	.331	47.43	169.21	338.43
6054	4	.043	.360	58.73	220.54	438.07
6056	6	.053	.431	94.68	353.82	707.62
6059	9	.053	.500	111.07	505.65	1011.28
6059/11	11	.053	.551	136.09	619.65	1239.30
6059/15	15	.053	.606	175.38	797.44	1594.89
6059/19	19	.063	.646	234.85	1069.47	2138.97
6059/27	27	.063	.776	330.70	1503.57	3007.42
6059/51	51	.075	.970	641.98	2920.00	5840.01
18 AWG—16/30 STRAND						
6062	2	.043	.381	$ 54.96	$ 196.17	$ 392.34
6063	3	.053	.421	73.15	260.71	521.43
6064	4	.053	.456	90.55	337.77	675.52
6066	6	.053	.526	117.27	533.20	1066.41
6069	9	.063	.628	171.37	781.11	1562.22
6069/11	11	.063	.686	215.80	980.73	1960.71
6069/15	15	.063	.766	284.89	1297.89	2594.38

PRICES LISTED ARE FOR GUIDANCE ONLY

SHIELDED MICROPHONE CABLE
STANDARD DUTY, PLASTIC JACKET

Nos. 1702–1706: Single stranded tinned copper conductor with white polyethylene insulation; braided or spiral-wrapped tinned copper shield and gray PVC jacket overall. For all high impedance mikes or for hi-fi interconnection. **Nos. 1709–1712:** Each conductor stranded tinned copper with color-coded (1 = White, 2 = Black) polyethylene insulation, cabled with fillers, textile wrap, braided or spiral-wrapped tinned copper shield and gray polyvinylchloride jacket overall. For all low impedance mikes. Temp., −20° C to +80° C. Rated 1000 volts except 1703, 3500 volts; 1704, 5000 volts; 1706, 4000 volts; 1712, 600 volts.

Alpha No.	Conductors No.	Size	Strand	pF/ ft.*	Nom. O.D.	Net per Spool* 1000′	100′
1702‡	1	26	7/34†	38	.110″	$165.51	$25.66
1703	1	24	10/34	35	.145″	127.26	19.18
1704▲	1	24	10/34	23	.190″	167.53	24.41
1705‡	1	24	10/34	45	.110″	191.11	31.25
1706▲	1	20	26/34	36	.175″	319.71	47.74
1709†	2	24	10/34	38	.190″	312.48	43.59
1710	2	22	16/34	31	.230″	238.80	35.44
1712	2	20	26/34	45	.245″	333.18	45.26

RUBBER AND NEOPRENE JACKETS

Each conductor stranded tinned copper with color-coded (1 = Black, 2 = White) rubber insulation, cotton wrap; braided tinned copper shield, cotton wrap and tough black rubber or neoprene jacket overall. Rubber jacket type suited for standard-duty indoor use; neoprene type for heavy-duty outdoor use and direct burial. Temp., −20° C to +60° C.

1248§	1	20	26/34	97	.190″	$ 509.48	$ 67.19
1249	1	20	26/34	60	.230″	519.73	67.19
1249/18	1	18	41/34	69	.240″	735.82	93.60
1449#	1	18	41/34	69	.240″	654.31	83.03
1250	2	20	26/34	68	.270″	346.62	46.43
1250/18	2	18	41/34	78	.295″	788.59	99.54
1450#	2	18	41/34	78	.295″	851.44	100.00
1450/16#	2	16	65/34	82	.335″	1556.82	172.81

*Nom. capacitance between one conductor and remaining ones connected to shield. †Three strands tinned copper; 4 strands tinned Copperweld®. ‡Spiral-wrapped shield; all others braided. §Mylar® wrap under tinned copper shield. #Neoprene jacket; all others rubber. ▲UL Style 1150.

UNSHIELDED CONTROL & AUDIO CABLE, INNER CONDUCTORS— UL2463, 600 VOLTS, 80° C

Each conductor, stranded tinned copper, color coded PVC insulation with Mylar wrap, chrome gray PVC jacket overall. Working voltage, 600 volts. Temp. rating, −20° C to +80° C. Inner conductors meet UL Style 1011. Used as industrial control cable for telemetry and automatic control; communications and signaling.

16 GAUGE—19/29 STRANDING, INSUL. THICKNESS, 1/32″

Alpha No.	No. of Conductors	Jacket Thickness	Nom. O.D.	Net per Spool* 1000′	100′
1064	4	.045″	.377″	$ 376.15	$ 49.01
1065	5	.045″	.406″	454.11	66.27
1067	7	.045″	.458″	682.08	93.00
1069	9	.045″	.513″	818.23	100.00
1072	12	.060″	.604″	1118.20	121.17
1075	15	.060″	.654″	1660.05	174.42
1079	19	.065″	.720″	1952.77	207.82
1085	25	.065″	.824″	2311.83	246.15

14 GAUGE—19/27 STRANDING, INSUL. THICKNESS, 3/64″

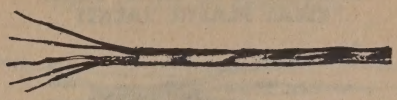
1274	4	.045″	.500″	$ 677.79	$ 90.40
1275	5	.060″	.563″	785.56	100.00
1277	7	.060″	.634″	1130.08	121.92
1279	9	.065″	.754″	1355.62	149.98
1282	12	.065″	.773″	2039.49	211.06
1285	15	.080″	.905″	2296.81	255.06

COLOR CODE OF CONDUCTORS

No.	Color	No.	Color	No.	Color	No.	Color
1	Black	8	Red/Blk	15	Blue/Wht	22	Blk/Wht/Red
2	White	9	Grn/Blk	16	Blk/Red	23	Wht/Blk/Red
3	Red	10	Orng/Blk	17	Wht/Red	24	Red/Blk/Wht
4	Green	11	Blue/Blk	18	Orng/Red	25	Grn/Blk/Wht
5	Orange	12	Blk/Wht	19	Blue/Red		
6	Blue	13	Red/Wht	20	Red/Grn		
7	Wht/Blk	14	Grn/Wht	21	Orng/Grn		

*Also available in spool of 500′; prices on request.

SHIELDED & UNSHIELDED INTERCOM CABLE

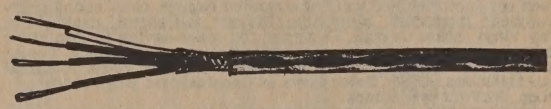


Each conductor stranded, tinned copper, color-coded PVC or PP insulation, braided tinned or aluminum-Mylar foil shield over conductors. Unshielded conductors paired. Gray jacket overall. Cond. 22 AWG, 7/30 stranded (1243/3, 2465, 20 AWG, 7/28). Jacket .020″ nom. (2464, .019″; 1243/3, .029″; 2465, .030″). Inner cond. meet UL 1007 and FR-1. Rated 350 V. Temp. −20° C to +80° C.

Alpha No.	Conductors No.	Shielded	Nom. O.D.	Color-Coded In Shield	Not Shielded	Net per Spool* 1000′	100′
1243	3	1	.200″	White	Blk., Red	152.70	23.21
2464	4	2*	.165″	Red, Blk.	Grn., Wht.	143.74	21.20
1243/4	4	2	†	Blk., Wht.	Blk., Red	187.99	27.94
1243/6	4	4#	§	Blk., Wht., Blk., Red	.....	392.49	50.60
1243/5	5	3	‡	Blk., Wht., Red	Blk., Red	387.15	49.96
1243/3	3	2*	.212″	Blk., Red	Clear	166.17	24.10
2465	4	2*	.233″	Blk., Red	Grn., Wht.	215.17	30.58

*Polypropylene insulation, aluminum-Mylar foil shield, solid tinned copper drain for grounding; all others PVC, braided shield. †Oval, .285″ x .180″. ‡Oval, .200″ x .300″. §Oval, .180″ x .315″. #2 pairs, both shielded.

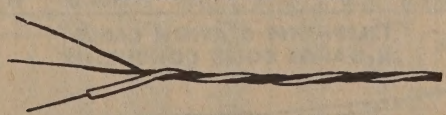
BRAIDED SHIELDED JACKETED CABLE



Tinned copper, stranded or solid conductor with color-coded polyvinylchloride insulation. Conductors twisted with braided copper shield and gray polyvinylchloride jacket overall. Shield permits pigtail soldering. Strong and flexible for PA, sound, studio, amateur and similar applications. Shield coverage, 75%. Jacket .016″ thick, nom. Temp., −20° C to +80° C. **Conductors' Color Code:** 1 = Black; 2 = Red; 3 = White; 4 = Green.

Alpha No.	Conductors No.	Size	Strand	Work'g Volts	Nom. O.D.	Net per Spool* 1000′	100′
1735	1	22	7/30	350	.125″	$ 136.93	$ 21.22
1736	2	22	7/30	350	.185″	153.61	24.02
1737	3	22	7/30	350	.200″	171.21	24.88
1738	4	22	7/30	350	.210″	284.88	37.58
1740	1	20	10/30	350	.135″	180.45	25.66
1741	2	20	10/30	350	.200″	310.11	43.15
1742	3	20	10/30	350	.220″	369.82	49.50
1743	4	20	10/30	350	.230″	379.21	50.98
1745	1	18	16/30	350	.145″	236.73	32.63
1746	2	18	16/30	350	.235″	387.63	51.69
1747	3	18	16/30	350	.245″	574.11	74.75
1747/4	4	18	16/30	350	.255″	758.17	95.33
1748	2	16	26/30	350	.250″	560.65	72.76
1749	3	16	26/30	350	.255″	764.59	96.10
1750*	2	14	41/30	450	.290″	715.90	91.58
1751*	3	14	41/30	450	.295″	1097.65	113.68
1760*	2	12	65/30	450	.335″	1163.19	120.27
1761*	3	12	65/30	450	.340″	1667.02	169.47
1775†	2	22	Solid	350	.175″	161.56	38.78
1779	2	20	Solid	350	.210″	217.23	29.63
1783	2	18	Solid	350	.220″	303.78	40.19

HI-FI AND STEREO INTERCONNECTING CABLE PHONO WIRE

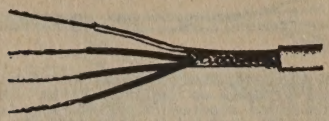


Each conductor stranded tinned copper, color coded polyvinylchloride insulation, conductors twisted. Alpha Nos. 1101–1107, conductors twisted with extra tight lay for flexibility. Overall shield designed for extreme limpness so not to impede phono arm when tracking. Temp. rating, −55° C to +105° C. WV, 200 V.

UNSHIELDED

Alpha No.	Conductors No.	Size	Strand	Nom. O.D.	Color Code*	Net per Spool 1000′	100′
1115	2	30	7/38	.065″	1, 2	$127.29	$20.71
1116	3	30	7/38	.070″	1–3	184.83	27.68
STEREO (UNSHIELDED)							
1101	3	32	7/40	.053″	1–3	$206.04	$29.16
1102	4	32	7/40	.061″	1–4	290.25	39.29
STEREO (SHIELDED)							
1105	2	32	7/40	.055″	1, 2	$264.28	$36.35
1107	4	32	7/40	.068″	1–4	372.64	49.18

MINIATURE SHIELDED CABLE CLEAR PLASTIC JACKET

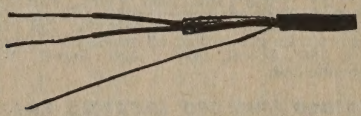


Each conductor stranded tinned copper, color coded polyvinylchloride insulation, conductors twisted, fine braided tinned copper shield overall, clear polyvinylchloride jacket overall. Temp. rating, −20° C to +80° C. Voltage rating, 200 volts. Nominal wall thickness, .010″. Nominal jacket thickness, .010″.

Alpha No.	Conductor				Nom. O.D.	Net per Spool*	
	No.	Size	Strand	Color*		1000′	100′
1120	2	28	7/36	1–4	.105″	$316.47	$43.08
1121	3	28	7/36	1–4	.115″	373.30	49.76
1122	4	28	7/36	1–4	.120″	471.54	61.70

***Color Code of Conductors:** 1, Black; 2, Red; 3, White; 4, Green.

MINIATURE FOIL SHIELDED CABLE TWO 22 GAUGE CONDUCTORS



Each conductor tinned solid or stranded copper, color coded polypropylene insulation, aluminum/Mylar* foil shield, drain wire, gray vinyl jacket overall. Designed for space-saving in miniature and sub-miniature instrumentation and audio applications. Temp. rating, −55° C to +105° C. Voltage rating, 200 volts. Nominal wall thickness, .008″. **Color Code of Conductors:** Black, red.
*Reg. DuPont trademark.

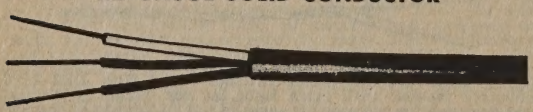
Alpha No.	Conductor		Nom. Jacket		Net per Spool*	
	Size	Strand	Th.	O.D.	1000′	100′
2460	22	Solid	.018″	.118″	$83.08	$14.20
2461	22	7/30	.020″	.135″	93.85	14.87

TEFLON FEP EXTRUDED JACKET OVER SHIELD MIL-W-16878D

Each conductor stranded silver plated copper, Type E extruded TFE insulation color coded, cabled, braided silver plated copper shield 90% coverage, extruded FEP white Teflon jacket overall. Temp. rating, −65° C to +200° C. Voltage rating, 600 volts. Resists acids, alkalis, oil, flame, moisture, solvents and fungus. Nominal wall thickness, .010″; jacket thickness, .010″. **Conductors' Color Code:** 1 = White; 2 = Black; 3 = Red.

Alpha No.	Conductors			Nom. O.D.	Net per Spool	
	No.	Size	Strand		1000′	100′
2831	1	24	19/36	.085″	$1021.50	$122.68
2831/2	2	24	19/36	.130″	1492.59	170.22
2831/3	3	24	19/36	.135″	2134.89	234.10
2834	1	22	19/34	.091″	1020.19	122.68
2834/2	2	22	19/34	.150″	1603.42	181.08
2834/3	3	22	19/34	.158″	2442.64	264.70
2837	1	20	19/32	.100″	1127.58	133.54
2837/2	2	20	19/32	.168″	1796.46	200.04
2837/3	3	20	19/32	.178″	2704.99	291.24

TELEPHONE STATION CABLE 22-GAUGE SOLID CONDUCTOR

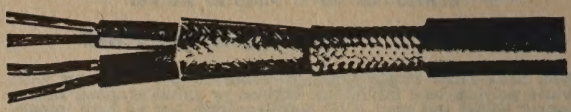


Solid, annealed 22-gauge bare copper conductor, color coded polyethylene insulation, conductors cabled with PVC jacket overall. Jacket designed to resist weathering and abrasion. For use in telephone and intercom installation. May be used in building duct or outside installations. Cable may be easily installed to baseboards or walls with staple gun or clamps. Beige jacket. Insulation .015″ thk.

Alpha No.	No. of Conductors	Jkt. Thickness	Nom. O.D.	Conductor Color Code	Net per Spool*	
					1000′	100′
1202	2	.020″	.155″	Red, Green	$66.09	12.27
1203	3	.020″	.163″	Red, Green, Yellow	72.06	12.49
1204	4	.022″	.185″	Red, Green, Yellow, Black	89.04	11.41

*Also available in spool of 500′; prices on request.

SHIELDED, HEAVY DUTY NEOPRENE JACKET



Each conductor stranded tinned copper; color-coded rubber insulation (.020″ th., 18 ga. cables; .025″ th., 16 ga. cables; .030″ th., all others), cabled with fillers where necessary; cotton wrap; braided tinned copper shield; cotton wrap and black neoprene jacket overall. Rated 300 volts. Temp., −20° C to +60° C.

#18 GAUGE CABLE

Alpha No.	Conductors			Nom. Jacket		Net per Spool*	
	No.	Size	Strand	Th.	O.D.	1000′	100′
1450	2	18	41/34	.035″	.295″	$ 851.44	$100.00
1451	3	18	41/34	.035″	.305″	1489.03	166.06
1452	4	18	41/34	.035″	.330″	1861.39	203.28
1454	6	18	41/34	.035″	.370″	2903.88	309.15
1456	8	18	41/34	.035″	.420″	4054.15	425.13
1458	10	18	41/34	.035″	.480″	5007.69	529.83
1459	12	18	41/34	.065″	.555″	6798.19	716.82
1459/15	15	18	41/34	.065″	.640″	8562.51	888.99
1459/20	20	18	41/34	.065″	.730″	9665.23	999.18

#16 GAUGE CABLE

1450/16	2	16	65/34	.035″	.335″	$1556.82	$172.81
1451/16	3	16	65/34	.035″	.355″	1906.51	207.78
1452/16	4	16	65/34	.035″	.385″	2194.17	236.58
1454/16	6	16	65/34	.040″	.445″	3942.88	419.85
1456/16	8	16	65/34	.040″	.510″	4835.10	503.11

#14 GAUGE CABLE

1400	2	14	41/30	.040″	.395″	$1987.83	$204.69
1401	3	14	41/30	.040″	.425″	2413.26	258.76
1402	4	14	41/30	.040″	.455″	2930.88	296.40
1404	6	14	41/30	.040″	.515″	4153.45	417.81

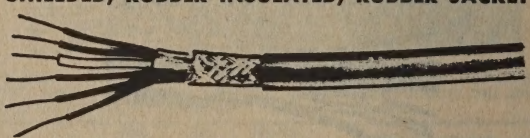
#12 GAUGE CABLE

1410	2	12	65/30	.040″	.440″	$3332.16	$350.68
1411	3	12	65/30	.040″	.465″	3870.75	389.83

#10 GAUGE CABLE

1420	2	10	105/30	.040″	.495″	$4160.19	$418.93

SHIELDED, RUBBER INSULATED, RUBBER JACKET



Each conductor stranded, tinned copper with color-coded rubber insulation .020″ thick, cabled with fillers where necessary; cotton wrap; braided tinned copper shield; cotton wrap; tough black rubber jacket overall. Extra flexible for control, video and audio uses. Temp., −20° C to +60° C.

1250/18	2	18	41/34	.035″	.295″	$ 788.59	$ 99.54
1250	2	20	26/34	.035″	.270″	346.62	46.43
1251	3	20	26/34	.035″	.285″	391.59	51.03
1252	4	20	26/34	.035″	.305″	454.65	59.22
1253	5	20	26/34	.035″	.330″	616.57	79.06
1254	6	20	26/34	.035″	.345″	748.68	97.32
1255	7	20	26/34	.035″	.355″	822.12	100.00
1255/8	8	20	26/34	.035″	.385″	917.79	100.00
1255/10	10	20	26/34	.035″	.440″	2382.58	255.81
1255/12	12	20	26/34	.065″	.525″	3538.99	372.42
1255/15	15	20	26/34	.065″	.595″	4635.73	482.28
1255/20	20	20	26/34	.065″	.660″	5796.75	598.84

UNSHIELDED, RUBBER INSULATED, RUBBER JACKET

Each conductor stranded, tinned copper with color-coded rubber insulation .020″ thick, cabled with fillers where necessary; cotton wrap; tough black rubber jacket overall. Temp., −20° C to +60° C.

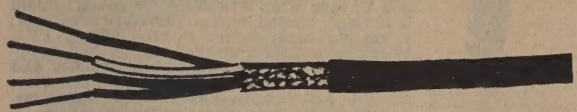
1244	2	20	26/34	.035″	.240″	$ 460.11	$ 60.72
1245	3	20	26/34	.035″	.255″	506.16	65.21
1246	4	20	26/34	.035″	.275″	574.77	73.40
1247	5	20	26/34	.035″	.300″	752.40	100.00
1247/6	6	20	26/34	.035″	.315″	924.70	100.00
1247/7	7	20	26/34	.035″	.325″	1081.05	119.37
1247/8	8	20	26/34	.035″	.360″	1179.87	124.09
1247/10	10	20	26/34	.035″	.410″	1847.37	202.89
1247/12	12	20	26/34	.035″	.435″	2631.03	281.68
1247/15	15	20	26/34	.035″	.505″	3762.67	402.03
1247/20	20	20	26/34	.035″	.570″	5017.03	532.44

PRICES LISTED ARE FOR GUIDANCE ONLY

alpha Control Cable

All of the MIL-W-16878 cables on this page available with other jacket colors; data and prices on request.

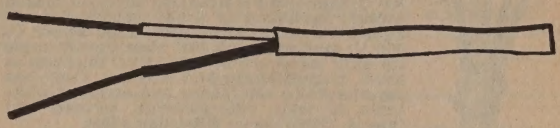
SHIELDED PVC NYLON CONDUCTORS MIL-W-16878D/B



Each conductor stranded tinned copper, .010″ polyvinylchloride insulation, color coded, clear nylon (polyamide) jacket, conductors cabled, braided tinned copper shield 90% coverage, white polyvinylchloride jacket overall. Temp. rating, −55° C to +105° C. Voltage rating, 600 volts. Resists acids, alkalis, oil, flame, moisture, fungus, solvents. Nominal wall thickness, .010″; nylon thickness, .003″. **Color Code:** 1—White; 2—Black; 3—Red; 4—Green.

Alpha No.	Conductor No.	Size	Strand	Nom. Overall Jacket	Nom. O.D.	Net per Spool* 1000′	100′
3200	1	26	7/34	.010″	.087″	$144.63	$20.69
3201	2	26	7/34	.014″	.138″	196.56	27.92
3202	3	26	7/34	.014″	.142″	267.09	37.93
3203	4	26	7/34	.016″	.162″	314.83	43.30
3210	1	24	19/36	.010″	.092″	152.98	20.26
3211	2	24	19/36	.016″	.152″	219.85	28.23
3212	3	24	19/36	.016″	.161″	282.64	36.20
3213	4	24	19/36	.017″	.172″	343.32	44.84
3220	1	22	19/34	.010″	.100″	159.04	21.80
3221	2	22	19/34	.016″	.168″	277.69	37.31
3222	3	22	19/34	.017″	.178″	376.74	51.29
3223	4	22	19/34	.019″	.194″	413.83	56.98
3230	1	20	19/32	.010″	.106″	172.59	23.39
3231	2	20	19/32	.019″	.186″	307.69	41.81
3232	3	20	19/32	.019″	.196″	416.77	52.49
3233	4	20	19/32	.021″	.218″	485.59	61.79
3240	1	18	19/30	.012″	.120″	233.53	33.00
3241	2	18	19/30	.021″	.210″	403.21	52.51
3242	3	18	19/30	.022″	.227″	536.20	69.12
3243	4	18	19/30	.023″	.250″	595.96	80.04
3245	1	16	19/29	.016″	.137″	231.79	31.03
3246	2	16	19/29	.023″	.236″	397.83	50.23
3247	3	16	19/29	.023″	.240″	560.44	71.38
3248	4	16	19/29	.025″	.274″	671.22	88.02
22 GAUGE, 5-12 CONDUCTOR CABLE							
3335	5	22	19/34	.020″	.212″	$1581.25	$160.89
3336	6	22	19/34	.020″	.235″	1731.04	175.86
3337	8	22	19/34	.025″	.257″	2413.44	244.08
3342	12	22	19/34	.030″	.310″	1948.68	.....

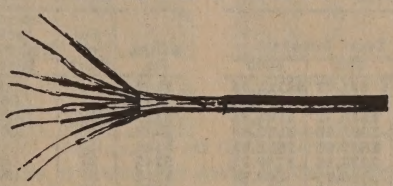
IRRADIATED CONDUCTOR CABLE, 600 VOLTS, 105° C, MIL-W-16878D/B



Ideal for application on crowded circuit boards where terminals must be soldered. Prevents shrinkback, melting or charring when used in production line soldering. Stranded tinned copper conductors, color coded, irradiated PVC (RX-7000) insulation (braided, tinned copper shield) white PVC jacket overall. Nom. jacket thickness, .025″. Nom. insul. thickness, .010″. **Conductors' Color Code:** 1 = White; 2 = Black; 3 = Red; 4 = Green.

Alpha No.	Conductor No.	Size	Strand	Nom. O.D.	Net per Spool* 1000′	100′
UNSHIELDED						
6622A	2	24	7/32	.129″	$290.83	$ 43.77
6623	3	24	7/32	.139″	378.10	54.24
6624A	4	24	7/32	.150″	503.20	72.14
6632A	2	22	7/30	.149″	340.23	48.76
6633	3	22	7/30	.155″	443.76	60.68
6634A	4	22	7/30	.168″	609.27	87.23
6642A	2	20	7/28	.163″	349.66	50.18
6643	3	20	7/28	.178″	494.46	70.83
6644A	4	20	7/28	.187″	658.33	94.26
6652A	2	18	7/26	.182″	437.86	62.70
6653	3	18	7/26	.193″	582.37	83.39
6654A	4	18	7/26	.212″	814.44	100.00
SHIELDED						
7621	1	24	7/32	.115″	$229.26	$ 33.00
7622A	2	24	7/32	.158″	349.03	52.47
7623	3	24	7/32	.164″	453.81	64.88
7624A	4	24	7/32	.176″	603.85	86.45
7631	1	22	7/30	.122″	244.32	35.14
7632A	2	22	7/30	.172″	408.22	58.48
7633	3	22	7/30	.180″	532.50	72.84
7634A	4	22	7/30	.193″	731.22	100.00
7661	1	20	7/28	.130″	290.83	41.71
7662	2	20	7/28	.188″	419.62	60.10
7663	3	20	7/28	.197″	593.38	84.96
7664	4	20	7/28	.212″	790.00	100.00
7671	1	18	7/26	.140″	319.93	45.88
7672	2	18	7/26	.208″	525.43	75.15
7673	3	18	7/26	.218″	698.79	99.94
7674	4	18	7/26	.237″	977.37	115.14

SHIELDED CONTROL AND INSTRUMENTATION CABLE, MIL-W-16878D



Used as interconnecting cables for electronic equipment, instrumentation and control cable, telemetry data, remote control of sensitive recording instruments. Each conductor stranded tinned copper, color coded, polyvinylchloride insulation, cabled, Mylar® wrap. Braided tinned copper shield 90% coverage, chrome gray polyvinylchloride jacket overall. Temp. rating, −55° C to +105° C. Resists acids, alkalis, oil, flame, moisture, solvents and fungus.

MINIATURE SHIELDED CONTROL CABLE— 600 VOLT—TYPE B CONDUCTOR

Nominal Wall Thickness: .010″.

Alpha No.	Conductor No.	Size	Strand	Nom. Jkt.	Nom. O.D.	Net per Spool* 1000′	100′
3302	2	B-28	7/36	.012″	.125″	$ 440.17	$ 58.46
3303	3	B-28	7/36	.012″	.130″	587.67	75.80
3304	4	B-28	7/36	.012″	.140″	717.34	91.47
3306	6	B-28	7/36	.015″	.170″	916.87	100.00
3308	8	B-28	7/36	.015″	.175″	1044.04	107.94
3310	10	B-28	7/36	.018″	.210″	1325.85	136.18
3312	12	B-28	7/36	.018″	.215″	1500.75	156.82
3315	15	B-28	7/36	.020″	.230″	1823.61	188.53
3320	20	B-28	7/36	.022″	.260″	2276.46	234.24

*Also available in spool of 500′; prices on request.

18 GAUGE HEAVY DUTY SHIELDED CONTROL CABLE 1000 VOLT, TYPE C CONDUCTOR

Nominal Wall Thickness: .016″.

Alpha No.	Conductor No.	Size	Strand	Nom. Jkt.	Nom. O.D.	Net per Spool* 1000′	100′
3405	5	C-18	19/30	.025″	.300″	$1849.21	$190.95
3408	8	C-18	19/30	.030″	.350″	2486.71	287.43
3410	10	C-18	19/30	.035″	.405″	3306.46	337.38
3412	12	C-18	19/30	.035″	.430″	3967.30	458.49
3415	15	C-18	19/30	.040″	.470″	4514.56	458.31
3420	20	C-18	19/30	.045″	.530″	6104.29	617.01
3430	30	C-18	19/30	.055″	.650″	9029.23	922.36

16 GAUGE SHIELDED CONTROL CABLE 1000 VOLT, TYPE C CONDUCTOR

Nominal Wall Thickness: .016″.

Alpha No.	Conductor No.	Size	Strand	Nom. Jkt.	Nom. O.D.	Net per Spool* 1000′	100′
3444	4	16	19/29	.031″	.326″	$2706.48	$278.31
3445	5	16	19/29	.032″	.346″	3008.58	309.54
3446	6	16	19/29	.034″	.369″	3227.34	331.75
3448	8	16	19/29	.041″	.424″	4048.06	415.42
3450	10	16	19/29	.044″	.470″	4768.77	488.71
3452	12	16	19/29	.048″	.511″	6121.96	615.88

alpha UL/CSA/OSHA Computer Cables

UNSHIELDED UL STYLE 2343 CABLE

Appliance wiring cable suitable for use in electronic computers and business machines to 80° C. Conductor is stranded, annealed, tinned copper; insulation is 0.009″ thickness semi-rigid PVC to UL Style 1061, rated at 80° C, 300 V; tape wrap is 0.001″ clear mylar; nylon rip cord; jacket is gray 80° C PVC thickness as listed, marked at one foot intervals. Cable has superior flame retardancy and excellent resistance to acids, oils, moisture, solvents and fungus. Cable passes FR-1 flame test.

24 AWG MULTICONDUCTOR (7/32)

Alpha No.	No. of Conds.	Nominal Jacket Thickness, Inches	Nominal O.D., Inches	Net Each, Spool of 100′	500′	1000′
5200	5	.063	.250	$100.00	$ 432.75	$ 708.57
5201	7	.063	.265	101.11	459.60	766.06
5202	12	.063	.320	139.71	634.90	1058.08
5203	15	.063	.340	189.88	863.22	1438.68
5204	19	.063	.360	205.77	935.59	1559.32
5205	27	.063	.410	275.17	1250.89	2084.82
5206	37	.063	.445	379.26	1723.84	2873.10
5207	48	.063	.495	476.76	2167.09	3611.85
5208	60	.063	.535	569.11	2587.03	4311.79

24 AWG TWISTED PAIRS (7/32)

Alpha No.	No. of Pairs	Nominal Jacket Thickness, Inches	O.D., Inches	Net Each, Spool of 100′	500′	1000′
5230	5	.063	.345	$144.75	$ 656.86	$1094.79
5231	7	.063	.355	154.65	702.99	1171.59
5232	12	.063	.445	222.79	1013.17	1688.53
5233	15	.063	.485	284.80	1294.78	2158.05
5234	19	.063	.505	323.52	1470.57	2451.00
5235	27	.063	.575	438.90	1995.24	3325.41
5236	37	.063	.640	588.48	2674.96	4458.28
5237	48	.063	.710	734.62	3339.18	5565.30
5238	60	.063	.760	938.14	4264.41	7107.40

22 AWG MULTICONDUCTOR (7/30)

Alpha No.	No. of Conds.	Nominal Jacket Thickness, Inches	Nominal O.D., Inches	Net Each, Spool of 100′	500′	1000′
5210	5	.063	.270	$101.23	$ 460.00	$ 766.69
5211	7	.063	.285	108.57	493.62	822.72
5212	12	.063	.345	152.95	695.22	1158.73
5213	15	.063	.370	205.24	932.97	1555.00
5214	19	.063	.390	225.69	1026.03	1710.07
5215	27	.063	.440	300.73	1367.20	2278.68
5216	37	.063	.490	415.08	1886.67	3144.51
5217	48	.063	.545	518.52	2357.07	3928.44
5218	60	.063	.580	643.29	2924.19	4876.11

22 AWG TWISTED PAIRS (7/30)

Alpha No.	No. of Pairs	Nominal Jacket Thickness, Inches	O.D., Inches	Net Each, Spool of 100′	500′	1000′
5240	5	.063	.370	$147.81	$ 671.97	$1119.93
5241	7	.063	.385	171.10	777.90	1296.58
5242	12	.063	.485	251.31	1142.32	1903.93
5243	15	.063	.535	330.33	1501.59	2502.64
5244	19	.063	.565	371.28	1687.65	2812.81
5245	27	.063	.645	492.34	2238.16	3730.32
5246	37	.063	.735	661.24	3005.71	5009.64
5247	48	.063	.815	854.58	3884.47	6474.22
5248	60	.080	.915	1057.56	4807.18	8011.96

20 AWG MULTICONDUCTOR (19/32)

Alpha No.	No. of Conds.	Nominal Jacket Thickness, Inches	Nominal O.D., Inches	Net Each, Spool of 100′	500′	1000′
5220	5	.063	.295	$114.84	$ 522.09	$ 870.10
5221	7	.063	.320	128.43	584.10	973.47
5222	12	.063	.390	186.37	847.18	1387.05
5223	15	.063	.415	246.15	1119.06	1865.19
5224	19	.063	.440	279.16	1268.94	2114.97
5225	27	.063	.510	371.28	1687.65	2812.81
5226	37	.063	.560	511.14	2323.48	3872.44
5227	48	.063	.630	646.47	2938.57	4897.60
5228	60	.063	.680	785.82	3571.81	5953.00

20 AWG TWISTED PAIRS (19/32)

Alpha No.	No. of Pairs	Nominal Jacket Thickness, Inches	O.D., Inches	Net Each, Spool of 100′	500′	1000′
5250	5	.063	.420	$176.25	$ 801.19	$1335.36
5251	7	.063	.435	212.05	964.00	1606.69
5252	12	.063	.555	317.83	1444.74	2407.92
5253	15	.063	.610	385.50	1752.30	2920.47
5254	19	.063	.650	482.10	2191.65	3652.75
5255	27	.063	.750	644.77	2930.82	4884.69
5256	37	.080	.890	885.84	4026.64	6711.10
5257	48	.080	.990	1116.12	5073.42	8455.68
5258	60	.080	1.065	1379.91	6272.55	10454.34

SHIELDED UL STYLE 2343 CABLE

Appliance wiring cable suitable for use in electronic computers and business machines to 80° C. Conductor is stranded, annealed, tinned copper; insulation is 0.009″ thickness semi-rigid PVC to UL Style 1061, rated at 80° C, 300 V; tape wrap is 0.001″ clear mylar; shield is braided, tinned copper (85–90% coverage); nylon rip cord; jacket is gray 80° C PVC thickness as listed, marked at one foot intervals. Cable has superior flame retardancy and excellent resistance to acids, oils, moisture, solvents and fungus. Passes FR-1 flame test. Also available with alum./mylar foil shield.

24 AWG SHIELDED MULTICONDUCTOR (7/32)

Alpha No.	No. of Conds.	Nominal Jacket Thickness, Inches	Nominal O.D., Inches	Net Each, Spool of 100′	500′	1000′
5300	5	.063	.275	$112.51	$ 511.72	$ 852.85
5301	7	.063	.290	123.90	563.40	939.00
5302	12	.063	.345	167.68	762.42	1270.72
5303	15	.063	.365	220.65	1002.75	1671.28
5304	19	.063	.380	239.37	1088.04	1813.47
5305	27	.063	.430	314.97	1431.78	2386.36
5306	37	.063	.470	428.19	1946.11	3243.58
5307	48	.063	.520	536.17	2437.17	4061.98
5308	60	.063	.555	634.51	2884.33	4807.18

24 AWG SHIELDED TWISTED PAIRS (7/32)

Alpha No.	No. of Pairs	Nominal Jacket Thickness, Inches	O.D., Inches	Net Each, Spool of 100′	500′	1000′
5330	5	.063	.365	$156.61	$ 711.96	$1186.62
5331	7	.063	.380	179.14	814.36	1357.24
5332	12	.063	.465	261.76	1189.84	1983.07
5333	15	.063	.510	325.54	1480.02	2466.70
5334	19	.063	.525	366.90	1667.74	2779.54
5335	27	.063	.595	488.10	2218.75	3697.93
5336	37	.063	.670	638.82	2903.91	4839.88
5337	48	.063	.740	789.03	3586.63	5977.72
5338	60	.063	.815	991.24	4505.76	7509.73

22 AWG SHIELDED MULTICONDUCTOR (7/30)

Alpha No.	No. of Conds.	Nominal Jacket Thickness, Inches	Nominal O.D., Inches	Net Each, Spool of 100′	500′	1000′
5310	5	.063	.290	$123.90	$ 563.40	$ 939.00
5311	7	.063	.310	134.19	609.93	1016.58
5312	12	.063	.380	184.23	837.34	1395.60
5313	15	.063	.390	239.91	1090.66	1817.76
5314	19	.063	.410	262.66	1194.04	1990.03
5315	27	.063	.470	349.63	1589.47	2649.09
5316	37	.063	.510	475.36	2160.61	3601.03
5317	48	.063	.570	587.34	2669.80	4449.69
5318	60	.063	.610	709.60	3225.43	5375.73

22 AWG SHIELDED TWISTED PAIRS (7/30)

Alpha No.	No. of Pairs	Nominal Jacket Thickness, Inches	O.D., Inches	Net Each, Spool of 100′	500′	1000′
5340	5	.063	.395	$173.25	$ 787.59	$1046.47
5341	7	.063	.410	198.45	902.13	1503.54
5342	12	.063	.510	296.08	1345.90	2243.17
5343	15	.063	.555	360.13	1637.10	2864.91
5344	19	.063	.590	422.32	1914.01	3191.95
5345	27	.063	.680	548.22	2491.86	4153.05
5346	37	.063	.770	722.01	3281.83	5469.73
5347	48	.080	.890	917.77	4171.78	6952.98
5348	60	.080	.950	1132.33	5147.02	8578.47

20 AWG SHIELDED MULTICONDUCTOR (19/32)

Alpha No.	No. of Conds.	Nominal Jacket Thickness, Inches	Nominal O.D., Inches	Net Each, Spool of 100′	500′	1000′
5320	5	.063	.325	$140.41	$ 638.32	$1063.95
5321	7	.063	.345	156.36	710.71	1184.53
5322	12	.063	.410	218.29	992.43	1654.09
5323	15	.063	.440	284.80	1294.78	2158.05
5324	19	.063	.465	317.26	1442.13	2403.57
5325	27	.063	.530	430.38	1956.43	3260.79
5326	37	.063	.585	577.68	2625.81	4376.40
5327	48	.063	.660	664.56	3020.62	5492.08
5328	60	.063	.715	872.17	3964.62	6607.66

20 AWG SHIELDED TWISTED PAIRS (19/32)

Alpha No.	No. of Pairs	Nominal Jacket Thickness, Inches	O.D., Inches	Net Each, Spool of 100′	500′	1000′
5350	5	.063	.440	$203.29	$ 924.09	$1540.15
5351	7	.063	.460	248.34	1128.57	1881.51
5352	12	.063	.580	366.90	1667.74	2779.54
5353	15	.063	.645	463.96	2109.93	3515.14
5354	19	.063	.680	535.29	2433.31	4055.55
5355	27	.063	.785	704.28	3201.37	5335.62
5356	37	.080	.930	945.69	4298.56	7164.28
5357	48	.080	1.030	1190.28	5410.39	9017.34
5358	60	.080	1.100	1452.57	6602.65	11004.51

PRICES LISTED ARE FOR GUIDANCE ONLY

MULTICONDUCTOR CABLE

UL STYLE 2464, 300 V, 80° C

Wiring cable suitable for industrial control equipment, business machines and many other uses. Conductor is stranded, annealed, tinned copper; insulation is PVC rated at 80° C (105° C for Type 2501) and 300 volts (600 V for Type 2501); tape wrap is 0.001" clear mylar; nylon rip cord; jacket is gray PVC, thickness as listed, and marked at one foot intervals.

BRAIDED SHIELD

Alpha No.	No. of Conds.	Nominal Jacket Thickness, Inches	Nominal O.D., Inches	Net Each, Spool of 100′	500′	1000′
20 AWG—10/30 STRAND						
5152	2	.032	.235	$ 66.03	$ 261.63	$ 418.57
5153	3	.032	.245	75.04	297.34	475.75
5154	4	.032	.265	82.52	327.18	523.54
5156	6	.032	.315	100.00	414.13	662.64
5158	8	.032	.335	100.00	480.45	768.73
5160	10	.032	.385	118.59	570.22	912.36
5160/15	15	.032	.425	166.36	800.02	1280.01
5160/20	20	.032	.470	209.31	1006.14	1609.89
5160/25	25	.032	.535	257.26	1237.03	1979.23
5160/30	30	.032	.565	297.81	1431.94	2291.16
5160/40	40	.050	.665	388.09	1866.01	2985.61
5160/50	50	.050	.735	466.92	2244.90	3591.88
5160/60	60	.050	.790	550.71	2647.71	4236.33
5160/70	70	.080	.925	664.71	3195.82	5113.35
5160/80	80	.080	.955	745.63	3585.00	5736.00
5160/90	90	.080	1.000	823.38	3958.80	6334.03
5160/00	100	.080	1.070	911.49	4382.44	7011.93
18 AWG—16/30 STRAND						
5162	2	.032	.255	$ 72.75	$ 288.33	$ 461.31
5163	3	.032	.265	84.45	334.62	535.50
5164	4	.032	.290	99.90	396.00	633.55
5166	6	.032	.340	103.81	499.32	798.96
5168	8	.032	.365	126.18	606.60	970.57
5170	10	.032	.420	156.18	750.79	1201.23
5170/15	15	.032	.470	216.13	1039.14	1662.69
5170/20	20	.032	.530	274.84	1321.38	2114.26
5170/25	25	.050	.625	341.73	1643.02	2628.90
5170/30	30	.050	.660	396.18	1904.65	3047.49
5170/40	40	.050	.735	504.34	2424.84	3879.81
5170/50	50	.050	.805	605.07	2909.05	4654.47
5170/60	60	.080	.935	759.10	3649.68	5839.42
5170/70	70	.080	1.015	877.39	4218.49	6749.62
5170/80	80	.080	1.050	983.62	4729.03	7566.48
5170/90	90	.080	1.095	1090.68	5243.68	8389.90
16 AWG—26/30 STRAND						
5172	2	.032	.285	$ 86.50	$ 342.91	$ 548.67
5173	3	.032	.300	100.00	422.26	675.61
5174	4	.032	.330	103.56	497.95	796.72
5176	6	.032	.385	137.14	659.47	1055.17
5178	8	.032	.415	173.71	835.15	1336.20
5180	10	.032	.480	212.76	1022.85	1636.50
5180/15	15	.032	.545	296.43	1425.13	2280.16
5180/20	20	.050	.645	389.31	1871.73	2994.79
5180/25	25	.050	.720	471.07	2264.80	3623.73
5180/30	30	.050	.760	549.64	2642.62	4228.17
5180/40	40	.080	.910	741.30	3564.01	5702.41
5180/50	50	.080	1.000	904.54	4348.80	6958.06
5180/60	60	.080	1.070	1066.87	5129.29	8206.96
COMBINATION GAUGES						
5141	6*	.032	.310	$100.00	$403.77	$646.03
5142	7†	.032	.325	100.00	434.55	695.26
5143	8‡	.032	.390	100.00	648.99	750.45

UNSHIELDED

Alpha No.	No. of Conds.	Nominal Jacket Thickness, Inches	Nominal O.D., Inches	Net Each, Spool of 100′	500′	1000′
20 AWG (10/30) STRAND						
5052	2	.032	.220	$ 36.27	$ 143.85	$ 230.19
5053	3	.032	.225	44.12	174.81	279.66
5054	4	.032	.245	52.03	206.20	329.94
5056	6	.032	.285	69.72	276.28	442.03
5058	8	.032	.315	83.70	331.74	530.76
5060	10	.032	.360	100.00	401.37	642.22
5060/15	15	.032	.405	120.76	580.71	929.10
5060/20	20	.032	.450	155.80	749.16	1198.63
5060/25	25	.032	.500	194.44	934.90	1495.89
5060/30	30	.032	.535	230.50	1108.12	1773.00
5060/40	40	.050	.635	312.96	1504.69	2407.50
5060/50	50	.050	.695	386.73	1859.40	2975.01
5060/60	60	.050	.750	459.19	2207.79	3737.76
5060/70	70	.080	.885	557.25	2679.22	4286.71
5060/80	80	.080	.915	630.78	3032.64	4852.27
5060/90	90	.080	.955	704.65	3387.76	5420.43
5060/00	100	.080	1.030	780.69	3753.54	6005.68
18 AWG (16/30) STRAND						
5062	2	.032	.230	$ 42.90	$ 169.99	$ 272.01
5063	3	.032	.245	54.05	214.36	343.02
5064	4	.032	.265	65.48	259.53	415.21
5066	6	.032	.320	88.62	351.27	562.02
5068	8	.032	.345	100.00	441.66	706.57
5070	10	.032	.395	111.42	535.90	857.43
5070/15	15	.032	.445	162.22	780.03	1248.06
5070/20	20	.032	.495	213.16	1024.99	1639.98
5070/25	25	.032	.555	263.34	1266.15	2025.76
5070/30	30	.050	.625	322.84	1552.26	2483.67
5070/40	40	.050	.700	423.82	2037.76	3260.41
5070/50	50	.050	.770	525.52	2526.66	4042.68
5070/60	60	.080	.895	650.08	3125.55	5000.91
5070/70	70	.080	.975	754.63	3628.08	5804.94
5070/80	80	.080	1.010	854.64	4108.95	6574.44
5070/90	90	.080	1.055	955.95	4595.92	7351.84
5070/00	100	.080	1.135	1059.76	5095.08	8152.12
16 AWG (26/30) STRAND						
5072	2	.032	.260	$ 53.73	$ 213.15	$ 341.04
5073	3	.032	.275	71.23	282.33	451.74
5074	4	.032	.300	88.42	350.28	560.46
5076	6	.032	.365	101.43	487.81	780.49
5078	8	.032	.395	129.54	623.04	996.84
5080	10	.032	.455	177.72	854.52	1367.26
5080/15	15	.032	.515	233.47	1122.55	1796.14
5080/20	20	.050	.610	316.17	1520.16	2432.26
5080/25	25	.050	.680	390.90	1879.51	3007.27
5080/30	30	.050	.725	463.80	2229.94	3567.93
5080/40	40	.080	.875	635.31	3054.58	4887.33
5080/50	50	.080	.960	785.32	3775.57	6040.96
5080/60	60	.080	1.030	935.02	4495.42	7192.65
COMBINATION GAUGES						
5041	6*	.032	.280	$53.44	$211.72	$338.77
5042	7†	.032	.295	73.00	289.27	462.88
5043	8‡	.032	.365	79.86	316.59	506.49

*Contains four #22 (7/30) and two #18 (16/30). †Contains five #22 (7/30) and two #18 (16/30). ‡Contains six #22 (7/30) and two #18 (16/30).

ALSO AVAILABLE IN #24 AND #22 AWG. PRICES AVAILABLE ON REQUEST.

UL STYLE 2464 FOIL SHIELD, 300 V, 80° C

Alpha No.	No. of Conds.	Nominal Jacket Thickness, Inches	Nominal O.D., Inches	Net Each, Spool of 100′	500′	1000′
20 AWG—10/30 STRAND						
5462	2	.032	.225	$ 45.63	$ 182.41	$ 307.32
5463	3	.032	.230	53.49	213.34	356.77
5464	4	.032	.250	61.41	244.74	407.05
5466	6	.032	.290	79.10	314.82	519.16
5468	8	.032	.315	93.06	370.27	607.86
5470	10	.032	.365	100.00	439.95	719.34
5470/15	15	.032	.410	128.47	619.24	1006.21
5470/20	20	.032	.455	163.51	787.69	1275.73
5470/25	25	.032	.505	202.15	890.34	1572.97
5470/30	30	.032	.535	238.21	1146.67	1850.11
5470/40	40	.053	.640	320.67	1543.24	2484.63
5470/50	50	.053	.715	394.44	1897.95	3052.08
5470/60	60	.053	.755	466.93	2246.34	3814.86
5470/70	70	.083	.890	564.96	2717.77	4363.83
5470/80	80	.083	.920	638.50	3071.20	4929.36
5470/90	90	.083	.960	712.36	3426.30	5497.54
5470/00	100	.083	1.035	788.40	3792.09	6082.74
18 AWG—16/30 STRAND						
5382	2	.032	.235	$ 52.25	$ 208.54	$ 349.12
5383	3	.032	.250	63.43	252.91	420.12
5384	4	.032	.270	74.86	298.08	492.30
5386	6	.032	.325	97.95	389.71	639.13
5388	8	.032	.350	100.00	480.21	783.69
5390	10	.032	.400	119.14	574.47	934.53
18 AWG—16/30 STRAND (CONT.)						
5390/15	15	.032	.450	$169.93	$ 818.59	$1325.14
5390/20	20	.032	.495	220.89	1063.53	1717.08
5390/25	25	.053	.605	271.05	1304.70	2102.89
5390/30	30	.053	.635	330.57	1590.82	2560.75
5390/40	40	.053	.705	431.53	2076.31	3337.53
5390/50	50	.053	.785	533.23	2566.57	4119.72
5390/60	60	.083	.900	657.81	3164.10	5077.98
5390/70	70	.083	.980	762.34	3666.63	5882.05
5390/80	80	.083	1.015	862.36	4147.51	6651.52
5390/90	90	.083	1.060	963.67	4634.46	7428.96
16 AWG—26/30 STRAND						
5362	2	.032	.265	$ 63.08	$ 251.71	$ 349.12
5363	3	.032	.280	80.61	320.89	528.84
5364	4	.032	.305	97.77	388.83	637.57
5366	6	.032	.365	109.15	526.36	857.61
5368	8	.032	.390	137.26	661.59	1073.94
5370	10	.032	.455	185.43	893.08	1444.36
5370/15	15	.032	.520	241.20	1161.10	1873.23
5370/20	20	.053	.615	323.89	1558.69	2509.38
5370/25	25	.053	.685	398.61	1916.01	3084.37
5370/30	30	.053	.720	471.52	2268.49	3645.03
5370/40	40	.083	.865	643.02	3093.13	4950.55
5370/50	50	.083	.965	793.02	3814.12	6118.74
5370/60	60	.083	1.026	942.73	4534.00	7265.64

UL STYLE 2464 MULTIPAIR CABLE, 300 V, 80° C

FOIL SHIELD

Alpha No.	No. of Pairs	Nominal Jacket Thickness, Inches	Nominal O.D., Inches	Net Each, Spool of 100′	500′	1000′
24 AWG—7/32 STRAND						
5491	1	.032	.165	$ 40.97	$ 163.93	$ 277.71
5492	2	.032	.220	52.20	208.23	348.39
5493	3	.032	.240	63.41	252.73	419.82
5494	4	.032	.275	75.08	298.89	493.63
5495	5	.032	.280	86.23	341.47	564.73
5496	6	.032	.290	97.50	387.90	636.04
5499	9	.032	.360	109.17	526.42	857.67
5499/11	11	.032	.375	127.83	616.05	1001.08
5499/15	15	.032	.430	169.54	806.89	1306.42
5499/19	19	.032	.445	204.25	983.53	1589.05
5499/27	27	.032	.515	280.30	1349.25	2174.22
5499/51	51	.053	.715	519.27	2498.07	4012.36
5499/77	77	.085	.910	805.83	3875.72	6216.79
5499/02	102	.085	1.010	1059.91	5097.39	8171.25
22 AWG—7/30 STRAND						
5481	1	.032	.175	$ 42.19	$ 168.82	$ 285.55
5482	2	.032	.235	55.84	222.73	371.85
5483	3	.032	.265	69.23	274.83	455.14
5484	4	.032	.300	82.61	328.87	541.68
5485	5	.032	.315	95.64	380.53	624.28
5486	6	.032	.325	100.00	432.28	707.10
5489	9	.032	.400	123.04	593.28	964.66
5489/11	11	.032	.420	144.66	697.09	1130.80
5489/15	15	.032	.475	191.14	920.55	1488.33
5489/19	19	.032	.510	234.09	1127.16	1818.90
5489/27	27	.053	.625	330.75	1591.69	2562.12
5489/51	51	.085	.850	596.44	2869.17	4606.09
5489/77	77	.085	1.005	924.24	4444.96	7127.28
5489/02	102	.085	1.120	1215.58	5845.68	9368.49
20 AWG—10/32 STRAND						
5453	3	.032	.350	$ 83.67	$ 332.97	$ 548.22
5456	6	.032	.430	112.50	542.44	883.27
5459	9	.032	.530	158.34	762.70	1235.80
5459/12	12	.053	.620	201.54	970.45	1568.13
5459/15	15	.053	.680	257.37	1238.85	1997.61
5459/19	19	.053	.725	315.25	1517.28	2443.06
5459/27	27	.083	.905	457.03	2198.92	3533.77
18 AWG—16/30 STRAND						
5373	3	.032	.380	$100.00	$ 415.95	$ 680.83
5376	6	.032	.475	147.52	710.86	1152.81
5379	9	.053	.625	221.38	1035.00	1720.77
5379/12	12	.053	.675	282.67	1360.38	2192.34
5379/15	15	.053	.745	344.88	1659.69	2670.85
5379/19	19	.083	.860	425.64	2047.98	3292.20
5379/27	27	.083	.995	616.89	2967.42	4763.28

UNSHIELDED

Alpha No.	No. of Pairs	Nominal Jacket Thickness, Inches	Nominal O.D., Inches	Net Each, Spool of 100′	500′	1000′
24 AWG—7/32 STRAND						
5261	1	.032	.160	$ 31.61	$ 125.38	$ 200.61
5262	2	.032	.215	42.82	169.69	271.27
5263	3	.032	.235	54.04	214.17	342.70
5264	4	.032	.270	65.70	260.34	416.53
5265	5	.032	.275	76.88	304.75	487.60
5266	6	.032	.285	88.14	349.36	558.94
5269	9	.032	.355	101.44	487.87	780.57
5269/11	11	.032	.370	120.10	577.48	923.95
5269/15	15	.032	.425	159.75	768.33	1229.34
5269/19	19	.032	.440	196.54	944.98	1511.97
5269/27	27	.032	.510	272.58	1310.70	2097.13
5269/51	51	.050	.710	511.57	2459.52	3935.26
5269/77	77	.080	.905	798.10	3837.27	6139.66
5269/02	102	.080	1.005	1052.22	5058.84	8094.16
22 AWG—7/30 STRAND						
5021	1	.032	.170	$ 32.83	$ 130.29	$ 208.42
5022	2	.032	.230	46.48	184.17	294.72
5023	3	.032	.260	59.59	236.25	378.03
5024	4	.032	.295	73.24	290.34	464.56
5025	5	.032	.310	86.27	342.00	547.18
5026	6	.032	.320	99.41	393.72	629.98
5029	9	.032	.395	115.33	554.73	887.56
5029/11	11	.032	.415	136.95	658.56	1053.67
5029/15	15	.032	.470	183.43	882.00	1411.20
5029/19	19	.032	.505	226.36	1088.58	1741.78
5029/27	27	.050	.620	323.02	1553.14	2485.03
5029/51	51	.050	.785	588.73	2830.62	4528.99
5029/77	77	.080	1.000	916.51	4406.40	7050.19
5029/02	102	.080	1.115	1207.87	5807.13	9291.37
20 AWG—10/30 STRAND						
5283	3	.032	.345	$ 74.29	$ 294.40	$ 471.09
5286	6	.032	.425	104.79	503.88	806.16
5289	9	.032	.525	150.61	724.15	1158.70
5289/12	12	.032	.570	193.83	931.90	1491.00
5289/15	15	.050	.675	249.64	1200.30	1920.48
5289/19	19	.050	.720	307.54	1478.76	2365.95
5289/27	27	.080	.900	449.31	2160.37	3456.64
18 AWG—16/30 STRAND						
5033	3	.032	.375	$ 95.22	$ 377.38	$ 603.87
5036	6	.032	.470	139.81	672.31	1075.69
5039	9	.050	.620	213.66	1027.30	1643.65
5039/12	12	.050	.670	274.99	1322.01	2115.25
5039/15	15	.050	.745	337.18	1621.14	2593.75
5039/19	19	.050	.795	417.91	2009.41	3215.10
5039/27	27	.080	.990	609.16	2928.85	4686.15

UL STYLE 2501 MULTICONDUCTOR, 600 V, 105° C

Alpha No.	No. of Pairs	Nominal Jacket Thickness, Inches	Nominal O.D., Inches	Net Each, Spool of 100′	500′	1000′
22 AWG—7/30 STRAND						
5504	4	.063	.390	$100.00	$ 412.44	$ 659.95
5505	5	.063	.420	100.00	465.82	745.36
5507	7	.063	.450	112.96	543.16	869.11
5509	9	.063	.510	142.89	687.16	1099.42
5509/12	12	.063	.555	170.61	820.30	1312.48
5509/15	15	.063	.610	205.72	989.11	1582.56
5509/19	19	.063	.650	241.32	1160.17	1856.31
5509/25	25	.063	.745	300.19	1443.16	2309.04
20 AWG—10/30 STRAND						
5514	4	.063	.410	$100.00	$ 452.85	$ 724.59
5515	5	.063	.440	115.02	553.00	884.79
5517	7	.063	.470	133.54	642.12	1027.36
5519	9	.063	.535	163.56	786.43	1258.29
5519/12	12	.063	.595	200.22	962.52	1540.03
5519/15	15	.063	.640	237.93	1144.00	1830.46
5519/19	19	.063	.685	283.56	1363.33	2181.43
5519/25	25	.063	.735	379.29	1823.56	2917.68
18 AWG—16/30 STRAND						
5524	4	.063	.435	$111.01	$ 533.77	$ 854.02
5525	5	.063	.465	131.73	633.45	1013.55
5527	7	.063	.500	161.34	775.78	1241.25
5529	9	.063	.570	194.97	937.45	1499.94
5529/12	12	.063	.635	243.69	1171.86	1874.91
5529/15	15	.063	.685	293.13	1409.38	2255.01
5529/19	19	.063	.735	345.33	1660.36	2571.34
5529/25	25	.080	.885	454.17	2183.58	3493.75
16 AWG—26/30 STRAND						
5534	4	.063	.465	$139.54	$ 670.96	$1073.55
5535	5	.063	.500	163.15	784.48	1255.20
5537	7	.063	.540	202.77	974.95	1559.94
5539	9	.063	.630	251.10	1207.27	1931.65
5539/12	12	.063	.690	315.57	1517.28	2427.63
5539/15	15	.063	.750	374.17	1798.83	2878.18
5539/19	19	.063	.805	452.88	2177.35	3483.72
5539/25	25	.080	.965	624.49	3002.53	4804.03
14 AWG—41/30 STRAND						
5544	4	.063	.505	$178.15	$ 856.51	$1370.50
5545	5	.063	.545	208.06	1000.42	1600.65
5547	7	.063	.600	265.30	1149.30	1838.88
5549	9	.063	.690	329.04	1582.20	2531.50
5549/12	12	.063	.765	416.02	2000.16	3200.38
5549/15	15	.063	.835	500.34	2405.59	3848.92
5549/19	19	.080	.930	630.28	3030.37	4848.64
5549/25	25	.080	1.070	807.66	3883.17	6213.06

Alpha No.	No. of Pairs	Nominal Jacket Thickness, Inches	Nominal O.D., Inches	Net Each, Spool of 100′	500′	1000′
22 AWG (7/30) STRAND						
5404	4	.063	.370	$ 66.18	$ 262.27	$ 419.65
5405	5	.063	.395	75.62	299.82	479.74
5407	7	.063	.425	93.09	369.04	590.46
5409	9	.063	.485	100.00	446.97	715.21
5409/12	12	.063	.535	116.44	559.95	895.98
5409/15	15	.063	.575	142.66	685.99	1097.64
5409/19	19	.063	.615	172.11	827.61	1324.20
5409/25	25	.063	.710	220.65	1060.92	1697.52
20 AWG (10/30) STRAND						
5414	4	.063	.385	$ 75.91	$ 301.06	$ 481.71
5415	5	.063	.415	87.92	348.39	557.38
5417	7	.063	.445	100.00	435.61	696.94
5419	9	.063	.510	110.82	532.77	852.45
5419/12	12	.063	.565	139.92	672.82	1076.52
5419/15	15	.063	.610	171.34	823.90	1318.20
5419/19	19	.063	.650	208.99	1004.91	1607.86
5419/25	25	.063	.750	268.66	1291.66	2066.62
18 AWG (16/30) STRAND						
5424	4	.063	.410	$ 92.09	$ 364.96	$ 584.01
5425	5	.063	.445	100.00	427.42	683.92
5427	7	.063	.475	113.37	545.13	872.25
5429	9	.063	.555	138.57	666.33	1066.15
5429/12	12	.063	.605	178.39	857.71	1372.35
5429/15	15	.063	.655	219.46	1055.17	1688.31
5429/19	19	.063	.700	269.05	1293.60	2069.73
5429/25	25	.063	.810	344.28	1655.31	2648.50
16 AWG—26/30 STRAND						
5434	4	.063	.440	$100.00	$ 464.23	$ 742.77
5435	5	.063	.480	114.67	551.40	882.21
5437	7	.063	.515	148.84	715.80	1145.26
5439	9	.063	.595	185.41	891.60	1426.59
5439/12	12	.063	.660	240.37	1155.88	1849.42
5439/15	15	.063	.715	294.64	1416.67	2266.72
5439/19	19	.063	.765	363.67	1748.70	2797.90
5439/25	25	.080	.925	487.26	2342.61	3748.20
14 AWG—41/30 STRAND						
5444	4	.063	.485	$127.59	$ 613.53	$ 981.72
5445	5	.063	.525	153.10	736.03	1177.71
5447	7	.063	.570	202.09	971.77	1554.84
5449	9	.063	.660	254.11	1221.91	1955.10
5449/12	12	.063	.730	331.21	1592.41	2547.85
5449/15	15	.063	.795	407.82	1960.71	3137.17
5449/19	19	.080	.890	520.17	2500.84	4001.31
5449/25	25	.080	1.030	675.72	3248.68	5197.86

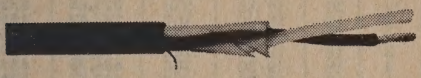
PRICES LISTED ARE FOR GUIDANCE ONLY

INSTRUMENTATION CABLES

Constructed with stranded, tinned conductors and black PVC jackets. Pairs color coded black and white. Multi-pairs and multi-triples numbered at 1-inch intervals. Triples color-coded black, white and red. Aluminum-polyester tape shield and drain wire for 100% coverage. A nylon rip cord simplifies jacket removal.

FOR INSULATION SAFETY AND RELIABILITY:
PVC—Passes UL FR-1 vertical flame test. UL listed under subject 13; complies with NEC Article 725.
PE—UL 2667.
PVC/Nylon—Passes IEEE 383 vertical flame test. UL listed under subject 1227; complies with NEC Article 340.

90° C, 300 V PVC—SINGLE PAIR, UNSHIELDED



Alpha No.	Conductor Size	Conductor Strand	Nom. Jacket Thickness	Nom. O.D.	Net per Spool 1000′	Net per Spool 100′
5600/2001	20	7/28	.035″	.205″	$175.00	$39.90
5600/1801	18	7/26	.035″	.237″	222.00	50.80
5600/1601	16	19/29	.035″	.255″	276.00	63.30

90° C 300 V PVC—SINGLE PAIR, SHIELDED

Alpha No.	Conductor Size	Conductor Strand	Nom. Jacket Thickness	Nom. O.D.	Net per Spool 1000′	Net per Spool 100′
5610/2401*	24	7/32	.030″	.159″	$ 96.00	$21.70
5610/2201	22	7/30	.035″	.191″	133.00	30.10
5610/2001	20	7/28	.035″	.207″	195.00	44.40
5610/1801	18	7/26	.035″	.239″	261.00	59.50
5610/1601	16	19/29	.035″	.257″	312.00	71.40
5610/1401*	14	19/27	.040″	.309″	372.00	84.70
5610/1201*	12	19/25	.040″	.347″	436.00	99.40

80° C, 300 V PE—SINGLE PAIR, SHIELDED

5611/2401	24	7/32	.020″	.151″	$ 9.060	$20.40
5611/2201	22	7/30	.020″	.165″	122.00	27.90
5611/2001	20	7/28	.020″	.181″	180.00	40.90
5611/1801	18	7/26	.020″	.201″	240.00	54.40

90° C, 600 V PVC/NYLON—SINGLE PAIR, SHIELDED

5616/2001*	20	7/28	.035″	.219″	$249.00	$56.80
5616/1801	18	7/26	.045″	.279″	348.00	79.50
5616/1601	16	19/29	.045″	.297″	445.00	101.00
5616/1401	14	19/27	.045″	.327″	594.00	134.00
5616/1201	12	19/25	.045″	.365″	766.00	174.00

*Not U.L. listed.

90° C, 300 V PVC—SINGLE TRIPLE, UNSHIELDED

Alpha No.	Conductor Size	Conductor Strand	Nom. Jacket Thickness	Nom. O.D.	Net per Spool 1000′	Net per Spool 100′
5630/2001	20	7/28	.035″	.215″	$211.00	$48.30
5630/1801	18	7/26	.035″	.250″	265.00	60.40
5630/1601	16	19/29	.035″	.269″	366.00	84.00

90° C, 300 V PVC—SINGLE TRIPLE, SHIELDED

Alpha No.	Conductor Size	Conductor Strand	Nom. Jacket Thickness	Nom. O.D.	Net per Spool 1000′	Net per Spool 100′
5640/2201	22	7/30	.035″	.200″	$211.00	$48.30
5640/2001	20	7/28	.035″	.217″	276.00	63.00
5640/1801	18	7/26	.035″	.252″	339.00	77.70
5640/1601	16	19/29	.035″	.271″	408.00	93.30

80° C, 300 V PE—SINGLE TRIPLE, SHIELDED

5641/2201	22	7/30	.020″	.175″	$201.00	$46.00
5641/2001	20	7/28	.020″	.192″	265.00	60.40
5641/1801	18	7/26	.020″	.213″	328.00	75.10

90° C, 600 V PVC/NYLON—SINGLE TRIPLE, SHIELDED

Alpha No.	Conductor Size	Conductor Strand	Nom. Jacket Thickness	Nom. O.D.	Net per Spool 1000′	Net per Spool 100′
5646/1801	18	7/26	.045″	.293″	$442.00	$100.00
5646/1601	16	19/29	.045″	.313″	580.00	132.00
5646/1401	14	19/27	.045″	.345″	618.00	140.00

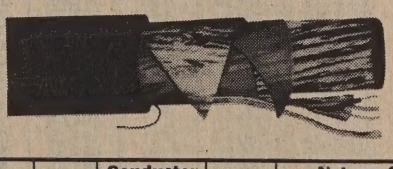
90° C, 300 V PVC—MULTI-PAIR, OVERALL SHIELDED

Alpha No	No. Pairs	Conductor Size	Conductor Strand	Nom. O.D.	Net per Spool 1000′	Net per Spool 100′
5610/2002	2	20	7/28	.310″	$ 519.00	$ 82.00
5610/2004	4	20	7/28	.409″	703.00	111.00
5610/2008	8	20	7/28	.486″	966.00	166.00
5610/2010	10	20	7/28	.540″	1170.00	225.00
5610/2012	12	20	7/28	.566″	1326.00	253.00
5610/2016	16	20	7/28	.650″	1659.00	319.00
5610/2020	20	20	7/28	.702″	1968.00	379.00
5610/2024	24	20	7/28	.755″	2073.00	397.00
5610/2036	36	20	7/28	.914″	3111.00	598.00
5610/2050	50	20	7/28	1.048″	4396.00	846.00
5610/1602	2	16	19/29	.415″	883.00	139.00
5610/1604	4	16	19/29	.522″	1189.00	186.00
5610/1608	8	16	19/29	.648″	1731.00	300.00
5610/1612	12	16	19/29	.760″	2187.00	418.00
5610/1616	16	16	19/29	.849″	2832.00	543.00
5610/1624	24	16	19/29	1.015″	4041.00	778.00
5610/1636	36	16	19/19	1.208″	5826.00	1120.00

90° C, 600 V PVC/NYLON—MULTI-PAIR, OVERALL SHIELDED

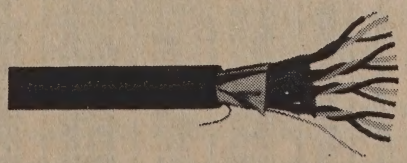
5616/1602	2	16	19/29	.436″	$1003.00	$157.00
5616/1604	4	16	19/29	.587″	1365.00	213.00
5616/1608	8	16	19/29	.705″	1953.00	337.00
5616/1612	12	16	19/29	.870″	2407.00	462.00
5616/1624	24	16	19/29	1.131″	4546.00	874.00

90° C, 300 V PVC—MULTI-PAIR, INDIVIDUALLY SHIELDED



Alpha No.	No. Pairs	Conductor Size	Conductor Strand	Nom. O.D.	Net per Spool 1000′	Net per Spool 100′
5620/2002	2	20	7/28	.365″	$ 661.00	$104.00
5620/2004	4	20	7/28	.442″	946.00	149.00
5620/2008	8	20	7/28	.561″	1398.00	243.00
5620/2012	12	20	7/28	.693″	1719.00	328.00
5620/2016	16	20	7/28	.766″	2244.00	432.00
5620/2020	20	20	7/28	.847″	2712.00	522.00
5620/2024	24	20	7/28	.959″	3183.00	609.00
5620/2036	36	20	7/28	1.092″	4653.00	895.00
5620/2050	50	20	7/28	1.254″	6247.00	1203.00
5620/1602	2	16	19/29	.487″	1023.00	160.00
5620/1604	4	16	19/29	.563″	1584.00	247.00
5620/1608	8	16	19/29	.747″	2718.00	469.00
5620/1612	12	16	19/29	.920″	3156.00	606.00
5620/1616	16	16	19/29	1.021″	4182.00	804.00
5620/1624	24	16	19/29	1.279″	5994.00	1155.00

90° C, 300 V PVC—MULTI-TRIPLE, OVERALL SHIELD



Alpha No.	No. Triples	Conductor Size	Conductor Strand	Nom. O.D.	Net per Spool 1000′	Net per Spool 100′
5640/2004	4	20	7/28	.454″	$1029.00	$162.00
5640/2012	12	20	7/28	.714″	1684.00	324.00
5640/2024	24	20	7/28	.989″	3867.00	744.00

SHIELDED TEFLON CABLES MIL-W-16878D

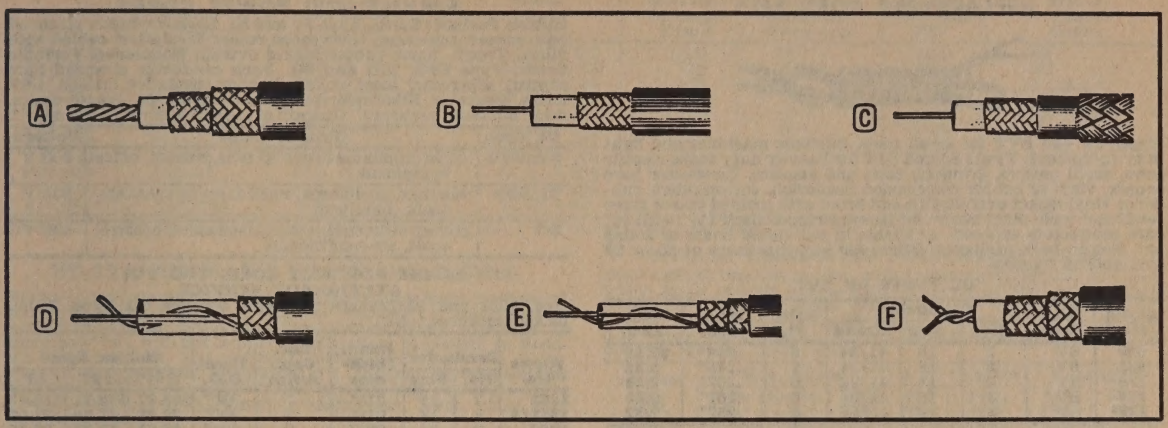
Each conductor stranded silver-plated copper. Type E, .010" extruded Teflon insulation per MIL-W-16878D. Rated 600 volts. A silver-plated copper shield is braided over the conductor(s) for 90% coverage. Temp., −65° C to +200° C.

Alpha No.	No. of Conds.	Size	Strand	Nom. O.D. Inches	Net Spool of 100′	Net Spool of 1000′
UNJACKETED—SHIELDED						
2809	1	24	19/36	.069	$ 100.00	$ 758.16
2809/2	2	24	19/36	.112	164.73	1436.14
2809/3	3	24	19/36	.120	205.23	1822.23
2809/4	4	24	19/36	.132	268.09	2453.71
2809/5	5	24	19/36	.145	291.97	2652.00
2809/6	6	24	19/36	.158	355.02	3225.00
2809/7	7	24	19/36	.158	399.10	3625.33
2809/8	8	24	19/36	.172	465.36	4227.97
2809/9	9	24	19/36	.186	519.15	4717.03
2809/10	10	24	19/36	.203	566.88	5150.86
2809/12	12	24	19/36	.210	821.02	7461.31
2809/15	15	24	19/36	.240	942.51	8622.88
2812	1	22	19/34	.075	100.00	756.78
2815/2	2	22	19/34	.124	152.20	1296.49
2812/3	3	22	19/34	.132	235.14	2123.98
2812/4	4	22	19/34	.146	298.69	2761.05
2812/5	5	22	19/34	.161	478.41	4346.58
2812/6	6	22	19/34	.176	563.49	5120.25
2812/7	7	22	19/34	.176	628.26	5709.31
2812/8	8	22	19/34	.192	736.27	6690.58
2812/9	9	22	19/34	.208	806.56	7329.90
2812/10	10	22	19/34	.227	868.41	7892.04
2812/12	12	22	19/34	.240	980.40	8909.83
2812/15	15	22	19/34	.268	1092.57	9930.24
2815	1	20	19/32	.083	109.35	832.59
2815/2	2	20	19/32	.142	171.55	1485.75
2815/3	3	20	19/32	.151	262.09	2390.40
2815/4	4	20	19/32	.168	327.25	3044.23
2815/5	5	20	19/32	.182	383.20	3481.41
2815/6	6	20	19/32	.200	461.56	4193.97
2815/7	7	20	19/32	.200	528.85	4805.28
2815/8	8	20	19/32	.218	615.75	5595.22
2815/9	9	20	19/32	.242	686.26	6236.44
2815/10	10	20	19/32	.264	749.88	6814.90
2818	1	18	19/30	.093	146.80	1239.72
2818/2	2	18	19/30	.162	243.33	2202.45
2818/3	3	18	19/30	.172	329.32	2991.84
2818/4	4	18	19/30	.192	464.64	4420.83
2818/5	5	18	19/30	.212	545.40	4955.92
2818/6	6	18	19/30	.238	651.42	5919.43
2818/7	7	18	19/30	.238	750.24	6817.39
2818/8	8	18	19/30	.260	870.03	7907.04
2818/9	9	18	19/30	.281	965.73	8776.99
2818/10	10	18	19/30	.308	1053.82	9578.01
2807	1	16	19/29	.103	146.07	1232.89
2807/2	2	16	19/29	.184	303.72	2811.06
2807/3	3	16	19/29	.189	393.97	3646.86
2807/4	4	16	19/29	.209	484.18	4482.73
2807/5	5	16	19/29	.236	585.37	5318.53
2807/6	6	16	19/29	.259	701.47	6374.50
2807/7	7	16	19/29	.259	805.56	7320.91
2807/8	8	16	19/29	.283	945.00	8587.68
2806	1	14	19/27	.117	154.26	1399.38
2806/2	2	14	19/27	.211	303.72	2759.10
2806/3	3	14	19/27	.230	436.53	3965.76
2806/4	4	14	19/27	.255	561.49	5102.04
2806/5	5	14	19/27	.282	683.91	6215.13
2806/6	6	14	19/27	.310	833.59	7546.74
2805	1	12	19/25	.136	221.31	2009.47
2805/2	2	12	19/25	.254	440.67	4002.96
2805/3	3	12	19/25	.271	640.36	5818.29
2805/4	4	12	19/25	.300	826.75	7513.54
FIBERGLASS BRAID OVER SHIELD						
2811	1	24	19/36	.083	$ 118.42	$ 954.00
2811/2	2	24	19/36	.126	163.99	1409.29
2811/3	3	24	19/36	.134	258.33	2149.44
2811/4	4	24	19/36	.146	297.96	2747.46
2811/5	5	24	19/36	.159	404.79	3677.28
2811/6	6	24	19/36	.172	480.25	4362.93
2811/7	7	24	19/36	.172	526.47	4783.18
2811/8	8	24	19/36	.186	602.37	5473.48
2811/9	9	24	19/36	.200	658.96	5987.76
2811/10	10	24	19/36	.217	708.99	6442.47
2811/12	12	24	19/36	.224	803.59	7302.46
2811/15	15	24	19/36	.254	972.36	8836.77
2814	1	22	19/34	.089	122.92	999.52
2814/2	2	22	19/34	.138	178.24	1555.83
2814/3	3	22	19/34	.146	263.43	2408.97
2814/4	4	22	19/34	.160	327.75	3053.34
2814/5	5	22	19/34	.175	478.41	4346.58
2814/6	6	22	19/34	.190	563.49	5120.25
2814/7	7	22	19/34	.190	628.26	5709.31
2814/8	8	22	19/34	.206	736.27	6690.58
2814/9	9	22	19/34	.222	806.56	7329.90
2814/10	10	22	19/34	.241	868.41	7892.04
2814/12	12	22	19/34	.254	980.40	8909.83
2814/15	15	22	19/34	.282	1092.57	9930.24
2817	1	20	19/32	.097	131.46	1089.25
2817/2	2	20	19/32	.156	199.21	1771.39
2817/3	3	20	19/32	.165	294.16	2715.45
2817/4	4	20	19/32	.182	$362.14	$ 3390.51
2817/5	5	20	19/32	.196	504.46	4583.67
2817/6	6	20	19/32	.214	603.93	5487.84
2817/7	7	20	19/32	.214	676.23	6144.55
2817/8	8	20	19/32	.232	782.62	7112.20
2817/9	9	20	19/32	.256	856.77	7786.81
2817/10	10	20	19/32	.278	923.65	8394.64
2819	1	18	19/30	.107	177.42	1550.55
2819/2	2	18	19/30	.176	268.57	2461.03
2819/3	3	18	19/30	.186	352.41	3297.76
2819/4	4	18	19/30	.206	504.99	4823.74
2819/5	5	18	19/30	.226	686.77	6240.42
2819/6	6	18	19/30	.252	805.95	7324.57
2819/7	7	18	19/30	.252	913.27	8299.47
2819/8	8	18	19/30	.274	1067.35	9700.54
2819/9	9	18	19/30	.295	1166.64	10603.99
2819/10	10	18	19/30	.322	1259.13	11443.51
2820	1	16	19/29	.117	192.72	1697.13
2820/2	2	16	19/29	.198	338.46	3158.08
2820/3	3	16	19/29	.203	463.78	4328.07
2820/4	4	16	19/29	.223	589.08	5498.14
2820/5	5	16	19/29	.250	733.75	6668.10
2820/6	6	16	19/29	.274	868.35	7891.60
2820/7	7	16	19/29	.274	978.99	8897.28
2820/8	8	16	19/29	.297	1156.59	10511.25
2804	1	14	19/27	.131	224.55	2039.16
2804/2	2	14	19/27	.225	388.20	3526.99
2804/3	3	14	19/27	.244	525.79	4777.83
2804/4	4	14	19/27	.269	652.17	5925.96
2804/5	5	14	19/27	.296	792.81	7204.68
2804/6	6	14	19/27	.324	852.94	7751.47
2803	1	12	19/25	.150	307.44	2792.71
2803/2	2	12	19/25	.268	537.04	4732.47
2803/3	3	12	19/25	.285	737.37	6701.37
2803/4	4	12	19/25	.314	927.91	8432.64
TFE FIBERGLASS TAPE OVER SHIELD						
2821	1	24	19/36	.095	$ 100.00	$ 787.95
2821/2	2	24	19/36	.138	149.46	1196.91
2821/3	3	24	19/36	.146	193.32	1546.83
2821/4	4	24	19/36	.158	238.78	1911.19
2821/5	5	24	19/36	.171	410.05	3724.66
2821/6	6	24	19/36	.184	482.86	4386.55
2821/7	7	24	19/36	.184	524.11	4761.60
2821/8	8	24	19/36	.198	641.31	5827.74
2821/9	9	24	19/36	.212	699.18	6353.74
2821/10	10	24	19/36	.229	750.49	6819.75
2821/12	12	24	19/36	.236	863.85	7850.17
2821/15	15	24	19/36	.266	1035.90	9414.81
2824	1	22	19/34	.101	101.86	815.26
2824/2	2	22	19/34	.150	181.92	1455.03
2824/3	3	22	19/34	.158	224.61	1796.85
2824/4	4	22	19/34	.172	279.37	2235.33
2824/5	5	22	19/34	.187	484.12	4398.57
2824/6	6	22	19/34	.202	568.06	5161.02
2824/7	7	22	19/34	.202	634.27	5763.99
2824/8	8	22	19/34	.218	757.41	6882.87
2824/9	9	22	19/34	.234	827.62	7521.25
2824/10	10	22	19/34	.253	890.85	8096.17
2824/12	12	22	19/34	.266	1025.61	9321.75
2824/15	15	22	19/34	.294	1237.45	11247.00
2827	1	20	19/32	.109	129.97	1040.40
2827/2	2	20	19/32	.168	212.80	1703.29
2827/3	3	20	19/32	.177	269.20	2154.24
2827/4	4	20	19/32	.194	320.89	2567.56
2827/5	5	20	19/32	.208	518.94	4715.26
2827/6	6	20	19/32	.226	611.59	5557.65
2827/7	7	20	19/32	.226	705.58	6411.81
2827/8	8	20	19/32	.246	823.56	7483.95
2827/9	9	20	19/32	.268	899.35	8173.86
2827/10	10	20	19/32	.290	967.87	8796.07
2829	1	18	19/30	.119	138.15	1104.84
2829/2	2	18	19/30	.188	250.69	2005.83
2829/3	3	18	19/30	.198	316.45	2531.92
2829/4	4	18	19/30	.218	404.91	3235.95
2829/5	5	18	19/30	.238	726.88	6605.17
2829/6	6	18	19/30	.264	850.42	7728.67
2829/7	7	18	19/30	.264	957.06	8698.09
2829/8	8	18	19/30	.286	1146.78	10422.36
2829/9	9	18	19/30	.307	1248.57	11347.38
2829/10	10	18	19/30	.334	1343.08	12206.61
2826	1	16	19/29	.129	170.35	1367.82
2826/2	2	16	19/29	.210	293.95	2352.24
2826/3	3	16	19/29	.215	397.72	3182.40
2826/4	4	16	19/29	.235	494.83	3959.01
2826/5	5	16	19/29	.262	610.39	5546.67
2826/6	6	16	19/29	.286	918.09	8344.02
2826/7	7	16	19/29	.286	1031.26	9372.51
2826/8	8	16	19/29	.309	1220.83	11096.13
2825	1	14	19/27	.143	243.07	2207.11
2825/2	2	14	19/27	.237	429.07	3899.49
2825/3	3	14	19/27	.256	612.70	5567.59
2825/4	4	14	19/27	.281	760.29	6909.21
2825/5	5	14	19/27	.308	906.40	8237.16
2825/6	6	14	19/27	.336	1079.85	9813.93
2823	1	12	19/.0185″	.162	322.08	2925.31
2823/2	2	12	19/.0185″	.280	599.19	5444.71
2823/3	3	12	19/.0185″	.297	844.80	7677.46
2823/4	4	12	19/.0185″	.326	1060.14	9635.08

*Other put-ups and discounts are available upon request.

PRICES LISTED ARE FOR GUIDANCE ONLY

alpha RG/U Coaxial Cable



POLYETHYLENE DIELECTRIC RG/U COAXIAL CABLES

Factory tested to assure physical and electrical performance. Production runs are subjected to electrical property tests to determine capacitance, impedance and attenuation. Further tests are made for corona extinction and physical properties. Dielectrics and insulating jackets are subjected to aging and flow tests in a special forced-draft oven; plus, exposure to extreme low temperatures in sub-zero environmental chamber to determine cold-bend properties. All have solid polyethylene dielectric (VP. 65.9%) except as noted. Dimensions shown are max.

Alpha No.	MIL No. RG-	Fig.	Center Conductor Mat.*	Center Conductor Strand	Center Conductor O.D., In.	Shields* 1st	Shields* 2nd	Jacket Mat.*	Jacket O.D., In.	Oper. Volts rms	Nom. Imped. Ohms	Cap., pF/ft.	Net Price per Put-Up 100′ Put-Up	500′ Put-Up	1000′ Put-Up
9006A	6A/U	A	CW	1	.0285	SC	C	NCV	.336	2700	75	20	$307.02	$1498.71	$2943.63
9008♦	8/U	B	C	7/.0285	.086	C	.....	V	.415	5000	52	29.5	47.39	155.04	310.06
9008A♦	8A/U	B	C	7/.0285	.086	C	.....	NCV	.415	5000	52	29.5	72.76	249.31	464.73
9009B	9B/U	A	SC	7/.0285	.086	SC	SC	NCV	.430	5000	50	30	422.97	2074.45	3862.30
9011	11/U	B	TC	7/.0159	.048	C	.....	V	.415	5000	75	20.5	52.16	169.21	338.43
9011A♦	11A/U	B	TC	7/.0159	.048	C	.....	NCV	.412	5000	75	20.5	63.25	221.76	413.32
9012A‡	12A/U	C	TC	7/.0159	.048	C	.....	NCV	.412	5000	75	20.5	100.00	404.17	793.95
9014A	14A/U	A	C	1	.102	C	C	NCV	.558	7000	52	29.5	148.66	722.79	1419.27
9017A	17A/U	B	C	1	.188	C	.....	NCV	.885	11000	52	29.5	329.62	1603.14	3206.37
9019A	19A/U	B	C	1	.250	C	.....	NCV	1.135	14000	52	29.5	524.79	.....	4809.57
9055	55/U	A	C	1	.032	TC	TC	NP	.206	1900	53.5	28.5	49.94	188.19	369.48
9055B	55B/U	A	SC	1	.032	TC	TC	BP	.206	1900	53.5	28.5	55.53	215.64	422.95
9058♦	58/U	B	C	1	.032	TC	.....	V	.200	1900	53.5	28.5	17.75	51.97	103.95
9058A	58A/U	B	TC	19/.0071	.0375	TC	.....	V	.199	1900	50	29.5	21.84	62.62	125.19
9058C	58C/U	B	TC	19/.0071	.0375	TC	.....	NCV	.199	1900	50	29.5	29.45	82.38	153.57
9059♦	59/U	B	CW	1	.0253	C	.....	V	.250	2300	73	21	24.72	64.63	118.05
9059B♦	59B/U	B	CW	1	.023	C	.....	NCV	.246	2300	75	20.5	30.52	86.10	160.50
9062*♦	62/U	D	CW	1	.025	C	.....	V	.250	750	93	13.5	18.97	70.92	137.66
9062A*	62A/U	D	CW	1	.025	C	.....	V	.249	750	93	13.5	15.47	73.66	147.31
9062B*♦	62B/U	D	CW	1	.025	TC	TC	BP	.250	750	93	13.5	43.92	136.68	273.30
9063B*	63B/U	D	CW	1	.0253	C	.....	NCV	.415	1000	125	10	89.45	316.74	622.26
9071B*♦	71B/U	E	CW	1	.025	C	TC	BP	.250	750	93	13.5	56.53	205.18	403.09
9174	174/U	B	CW	7/.0063	.019	TC	.....	V	.105	1500	50	30	16.71	49.57	99.15
9212	212/U	A	SC	1	.056	SC	SC	NCV	.336	3000	50	29.5	332.10	1544.32	3088.62
9213♦	213/U	B	C	7/.0296	.090	C	.....	NCV	.412	5000	50	30.5	73.04	249.31	464.56
9214	214/U	A	SC	7/.0296	.090	SC	SC	NCV	.432	5000	50	30.5	351.63	1457.56	2915.14
9215‡	215/U	C	C	7/.0296	.090	C	.....	NCV	.412	5000	50	30.5	100.00	.....	839.76
9217	217/U	A	C	1	.106	C	C	NCV	.555	7000	50	30	134.55	633.79	1267.60
9218	218/U	B	C	1	.195	C	.....	NCV	.880	11000	50	30	334.60	1565.80	3131.59
9219§	219/U	C	C	1	.195	C	.....	NCV	.880	11000	50	30	479.28	.....	4352.46
9223♦	223/U	A	SC	1	.036	SC	SC	NCV	.216	1900	50	30	128.28	534.40	1108.77

MINIATURE TEFLON® COAXIAL CABLES

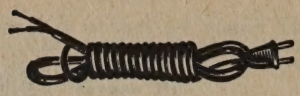
Temp., −65° C to +200° C.

Alpha No.	MIL No. RG-	Fig.	Center Conductor Mat.*	Center Conductor Strand	Center Conductor O.D., In.	Shields* 1st	Shields* 2nd	Jacket Mat.*	Jacket O.D., In.	Oper. Volts rms	Nom. Imped. Ohms	Cap., pF/ft.	Net Price per Put-Up 100′ Put-Up	500′ Put-Up	1000′ Put-Up
9178B	178B/U	B	SCW	7/.004	.....	SC	.....	FEP	.075	1000	50 ± 2	27.9	$ 75.17	$269.34	$ 538.63
9179B	179B/U	B	SCW	7/.004	.....	SC	.....	FEP	.105	1200	75 ± 3	20.4	91.42	327.34	654.75
9180B	180B/U	B	SCW	7/.004	.....	SC	.....	FEP	.145	850	93 ± 2	15.3	126.82	551.16	1102.35
9187A	187A/U	B	SCW	7/.004	.....	SC	.....	TFE	.110	1200	75 ± 3	19.5	98.03	365.85	730.62
9188A	188A/U	B	SCW	7/.0067	.....	SC	.....	TFE	.110	1200	50 ± 2	27.5	98.03	353.59	707.26
9195A	195A/U	B	SCW	7/.004	.....	SC	.....	TFE	.155	1500	95 ± 3	14.5	177.39	842.35	1684.66
9196A	196A/U	B	SCW	7/.004	.....	SC	.....	TFE	.080	1000	50 ± 2	28.5	77.30	258.54	517.02

*Materials—Conductors and Shields: C, copper; CW, copper-covered steel; SC, silver-covered copper; SCC, silver-coated cadmium bronze; SCW, silver-plated, Copperweld®; TC, tinned copper. Jackets: BP, black polyethylene, Type IIIA; FEP, extruded FEP Teflon; NCV, non-contaminating polyvinylchloride, Type IIA; NP, natural polyethylene, Type III; NY, nylon; PE, solid polyethylene; TFE, fused TFE Teflon tape; V, polyvinylchloride, Type I. ‡Armor .475″ O.D. alum. wire. §Armor .945″ O.D. alum. wire. *Dielectric is SPP (semi-solid polyethylene), 84% VP. ®Reg. TM's: Teflon of DuPont; Copperweld of Copperweld Steel Corp. ♦Available in 1000-ft put-ups.

alpha RETRACTILE COIL CORDS; LAMP, REPLACEMENT & EXTENSION CORDS

REPLACEMENT CORD SETS



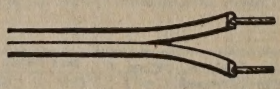
Types SV and SVT for small tools, business machines and light duty equipment. Types SJ and SJT for heavier duty tools, electric saws, small motors, grinders, saws and sanders. Conductor bare copper, vinyl or rubber color coded insulation, cotton fillers, rubber or vinyl jacket overall. One end fitted with molded two or three conductor male plug; other end jacket stripped back 1½″ with ⅝″ bare conductors exposed. Available in individual boxes or coiled and tied in bulk packages. Prices for bulk packages of 10 or 25 available on request.

UL TYPES SV, SVT

Alpha No.	UL Type	Conductor No.	Conductor Size	Conductor Strand	Lgth. Ft.	Nom. O.D.	Net Each
600	SV	2	18	41/34	6	.245″	$2.91
602	SV	2	18	41/34	9	.245″	3.45
775	SV	3	18	41/34	6	.267″	2.58
776	SV	3	18	41/34	8	.267″	2.89
777*	ST	3	18	41/34	6	.257″	2.32
UL TYPES SJ, SJT							
615	SJ	3	18	16/30	6	.330″	$3.69
778	SJ	3	18	16/30	8	.330″	3.07
616	SJ	3	18	16/30	9	.330″	4.23
779*	SJT	3	18	16/30	8	.330″	2.92
618	SJ	3	16	26/30	6	.365″	5.26

*Cord material and color, gray vinyl; balance, black rubber.

E-Z-STRIP LAMP CORDS



Parallel conductors, stranded extra flexible bare copper, color-coded insulation. Slit in jacket permits "E-Z" separation. For small instruments and appliances. **Temperature:** −20° C to +60° C. **Rating:** 300 V. UL Approved.

Alpha No.	UL Type	Conductor No.	Conductor Size	Conductor Strand	Insul. Type	Nominal Wall	Nominal O.D.
1977	SPT-1	2	18	41/34	Plastic	.032″	.215″ x .115″
1978	SPT-2	2	18	41/34	Plastic	.045″	.285″ x .150″
1979	SPT-1	2	18	41/34	Plastic	.032″	.215″ x .115″

Alpha No.	Stock Colors*	Net per Spool 100 Ft.	250 Ft.	500 Ft.	1000 Ft.
1977	A, B, C, D, E	$11.88	$27.33	$ 54.34	$108.70
1978	Brown only	26.28	50.46	100.98	189.94
1979	Clear only	20.22	38.64	74.07	141.37

*Specify color: A, Brown; B, Black; C, White; D, Gray; E, Tan.

RETRACTILE COIL POWER CORDS

Neoprene jacket. Long extension. UL Approved.

RETRACTED LENGTHS 2 AND 4 FEET

Quality multi-conductor has stranded tinned copper conductors, rubber insulation and weather-resistant neoprene jacket, overall. Retracted length 2 ft. has extended length 12 ft.; retracted length 4 ft. has extended length 25 ft. Temp., −20° C to +60° C. **Conductors' Color Code:** 1 = Black; 2 = White; 3 = Green; 4 = Red.

Alpha No.†	UL Type	Conductor No.	Conductor Size	Conductor Strand	Rating Amps	Rating Volts	Net Ea., Lght. 2 Ft.	Net Ea., Lght. 4 Ft.
660/2	SVO	2	18	41/34	7	300	$15.76	$ 28.41
760/2	SVO	3	18	41/34	7	300	23.70	43.11
661/2	SJO	2	18	41/34	7	300	18.16	33.06
662/2	SJO	3	18	41/34	7	300	22.00	41.17
663/2	SJO	4	18	41/34	5.6*	300	25.89	48.75
664/2	SJO	2	16	65/34	10	300	22.62	42.18
665/2	SJO	3	16	65/34	10	300	27.84	52.89
666/2	SJO	4	16	65/34	8*	300	36.24	67.15
670/2	SO	3	16	41/34	10	600	40.54	75.72
671/2	SO	4	16	65/34	8*	600	44.76	84.34
673/2	SO	3	14	41/30	15	600	50.13	94.92
674/2	SO	4	14	41/30	12*	600	60.00	109.35

*For 4 conductors carrying current; if one lead is used as ground, amp rating is same as 2- and 3-conductor cords. †No. shown is for 2-ft. length; for 4-ft. length change suffix to /4 (example: 660/4).

POWER CORD SETS

Same as above, but with sturdy, molded male plug on one end; stripped on other end. All are 18″ long, retracted; 7½ ft. long, extended. Rated 300 volts. **Conductors' Color Code:** 1 = Black; 2 = White; 3 = Green.

Alpha No.	UL Type	Conductor No.	Conductor Size	Conductor Strand	Coil O.D., In.	Net Each
654	SVO	2	18	41/34	7/8	$14.89
656	SJO	3	18	41/34	1 3/8	28.30
657	SJO	2	16	65/34	1 3/8	20.26
658	SJO	3	16	65/34	1 7/16	29.86

SERVICE AND POWER CORDS

Rubber Portable Cords, Type SV and SJ. Each conductor stranded bare copper, separator, color coded rubber insulation, cabled with fillers. Tough, black rubber jacket overall. **Neoprene® Portable Cords, Type SVO, SJO and SO.** Each conductor stranded bare copper, separator, color coded, rubber insulation cabled with fillers, separator. Black neoprene jacket overall. Oil, grease, ozone, acid, moisture resistant. Operating temp., −20° C to +60° C.

UL Type	Type of Usage	Voltage
SV, SVO	Light appliances such as fans, mixers, office equipment	300 V
SJ, SJO	Medium appliances, small motors, speakers, tools, amplifiers	300 V
SO	Heavy duty equipment, generators, heaters, tools, air-conditioners	600 V

RUBBER PORTABLE CORD, 300 VOLT STATIONARY SERVICE

Nos. 1951 and 1951/3 are **SV Type,** balance, **SJ Type.** Nom. jacket thickness, .032″.

Alpha No.	Conductor No.	Conductor Size	Insul. Thickness	Cur. Cap., Amps	Nom. O.D.	Net per Spool 250′	100′	50′
1951	2	18	.016″	7	.250″	$57.67	$32.71	$18.49
1951/3	3	18	.016″	7	.260″	66.21	37.66	21.48
1952	2	18	.032″	7	.305″	65.83	37.33	20.31
1952/3	3	18	.032″	7	.330″	90.04	50.89	27.15
1953	2	16	.032″	10	.330″	78.45	43.23	22.90
1953/3	3	16	.032″	10	.360″	114.28	63.66	32.98

NEOPRENE PORTABLE CORD, 300 VOLT STATIONARY SERVICE

No. 1931 is **SVO Type,** balance, **SJO.** Nom. jkt. thickness, .032″.

1931	2	18	.016″	7	.250″	$53.94	$31.40	$18.93
1932	2	18	.032″	7	.305″	68.71	39.06	20.42
1932/3	3	18	.032″	7	.330″	85.27	51.82	26.26
1933	2	16	.032″	10	.330″	83.40	50.71	25.68
1933/3	3	16	.032″	10	.360″	109.63	62.92	32.34

NEOPRENE PORTABLE CORD, 600 VOLT SO TYPE

Alpha Nos. 1934 thru 1935/4 have nominal insulation thickness of .030″; nominal jacket thickness, .060″. **Nos. 1936 thru 1936/4** have nominal insulation thickness of .045″, nominal jacket thickness, .075″. Balance, insulation thickness, .045″, jacket thickness, .090″.

Alpha No.	Conductor No.	Conductor Size	Cur. Carrying Capac., Amps	Nom. O.D.	Net per Spool 250′	100′	50′
1934	2	18	7	.390″	$110.95	$ 63.94	$ 33.07
1934/3	3	18	7	.405″	126.87	72.16	37.13
1934/4	4	18	6	.435″	166.09	91.76	46.97
1935	2	16	10	.405″	128.98	73.78	38.06
1935/3	3	16	10	.430″	158.61	89.11	46.21
1935/4	4	16	8	.485″	204.40	100.00	54.96
1936	2	14	15	.530″	202.72	100.00	58.79
1936/3	3	14	15	.560″	260.47	119.05	74.97
1936/4	4	14	12	.605″	293.88	135.21	84.27
1937	2	12	20	.600″	283.35	129.40	80.86
1937/3	3	12	20	.635″	346.11	156.97	97.62
1937/4	4	12	16	.665″	417.87	188.74	100.00
1938	2	10	25	.640″	367.62	150.87	94.35
1938/3	3	10	25	.690″	456.30	193.47	100.00
1938/4	4	10	20	.745″	570.63	239.19	123.27

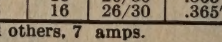
EXTENSION CORD SETS

Flexible multi-conductor, black rubber cord with black molded plastic male and female plug on either end. Three-conductor type for use where one conductor requires grounding. UL Approved.

Alpha No.	UL Type	Conductor No.	Conductor Size	Conductor Strand	Nom. O.D.	Lgth., Ft.	Net Each
620	SV	2	18	41/34	.245″	6	$ 3.42
628*	SJ	2	16	26/30	.325″	10	5.20
636	SJ	3	18	16/30	.330″	10	6.40
638	SJ	3	18	16/30	.330″	25	12.54
640	SJ	3	16	26/30	.365″	15	11.77
642	SJ	3	16	26/30	.365″	25	22.59
644	SJ	3	16	26/30	.365″	50	35.26

*Rated 10 amps; all others, 7 amps.

TEST LEAD WIRE



Used as test leads in analyzers, oscillators, multi-meters and test apparatus where extra flexible insulated wire is required. Heavy duty type designed for television, therapeutic equipment, analyzers, oscillators, etc. Single conductor, extra flexible stranded tinned soft annealed copper, separator, color coded rubber insulation. Smooth satin finish. Operating temp., −20° C to +60° C. Conductor size for **Numbers 1632** and **1633** is 20, balance, 18. Stock colors black and red, except **No. 1639,** black, red, green.

Alpha No.	Cond. Strand	Wall Thickness	Nom. O.D.	Voltage Breakdown†	Working Voltage	Net per Spool* 1000′	100′
1632	41/36	.040″	.125″	6000 V	1500 V	$88.27	$15.45
1635	41/36	.047″	.140″	12000 V	3000 V	91.75	16.02
1636	65/36	.045″	.140″	20000 V	5000 V	94.59	15.76
1638	65/36	.090″	.230″	29000 V	10000 V	144.51	21.69
1639*	65/36	.047″	.145″	20000 V	5000 V	108.73	18.22

*Military type spec MIL-W-13169B. †60 Hz. *Also available in 500′ spools, prices on request.

PRICES LISTED ARE FOR GUIDANCE ONLY

alpha FIT® Shrinkable Tubing

Type	Chemistry	Max. Shrinkage Ratio	Oper. Temp. °C	Dielectric Strength V/mil	Volume Resistivity Ohm-cm.	Tensile Strength PSI	MIL-I-23053 Suffix
FIT-221	Polyolefin	50% @ 121° C	−55 to +135	1300	10^{15}	2500	/5A
FIT-105	PVC	50% @ 175° C	−35 to +105	750	10^{12}	2600	/2C
FIT-225	Polyolefin	50% @ 135° C	−55 to +125	750	.....	2000	/6 Class 3
FIT-295	Polyolefin	50% @ 135° C	−55 to +135	800	10^{16}	2500	/6B#
FIT-300	Polyolefin	*	−55 to +110	1100	10^{15}	2500	/4B Class 1
FIT-321	Polyolefin	30% @ 125° C	−55 to +125	350	10^{14}	2500	C/4B Class 3
FIT-260	Polyolefin	50% @ 121° C	−55 to +135	1300	.....	2500	.....
FIT-350	Kynar§	50% @ 175° C	−55 to +170	1000	2×10^{15}	8000	/8A
FIT-400	Teflon‡	80% @ 176° C	−67 to +204	2000	2×10^{11}	3100	/11A
FIT-500	Teflon	33% @ 327° C	−65 to +260	2000	10^{11}	6000	/12
FIT-600	Neoprene	57% @ 175° C	−70 to +90	300	10^{9}	1500	/1A

*From 15 to 40% depending on size. †Transparent. #Class 1 for colors; Class 2 for clear.

FIT-221 IRRADIATED POLYOLEFIN TUBING

Simple-to-use, all-purpose extruded tubing gives tight mechanical bond with thermal stability. Will not cold-flow or melt—retains form stability throughout its temperature range. Material is flammable but will not support combustion. Resistant to fuels, oils, acids, alkalis, and solvents. **Ultimate Elongation:** 400% nominal. **Longitudinal Shrinkage:** 5% nominal. **Environmental Resistance:** Will not support fungus growth. Non-corrosive. Max. water absorption, 0.5%. **Colors:** Specify clear, black, white, red, yellow, or blue.

Alpha No. FIT-	Size, Inches: Min. I.D.*	Recov. I.D.†	Wall Thk.	4 Ft. Lengths: Std. Pkg.	Pkg. Net	6″ Lengths: Std. Pkg.	Pkg. Net
221-3/64″	.046	.023	.016	100′	$34.16	20′	$7.99
221-1/16″	.063	.031	.017	100′	36.40	18′	7.99
221-3/32″	.093	.046	.020	100′	41.26	16′	7.99
221-1/8″	.125	.062	.020	100′	43.68	14′	7.99
221-3/16″	.187	.093	.020	100′	53.02	12′	7.99
221-1/4″	.250	.125	.025	100′	67.13	10′	7.99
221-3/8″	.375	.187	.025	100′	74.77	8′	7.99
221-1/2″	.500	.250	.025	20′	16.89	7′	7.99
221-3/4″	.750	.375	.030	20′	22.56	6′	7.99
221-1″	1.000	.500	.035	20′	31.63	4′	7.99
221-1 1/2″	1.500	.750	.040	20′	54.23	2.5′	7.99
221-2″	2.000	1.000	.045	20′	74.84	1.5′	7.99
221-3″	3.000	1.500	.050	8′	47.42	1′	7.99
221-4″	4.000	2.000	.055	8′	69.10	.5′	7.99

PACKAGED ASSORTMENTS IN 6″ LENGTHS

Assorted, standard colors and sizes in 6″ lengths, all identified.

Alpha No.	Size Range	No. Lengths/Box	Net/Box
FIT-221-MS1	3/64″–3/16″ (5 sizes)	6 per size (30 total)	$ 9.39
FIT-221-MS2	1/4″–3/4″ (4 sizes)	4 per size (16 total)	18.84
FIT-221-MS3	1″–4″ (5 sizes)	2 per size (10 total)	17.55

FIT-105 POLYVINYLCHLORIDE TUBING

High flexibility, strength, and 50% shrinkage make FIT-105 suitable for insulating components and cables with wide shape and size variations. Shrinks evenly and will not split, even over sharp edges. **Elongation:** 250% nominal. **Longitudinal Shrinkage:** 10% nominal. **Environmental Resistance:** Inert to fungus; excellent resistance to fuel, oil, hydraulic fluid, solvents, acids, and alkalis. Self-extinguishing. Non-corrosive. **Color:** Black.

Alpha No. FIT-	Size, Inches: Min. I.D.*	Recov. I.D.†	Wall Thk.	Net Price per Pkg. of: 25′	100′	200′
105-3/64″	.046	.023	.020	$ 6.79	$ 25.00	$120.28‡
105-1/16″	.062	.031	.020	7.30	26.84	129.09‡
105-3/32″	.093	.046	.020	8.26	30.35	59.50
105-1/8″	.125	.062	.025	8.69	32.11	62.99
105-3/16″	.187	.093	.025	10.64	39.10	76.62
105-1/4″	.250	.125	.025	13.40	49.46	96.92
105-3/8″	.375	.187	.030	14.93	55.04	107.90
105-1/2″	.500	.250	.030	16.84	62.03	.....
105-3/4″	.775	.375	.035	22.59	83.12	.....
105-1″	1.000	.500	.040	31.66	116.37	.....
105-1 1/2″	1.500	.750	.045	59.61	219.41	.....
105-2″	2.000	1.000	.050	82.29§	157.66#	.....

‡Pkg. of 500′. §Pkg. of 10′ available at $34.42. #Pkg. of 50′.

PACKAGED ASSORTMENTS IN 6″ LENGTHS

Alpha No.	Size Range	No. Lengths/Box	Net/Box
FIT-105-MS1	3/64″–1/4″ (6 sizes)	10 per size (60 total)	$10.52
FIT-105-MS2	3/8″–1″ (4 sizes)	10 per size (40 total)	16.58
FIT-105-MS3	1 1/2″ and 2″ only	7 per size (14 total)	16.34

FIT-321 ADHESIVE-WALL POLYOLEFIN TUBING

A dual-wall, irradiated tubing that shrinks, upon application of heat, to 33% of its original diameter. The inner wall melts and fills all crevices of the covered object while outer wall shrinks. When cool, the entire mass becomes a tough molding that provides excellent environmental protection. **Ultimate Elongation:** 400% nominal. **Longitudinal Shrinkage:** 10% nominal. **Color:** Black.

PACKAGED ASSORTMENT IN 6″ LENGTHS

Alpha No.	Size Range	No. Lengths/Box	Net/Box
FIT-321-MS1	1/8″–1″ (4 sizes)	5 per size (20 total)	$24.00

FIT-225 IRRADIATED POLYOLEFIN TUBING

Semi-rigid tubing can be used with automatic applicator machines which apply pre-cut tubing onto terminals at high speed. Unaffected by common fluids and solvents. Non-corrosive; self-extinguishing; will not support fungus growth. Water absorption, 0.2% max. **Elongation:** 500%. **Longitudinal Shrinkage:** 5% nominal. **Colors:** Black, white.

Alpha No. FIT-	Size, Inches: Min. I.D.*	Recov. I.D.†	Wall Thk.	4 Ft. Lengths: Std. Pkg.	Pkg. Net	6″ Lengths: Std. Pkg.	Pkg. Net
225-3/64″	.046	.023	.020	100′	$34.58	40′	$8.35
225-1/16″	.063	.031	.020	100′	36.84	36′	8.35
225-3/32″	.093	.046	.020	100′	42.70	32′	8.35
225-1/8″	.125	.062	.020	100′	45.21	28′	8.35
225-3/16″	.187	.093	.020	100′	54.87	24′	8.35
225-1/4″	.250	.125	.025	100′	69.48	20′	8.35
225-3/8″	.375	.187	.025	100′	77.40	16′	8.35
225-1/2″	.500	.250	.025	20′	17.47	14′	8.35
225-3/4″	.750	.375	.030	20′	23.33	12′	8.35
225-1″	1.000	.500	.035	20′	32.73	8′	8.35

PACKAGED ASSORTMENTS IN 6″ LENGTHS

Alpha No.	Size Range	No. Lengths/Box	Net/Box
FIT-225-MS1	1/16″–3/16″ (4 sizes)	5 per size (20 total)	$ 9.62
FIT-225-MS2	1/4″–3/4″ (4 sizes)	5 per size (20 total)	19.30

FIT-295 POLYOLEFIN TUBING

Tubing provides maximum strength at stress points such as solder joints, crimps, and terminations. **Ultimate Elongation:** 300%. **Longitudinal Shrinkage:** 5% nominal. **Environmental Resistance:** Inert to fungus; resistant to fuel, oil, solvents, acids, and alkalis; non-corrosive. Self-extinguishing. **Colors:** All sizes available in black and clear as well as one additional color as shown in table below.

Alpha No. FIT-	Color	Size, Inches: Min. I.D.*	Recov. I.D.†	Wall Thk.	4 Ft. Lgths.: Std. Pkg.	Pkg. Net	6″ Lgths.: Std. Pkg.	Pkg. Net
295-3/64″	Yellow	.046	.023	.020	100′	$ 52.73	20′	$8.61
295-1/16″	White	.063	.032	.020	100′	55.32	18′	8.61
295-3/32″	Blue	.093	.045	.020	100′	62.24	16′	8.61
295-1/8″	Red	.125	.063	.020	100′	66.60	14′	8.61
295-3/16″	Green	.187	.093	.025	100′	81.40	12′	8.61
295-1/4″	Slate	.250	.125	.025	100′	101.47	10′	8.61
295-3/8″	Brown	.375	.187	.030	100′	112.81	8′	8.61
295-1/2″	White	.500	.250	.030	20′	25.57	7′	8.61

FIT-300 IRRADIATED POLYOLEFIN TUBING

OUTER WALL SHRINKS . . . INNER WALL MELTS

Surface irradiated tubing has been developed to answer the need for easy-to-use, permanent encapsulation and jacketing material. Because only the outer wall of this tubing is irradiated, when heat is applied, only this outer wall shrinks. The inner wall, instead of shrinking, melts and the viscous plastic released by the heat, encapsulates the wire or component placed in the tubing. The pressure created by the outer wall shrinkage forces the melted plastic into every orifice, eliminating voids and resulting, when cooled, in a solid, homogenous molding. Alpha HG-1 hot air gun is recommended for heating tubing. However, excellent results may be achieved by use of an oven, hot liquids, soldering iron or even the flame of a match. **Ultimate Elongation:** 400% nominal. **Longitudinal Shrinkage:** 10% nominal. **Colors:** All colors available in black as well as one additional color as shown in table below.

Alpha No. FIT-	Black or Color	Size, Inches: Min. I.D.*	Recov. I.D.†	Wall Thk.	4 Ft. Lgths.: Std. Net	Pkg. Net	6″ Lgths.: Std. Pkg.	Pkg. Net
300-1/8″	Brown	.125	.023	.038	100′	$103.38	7′	$6.70
300-3/16″	Gray	.187	.060	.043	100′	126.42	6′	6.70
300-1/4″	White	.250	.080	.047	100′	157.29	5′	6.70
300-3/8″	Red	.375	.135	.050	100′	175.20	4′	6.70
300-1/2″	Blue	.500	.195	.055	20′	41.32	3′	6.70
300-3/4″	Yellow	.750	.313	.065	20′	63.79	2′	6.70
300-3/10″	Blue	.300	.050	.100	100′	359.25	2′	6.70

Alpha No. FIT-	Size, Inches: Min. I.D.*	Recov. I.D.†	Wall Thk.	4 Ft. Lengths: Std. Pkg.	Pkg. Net	6″ Lengths: Std. Pkg.	Pkg. Net
321-1/8″	.120	.040	.040	100′	$113.38	14′	$17.59
321-1/4″	.240	.080	.040	100′	172.69	10′	17.59
321-1/2″	.470	.160	.070	20′	45.30	7′	17.59
321-1″	.940	.320	.100	20′	92.46	4′	17.59
321-1 1/2″	1.57	.510	.100	20′	152.15	2.5′	17.59

*Before shrinking. †After shrinking. ‡Registered Du Pont trademark. §Registered Pennwalt trademark.

alpha Fit® Shrinkable Tubing

FIT-260 POLYOLEFIN TUBING
GREEN/YELLOW FOR GROUND IDENTIFICATION

Tubing formulated by dual-color extrusion to provide positive identification of ground wires or terminals in accordance with internationally accepted standards. Colors will not fade, smear, or rub off. Approved for use by the NFPA as a ground lead identification. **Ultimate Elongation:** 400%. **Longitudinal Shrinkage:** 5% nominal. **Water Absorption:** 0.1% max.

Alpha No.	Size, Inches			6 In. Lengths	
	Min. I.D.*	Recov. I.D.†	Wall Thk.	Std. Pkg.	Pkg. Net
FIT-260-⅛″	.140	.062	.024	14′	$11.93
FIT-260-¼″	.250	.110	.024	10′	11.93
FIT-260-⅜″	.344	.140	.026	8′	11.93
FIT-260-½″	.437	.185	.027	7′	11.93

FIT-350 IRRADIATED KYNAR TUBING

High-temperature, thin-wall tubing with excellent cut-through and abrasion resistance. Semi-rigid, polyvinylidene fluoride. The transparency permits easy inspection of covered components. **Ultimate Elongation:** 300%. **Longitudinal Shrinkage:** 5% nominal. **Water Absorption:** 0.5% max. **Color:** Clear.

Alpha No. FIT-	Dimensions, Inches			4 Ft. Lengths		6 In. Lengths	
	Min. I.D.*	Recov. I.D.†	Wall Thk.	Std. Pkg.	Pkg. Net	Std. Pkg.	Pkg. Net
350-3/64″	.046	.023	.010	100′	$ 64.90	16′	$10.97
350-1/16″	.063	.031	.010	100′	70.65	14′	10.97
350-3/32″	.093	.046	.010	100′	82.90	12′	10.97
350-⅛″	.125	.062	.010	100′	90.46	10′	10.97
350-3/16″	.187	.093	.010	100′	140.75	8′	10.97
350-¼″	.250	.125	.012	100′	177.23	6′	10.97
350-⅜″	.375	.187	.012	100′	232.98	4′	10.97
350-½″	.500	.250	.012	20′	69.29	2′	10.97
350-¾″	.750	.375	.017	20′	127.42	1′	10.97
350-1″	1.000	.500	.019	20′	234.27	.5′	10.97

PACKAGED ASSORTMENTS IN 6″ LENGTHS

Alpha No.	Size Range	No. Lengths/Box	Net/Box
FIT-350-MS1	3/64″–3/16″ (5 sizes)	5 per size (25 total)	$ 8.13
FIT-350-MS2	¼″–1″ (5 sizes)	5 per size (25 total)	46.69

FIT-400 TEFLON HEAT SHRINKABLE TUBING

Requires less heat for use with heat-sensitive components, solid-state devices, solder joints. **Ultimate Elongation:** 300%. **Longitudinal Shrinkage:** 10% nominal. **Color:** Clear.

Alpha No.	Size, AWG	Expanded Inside Dia.	Recovered Inside Dia.	Nom. Wall Thickness	Net/100′ Pkg.
FIT-400-24	24	.032″	.027″	.008″	$ 54.11
FIT-400-22	22	.037″	.032″	.008″	56.61
FIT-400-20	20	.046″	.039″	.008″	59.04
FIT-400-18	18	.061″	.049″	.008″	61.54
FIT-400-16	16	.076″	.061″	.009″	68.89
FIT-400-14	14	.093″	.072″	.009″	71.37
FIT-400-12	12	.116″	.089″	.009″	73.82
FIT-400-10	10	.142″	.114″	.010″	79.93
FIT-400-9	9	.159″	.124″	.010″	109.24
FIT-400-8	8	.181″	.143″	.010″	114.40
FIT-400-7	7	.198″	.158″	.011″	135.57
FIT-400-6	6	.227″	.180″	.011″	142.26
FIT-400-5	5	.249″	.198″	.011″	148.84
FIT-400-4	4	.292″	.226″	.011″	157.25
FIT-400-3	3	.312″	.249″	.011″	183.07
FIT-400-2	2	.367″	.280″	.012″	196.07
FIT-400-1	1	.400″	.311″	.012″	209.88
FIT-400-0	0	.442″	.349″	.012″	233.24

PACKAGED ASSORTMENTS IN 6″ LENGTHS

Alpha No.	Size Range	No. Lengths/Box	Net/Box
FIT-400-MS1	24″–14″ (6 sizes)	5 per size (30 total)	$ 7.42
FIT-400-MS2	12″–6″ (6 sizes)	5 per size (30 total)	13.07
FIT-400-MS3	5″–0″ (6 sizes)	3 per size (18 total)	13.52

FIT-500 SHRINKABLE TEFLON TUBING

FIT-500 shrinkable tubing forms a tight, flexible protective covering for wires and electronic components; it is recommended for use as a mechanical shield and for friction-proofing. Resists chemical and corrosive agents; is non-burning, non-corrosive. Electrical characteristics remain stable throughout electrical range. **Ultimate Elongation:** 600% max. **Longitudinal Shrinkage:** 10% nominal. **Water Absorption:** 0.01% max. **Color:** Natural.

Alpha No.	Size, Inches			2 Ft. Lengths	
	Min. I.D.*	Recov. I.D.†	Wall Thk.	Std. Pkg.	Pkg. Net
FIT-500-30	.030	.022	.009	100′	$121.90
FIT-500-28	.035	.025	.009	100′	119.73
FIT-500-26	.040	.028	.010	100′	117.54
FIT-500-24	.050	.032	.010	100′	94.03
FIT-500-22	.055	.037	.010	100′	95.56
FIT-500-20	.060	.044	.012	100′	96.84
FIT-500-18	.076	.052	.012	100′	102.83
FIT-500-16	.093	.063	.012	100′	108.13
FIT-500-14	.121	.078	.012	100′	111.66
FIT-500-12	.153	.096	.012	50′	61.54
FIT-500-10	.191	.116	.012	50′	71.08
FIT-500-8	.240	.144	.015	50′	122.83
FIT-500-6	.302	.178	.015	20′	56.85
FIT-500-4	.370	.224	.015	20′	67.68
FIT-500-2	.430	.278	.015	20′	81.14
FIT-500-0	.470	.347	.015	20′	98.02

*Before shrinking. †After shrinking.

PACKAGED ASSORTMENTS IN 6″ LENGTHS

Alpha No.	Size Range	No. Lengths/Box	Net/Box
FIT-500-MS1	30″–20″ (6 sizes)	5 per size (30 total)	$ 9.94
FIT-500-MS2	18″–10″ (5 sizes)	5 per size (25 total)	9.05
FIT-500-MS3	8″–0″ (5 sizes)	3 per size (15 total)	16.29

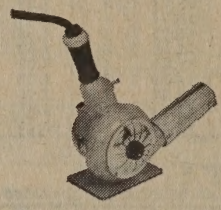
FIT-600 IRRADIATED NEOPRENE TUBING

A highly flexible, irradiated neoprene tubing with outstanding abrasion resistance properties. Widely used as a cable jacketing and harness material where maximum abrasion protection is required. **Ultimate Elongation:** 225%. **Longitudinal Shrinkage:** 6% nominal. **Color:** Black.

Alpha No.	Size	Min. I.D. Before Shrinkage	Recov. I.D. After Shrinkage	Nom. Wall Thk.	Net per Pkg.	
					25′	100′
FIT-600-¼	¼″	.250″	.143″	.035″	$ 60.35	$236.84
FIT-600-⅜	⅜″	.375″	.214″	.040″	72.22	283.20
FIT-600-½	½″	.500″	.286″	.048″	80.29	314.93
FIT-600-⅝	⅝″	.625″	.375″	.052″	90.25	353.98
FIT-600-¾	¾″	.750″	.428″	.057″	100.38	393.78
FIT-600-⅞	⅞″	.875″	.500″	.065″	112.23	440.16
FIT-600-1	1″	1.00″	.570″	.070″	122.45	480.23
FIT-600-1¼	1¼″	1.25″	.714″	.087″	169.72	665.90
FIT-600-1½	1½″	1.50″	.857″	.095″	198.34	777.77
FIT-600-1¾	1¾″	1.75″	1.00″	.107″	242.47	950.88
FIT-600-2	2″	2.00″	1.14″	.110″	282.04	1106.08
FIT-600-3	3″	3.00″	1.71″	.125″	430.52	852.50*

*Pkg. of 50 Ft.

HEAT GUNS



HG-1

FG-2

The recommended tool for shrinking FIT tubing. A flameless, quiet-operating hot air torch that may be used for portable operations or secured permanently to a bench by means of a mounting bracket. Heavy-duty construction. Adjustable turbo fan air intake to control temperature and a double jacketed housing of diecast aluminum. With neoprene-jacketed 3-wire cord and plug and adapter for 2-prong receptacle. Motor for 115 VAC/DC. Length, 11″ overall.

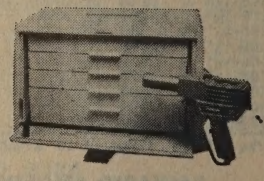
Alpha No. HG-1 Heat Gun—Temp. up to 260° C. Net . **$70.68**

Alpha No. HG-2 Heat Gun—Temp., 750°–400° C. Net. **$84.68**

Alpha No. FG-2 Heat Gun—Portable unit for temperatures from 260° C to 427° C depending upon the nozzle used. Complete with three nozzles and two tubing reflectors. Net Each..... **$79.43**

FIT-KITS—IDEAL R & D, OR PROTOTYPE SAMPLERS

FIT-KIT-1



FIT-KIT-4

FIT-KIT-1—Contains more than 70 6″ lengths of 7 widely used types of FIT Tubing in a variety of colors. Compartmented clear plastic box allows easy storage and quick identification. Includes lengths of FIT-105, FIT-221, FIT-295, FIT-300, FIT-350, FIT CAPS AND FIT MARKERS. Size, 11″ w. x 6½″ d. x 2″ h. Net Each..... **$34.59**

FIT-KIT-2—Contains all items in FIT-KIT-1, plus 6″ lengths of FIT-321, FIT-400, FIT-500, FIT-600, FIT-700, and 1″ cut pieces of FIT-750. Kit is complete engineering, prototype, or laboratory inventory of all Alpha FIT-Tubing. Consists of two 11″ w. x 6½″ d. x 2″ h. compartmented clear plastic boxes. Net Each..... **$62.30**

FIT-KIT-4—Contains over 200 6″ lengths of 12 types of FIT tubing, 400 FIT Markers, 39 Fit Caps, and FG-2 heat gun with accessories all in high impact plastic carrying case. Net Each..... **$291.48**

FIT-KIT-5—Same as FIT-KIT-4, except without FG-2 heat gun. Net Each..... **$204.21**

PRICES LISTED ARE FOR GUIDANCE ONLY

alpha Insulation Tubing and Braid

ALPHA POLYVINYLCHLORIDE LOC-TRAC ZIPPER TUBING

All-purpose, easy-to-use jacketing material; zips on in seconds without disconnecting or disturbing connections. Will not pop open even when bent into a U-shape. Does not need sealant nor adhesive. Track thickness when closed, .150", dielectric strength, 759V/mil; tensile strength, 3810 psi; ultimate elongation, 255%; operating temperature, −86 to +106° C; fungus proof; self-extinguishing. One metal slider with every 25 feet of tubing; additional sliders, AB-395, may be ordered at 10c each. **ZIP-41 Type:** MIL-I-631D, Grade C materials. All-purpose type. Wall thickness, .020". Clear or black. **ZIP-41M Type:** MIL-I-631D, Grade C materials. Wall thickness, .040" for heavy-duty use. Clear or black. **ZIP-60 Type:** Aluminum foil laminated between two sheets of polyvinyl. Wall thickness, .040". Silver-gray color.

Alpha No.	Net 100'*	Alpha No.	Net 100'*	Alpha No.	Net 25'	Net 50'	Net 100'*
ZIP-41M-½"	$168.01	ZIP-60-½"	$204.14	ZIP-41-½"	$32.85	$64.74	$127.38
ZIP-41M-⅝"	179.33	ZIP-60-⅝"	218.36	ZIP-41-⅝"	34.09	67.14	132.26
ZIP-41M-¾"	190.71	ZIP-60-¾"	232.60	ZIP-41-¾"	35.36	69.69	137.29
ZIP-41M-⅞"	201.96	ZIP-60-⅞"	246.84	ZIP-41-⅞"	36.62	72.15	142.15
ZIP-41M-1"	215.23	ZIP-60-1"	263.46	ZIP-41-1"	38.05	74.99	147.84
ZIP-41M-1⅛"	226.72	ZIP-60-1⅛"	277.87	ZIP-41-1⅛"	39.34	77.52	152.85
ZIP-41M-1¼"	232.14	ZIP-60-1¼"	284.89	ZIP-41-1¼"	39.85	78.63	155.08
ZIP-41M-1½"	254.83	ZIP-60-1½"	313.37	ZIP-41-1½"	42.33	83.57	164.95
ZIP-41M-1¾"	277.38	ZIP-60-1¾"	327.61	ZIP-41-1¾"	44.83	88.52	174.84
ZIP-41M-2"	299.98	ZIP-60-2"	370.31	ZIP-41-2"	47.29	93.43	184.53

Write for prices on larger sizes. *Larger put-ups available.

ALPHA POLYVINYLCHLORIDE ZIPPER TUBING

All-purpose, easy-to-use jacketing material; zips on in seconds without disconnecting or disturbing connection. Track thickness (when closed), .095"; dielectric strength, 759 V/mil; tensile strength, 3,810 psi; ultimate elongation, 255%; operating temperature, upper limit, +106° C; lower limit, −86° C; fungus proof; self extinguishing; lateral pull strength (permanently sealed) 59.8 lb. in. One metal slider supplied with every 25 ft.; additional sliders, AB-295, may be ordered at 10c each. **ZIP-31M Type:** MIL-I-631D, Grade C materials. Temp., −20° C to +105° C. Wall thickness, .040"; for heavy duty construction. Clear or black. **ZIP-50 Type:** Aluminum foil laminated between two sheets of polyvinyl. Wall thickness, .040". Silver-gray color. **ZIP-31 Type:** MIL-I-631D, Grade C materials. All-purpose type. Wall thickness .020". Temp., −20° C to +105° C. Clear or black.

Alpha No.	Net 100'*	Alpha No.	Net 100'*	Alpha No.	Net 25'	Net 50'	Net 100'*
ZIP-31M-¼"*	$232.14	ZIP-50-¼"*	$159.09	ZIP-31-¼"*	$28.92	$56.93	$112.00
ZIP-31M-⅜"*	139.77	ZIP-50-⅜"*	168.54	ZIP-31-⅜"*	29.69	58.49	115.13
ZIP-31M-½"	168.01	ZIP-50-½"	204.14	ZIP-31-½"	32.85	64.74	127.38
ZIP-31M-⅝"	179.33	ZIP-50-⅝"	218.36	ZIP-31-⅝"	34.09	67.14	132.26
ZIP-31M-¾"	190.71	ZIP-50-¾"	232.60	ZIP-31-¾"	35.36	69.69	137.29
ZIP-31M-⅞"	201.96	ZIP-50-⅞"	246.84	ZIP-31-⅞"	36.62	72.15	142.15
ZIP-31M-1"	215.23	ZIP-50-1"	263.46	ZIP-31-1"	38.05	72.15	147.84
ZIP-31M-1⅛"	226.74	ZIP-50-1⅛"	277.87	ZIP-31-1⅛"	39.34	77.52	152.85
ZIP-31M-1¼"	232.14	ZIP-50-1¼"	284.89	ZIP-31-1¼"	39.85	78.63	155.08
ZIP-31M-1½"	254.83	ZIP-50-1½"	313.37	ZIP-31-1½"	42.33	83.57	164.95
ZIP-31M-1¾"	277.38	ZIP-50-1¾"	327.61	ZIP-31-1¾"	44.83	88.52	174.84
ZIP-31M-2"	299.98	ZIP-50-2"	370.31	ZIP-31-2"	47.29	93.43	184.53

*Write for prices on larger put-ups. *Cannot be closed with slider; must be done manually.

EXTRUDED TEFLON TUBING IN FRACTIONAL SIZES

An extruded Teflon tubing with the same specifications as above, but available only in fractional sizes. Stock color is natural. Packaged as a 50' coil of random lengths.

Alpha No. & Size	Nom. I.D. (In.)	Wall Thickness (In.)	Net Each 50'
TFT-300-⅛"	.125	.020	$ 56.25
TFT-300-3/16"	.192	.020	76.72
TFT-300-¼"	.255	.020	94.59
TFT-300-5/16"	.321	.020	122.76
TFT-300-⅜"	.387	.025	181.57
TFT-300-7/16"	.451	.025	204.59
TFT-300-½"	.515	.025	232.72
TFT-300-⅝"	.643	.025	322.23
TFT-300-¾"	.772	.030	442.41
TFT-300-⅞"	.902	.035	537.02
TFT-300-1"	1.030	.035	667.45
TFT-300-1⅛"	1.287	.040	969.21
TFT-300-1½"	1.550	.040	1153.33

TINNED COPPER FLAT BRAID TO MIL SPEC QQ-W-343/S, ASTM-B-33

For shielding insulated wire and cable, bonding and ground straps. For applications requiring extreme flexibility (pigtails, component leads, connecting moving parts, etc). Very fine, soft annealed tinned copper wires, braided and rolled flat. Strand size, 36, except Nos. 1239 thru 1242/4 which are 30 AWG. Also available in spool of 500' except: 1240–1242/4; prices on request.

Alpha No.	Width In.	Net, Spool 1000'	Net, Spool 100'	Alpha No.	Width In.	Net per Spool 1000'	Net per Spool 100'
1221	.025	$151.95	$18.60	1233	⅝	$ 794.08	$ 83.97
1222	1/32	162.54	19.95	1234	¾	1827.07	189.01
1223	3/64	173.46	21.13	1235	1	1959.97	202.30
1224	1/32	203.70	23.47	1239	1⅜	2230.74	229.39
1229	⅛	227.56	26.47	1240	1½	.....	321.40
1230	3/16	253.30	28.83	1241	1¾	.....	642.84
1231	¼	353.52	39.12	1242	2	.....	806.79
1232	⅜	582.91	62.62	1242/4	3	.....	1556.52
1233/2	½	751.62	79.38				

EXTRA LARGE TINNED COPPER TUBULAR BRAID

Tubular braids manufactured to standards of QQ-B-575 although theses sizes are notlisted in the specification. Each strand 30 AWG.

Alpha No.	Nom. I.D.	Net, Spool 100'	Net, Spool 50'	Alpha No.	Nom. I.D.	Net, Spool 100'	Net, Spool 50'
2177	⅞"	$292.09	$151.78	2180	1¼"	$387.67	$197.10
2178	1"	329.65	167.68	2181	1⅜"	450.16	228.15
2179	1⅛"	345.39	178.72	2182	1½"	484.03	244.65

SPIRAL WRAP TUBING

The SW Series tubing simplifies wire harnessing, cabling, and bundling work. The tubing clings tightly to the wire or cable being bundled, yet is flexible and simple to apply. Available in: polyethylene, meeting MIL-I-631D; flame-resistant polyethylene, meeting MIL-E-500F; nylon, meeting MIL-M-20693A; Teflon, meeting MIL-I-22129C; and ultraviolet-resistant polyethylene for use outdoors.

Alpha No.	Material	Max. Dia. Wire/Cable (In.)	Nom. Wall Thickness (In.)	Pitch (In.)	Color	Net 25'*
SW-1		½	.031	.250		$ 1.41
SW-2		2	.046	.375		2.62
SW-3	Poly-	3	.052	.437	Natural	4.18
SW-4	ethylene	4	.060	.562		5.04
SW-5		5	.065	.750		9.05
SW-6		6	.095	1.000		20.44
SW-10		½	.031	.250		3.03
SW-11	Flame	2	.046	.375		6.70
SW-12	Resistant	3	.052	.437	White	11.95
SW-13	Poly-	4	.060	.562		14.61
SW-14	ethylene	5	.065	.750		25.25
SW-20		½	.016	.250		3.86
SW-21	Nylon	2	.025	.375	Natural	6.83
SW-22		3	.035	.437		15.32
SW-23		4	.035	.562		19.86
SW-30		½	.030	.250		32.20
SW-31		2	.030	.375		55.95
SW-32	Teflon	2½	.030	.437	Natural	90.32
SW-33		3	.030	.562		121.62
SW-34		3½	.030	.750		210.88
SW-35		4	.040	1.000		334.28
SW-40		½	.030	.250		1.47
SW-41	Ultra-	2	.045	.375		3.09
SW-42	violet	3	.050	.437		4.39
SW-43	Resistant	4	.060	.562	Black	5.72
SW-44	Poly-	5	.065	.750		9.99
SW-45	ethylene	6	.095	1.000		22.60

*Larger put-ups available.

TINNED COPPER TUBULAR BRAID TO MIL SPEC QQ-B-575

Maximum shielding against electrostatic interference for wires, cables, etc. Woven, tinned copper braid fully round per MIL Spec QQ-B-575. Each strand is soft, drawn, tinned copper wire, 36 AWG except as noted. Self-supporting to maintain the round shape. Shielding coverage 95%.

Alpha No.	Nom. I.D.	Net, Spool 250'	Net, Spool 100'	Alpha No.	Nom. I.D.	Net, Spool 100'
2160	1/32"	$ 30.55	$14.37	2171	¼"	$116.22
2162	1/16"	63.15	30.33	2171/1†	9/32"	121.23
2163	5/64"	74.71	35.20	2172	⅜"	119.77
2164	7/64"	100.53	46.44	2173†	7/16"	197.59
2166	⅛"	108.60	48.48	2174	½"	164.16
2167	5/32"	194.50	80.22	2175†	9/16"	303.18
2168	11/64"	139.90	61.71	2175/1†	21/32"	464.71
2170*	13/64"	.....	85.90	2176	25/32"	222.24

*Braid 34 AWG. †Braid 30 AWG.

alpha INSULATION TUBING, LACING TAPE, AND BUS BAR

ALPHA POLYVINYLCHLORIDE PVC-105 MIL-I-631D PLASTIC TUBING

All-purpose, economical tubing is compounded with first quality, non-migratory resinous type plasticizers; designed to counteract chemical and environmental degradation. Rated for temperatures as high as 105° C with high dielectric strength. No loss in tensile strength or flexibility; resistant to abrasion. Retains its flexibility which permits it to cling to and protect irregular shapes. Meets MIL-I-631D, Type F, Form U, Grade C, Class I, Category 1. **Dielectric Strength:** 800 V/mil. **Tensile Strength:** 2700–3300 psi. **Min. Volume Resis.:** 10^{11} ohm/cm. **Low Temperature Flexibility:** −20° C. **Specify Color:** #24 thru #2: Clear, black, white, yellow, red or green; #1 thru 1": Clear, black or white; 1⅛" thru 2½": Clear or black. **To Order:** Add gauge size to prefix **PVC-105/**, e.g., **PVC-105/24.**

Ga. Size	Nom. I.D., In.	Net per Spool of 100′	500′	1000′
24	.022	$5.41	.....	$31.01
22	.027	5.41	.....	31.01
20	.034	5.87	.....	33.68
19	.038	5.87	.....	33.68
18	.042	6.35	.....	36.45
17	.047	6.35	.....	36.45
16	.053	6.78	.....	39.12
15	.059	6.78	.....	39.12
14	.066	5.93	$20.64	.....
13	.076	5.93	20.64	.....
12	.085	6.32	22.01	.....
11	.095	6.32	22.01	.....
10	.106	7.36	25.81	.....
9	.118	8.88	31.01	.....

*Larger put-ups available.

Ga. Size	Nom. I.D., In.	Net Price per Put-Up* Coil of 100′	Coil of 250′	Spool of 500′
8	.133	$ 9.61	.....	$33.68
7	.148	10.34	.....	36.45
6	.166	11.07	.....	38.85
5	.186	11.83	.....	41.56
4	.208	12.59	$22.01	.....
3	.234	13.32	23.38	.....
2	.263	14.80	25.96	.....
1	.294	16.63	29.21	.....
0	.330	18.54	32.53	.....
5/16″	.312	21.83	38.24	.....
3/8″	.375	25.90	45.42	.....
7/16″	.438	20.76	.....	.....
1/2″	.500	23.29	.....	.....

Ga. Size	Nom. I.D. In.	Net Price per Put-Up* Coil of 50′	Coil of 100′
9/16″	.562	.....	$30.86
5/8″	.625	.....	33.68
3/4″	.750	$ 30.10	.....
7/8″	.875	34.29	.....
1″	1.000	47.15	.....
1 1/8″	1.125	62.90	.....
1 1/4″	1.250	66.67	.....
1 3/8″	1.375	71.74	.....
1 1/2″	1.500	89.19	.....
1 3/4″	1.750	124.09	.....
2″	2.000	157.35	.....
2 1/4″	2.250	190.03	.....
2 1/2″	2.500	205.47	.....

EXTRUDED TEFLON TUBING

Teflon tubing is completely inert and has zero moisture absorption. The tubing is rated for continuous operation from −65° C to +260° C and retains toughness and flexibility throughout this range. **Dielectric Strength:** 1400V/mil. **Dielectric Constant:** 2.2. Conforms to MIL-I-22129C, AMS 3651B, 3655, 3653, and Fed. Spec. P-403A.

AWG Wire Size	Nom. I.D. (In.)	Wall Thickness TFT-200/	TFT-250/	Net Each TFT-200/ 100′*†▲	TFT-250/ 100′*■
30	.012	.009	.....	$ 15.28	.....
28	.015	.009	.....	13.43	.....
26	.018	.010	.....	12.05	.....
24	.022	.010	.012	13.20	$ 16.17
22	.027	.010	.012	15.49	17.96
20	.034	.012	.016	18.74	24.67
19	.038	.012	.016	20.17	26.86
18	.042	.012	.016	21.89	29.01
17	.047	.012	.016	23.95	31.66
16	.053	.012	.016	26.18	33.55
15	.059	.012	.016	26.86	34.98
14	.066	.012	.016	28.79	37.74
13	.076	.012	.016	32.58	42.01
12	.085	.012	.016	35.04	45.35
11	.095	.012	.016	38.80	50.38
10	.106	.012	.016	41.93	55.19
9	.118	.015	.020	59.48	79.05
8	.133	.015	.020	65.73	86.72
7	.148	.015	.020	71.85	93.52
6	.166	.015	.020	79.96	101.00
5	.186	.015	.020	89.95	111.26
4	.208	.015	.020	98.45	120.95
3	.234	.015	.020	109.48	138.38
2	.263	.015	.020	121.85	151.92
1	.294	.015	.020	133.75	169.04
0	.330	.015	.020	150.56	190.25

To complete the order number, add wire size to end of type number. *Other put-ups and discounts upon request. †Random lengths packed in 100′ coil. ■Stock color is natural only. ▲Stock colors are natural and black.

FLAT BRAIDED TAPE

Nom. Thick.: .014″ (LC-134 is .010″, LC-162 is .012″). **Nom. Width:** 3/32″ (LC-134 is 1/16″). **Tensile Strength:** 50 lbs. (LC-134 is 30 lbs.). **Material:** Nylon (LC-162 is Dacron). **Finish:** Per MIL-T-713A except: LC-132 is synthetic rubber-like resin, melting point over 190° F; LC-140, non-slip fungistatic synthetic rubber; LC-143, "wax free" thermoplastic synthetic resin, melting point over 350° F. L-C136 meets MIL-T-713A, Type P, Class II.

Alpha No.	Color	Standard Put-Up	Net per Put-Up
LC-113 (Nylon)	White	½ lb. on spool	$10.52
	Black	½ lb. on spool	12.84
LC-114 (Nylon)	White	½ lb. on spool	10.52
	Black	½ lb. on spool	12.84
LC-115 (Nylon)	White	½ lb. on spool	10.52
	Black	½ lb. on spool	12.84
LC-132 (Nylon)	White	500 yds. on tube	19.02
	Black	500 yds. on tube	21.30
LC-134 (Nylon)	White	500 yds. on spool	14.14
	Black	500 yds. on spool	20.16
LC-136 (Nylon)	White	500 yds. on spool	19.48
	Black	500 yds. on spool	22.66
LC-140 (Nylon)	White	500 yds. on spool	18.12
	Black	500 yds. on spool	20.40
LC-143 (Nylon)	White	500 yds. on spool	18.12
	Black	500 yds. on spool	20.40
LC-162 (Dacron)	White	500 yds. on spool	18.12
	Black	500 yds. on spool	20.40

BRAIDED FIBERGLASS SLEEVING

This series of fiberglass sleeving is the toughest and most pliable of insulating materials and is formulated to provide the maximum in electrical characteristics, chemical resistance, heat stability and abrasion resistance. Tubing is constructed from an inorganic, woven fiberglass sleeving. Ends will not fray when cut. **Type PIF-240:** plain sleeving not coated, usable to 240° C.; **Type PIF-150:** impregnated with acrylic resin, usable to 155° C, conforms to MIL-I-3190C; **Type PIF-200:** coated with silicone rubber, usable to 200° C., conforms to MIL-I-3190C; **Type PIF-130:** impregnated with vinyl plastic, usable to 130° C, conforms to MIL-I-3190B. Type PIF-130 is black; others are natural.

AWG Wire Size or Dia.	Nom. I.D. (in.)	Net Each* PIF-130-100′	PIF-150-100′	PIF-200-100′	PIF-240-100′
24	.022	$ 10.72	$ 12.61	$ 33.13	$ 6.94
22	.027	10.72	13.44	33.32	6.94
20	.034	11.15	13.89	33.98	7.77
18	.042	11.60	14.10	35.70	8.16
17	.047	.....	14.10	36.82	8.16
16	.053	12.00	14.59	37.46	8.35
15	.059	.....	15.06	37.84	8.81
14	.066	13.59	15.27	39.58	8.81
13	.076	.....	16.25	40.67	8.94
12	.085	13.59	16.56	42.83	9.20
11	.095	.....	17.75	44.77	9.79
10	.106	14.99	18.45	47.16	10.05
9	.118	.....	18.99	49.06	10.81
8	.133	16.63	20.94	52.77	11.47
7	.148	.....	21.92	56.44	12.55
6	.166	19.83	23.30	60.37	13.38
5	.186	.....	25.29	66.41	15.01
4	.208	24.15	30.13	74.03	16.31
3	.234	.....	33.04	83.10	18.60
2	.263	30.24	37.86	98.24	20.92
1	.294	.....	43.09	112.53	23.64
0	.338	40.52	50.82	131.58	27.58
3/8″	.387	51.50	67.36	172.52	35.36
7/16″	.450	67.93	88.74	227.63	46.61
1/2″	.512	85.79	116.39	265.77	60.65
5/8″	.640	103.19	140.75	312.25	72.97
3/4″	.768	126.74	171.14	.....	89.70
7/8″	.893	155.04	210.51	.....	109.34
1″	1.018	187.13	249.23	.....	133.21

To complete the order number, add wire size or diameter at end of type number.
*Other put-ups and discounts are available upon request.

BUS BAR TINNED COPPER

Solid wire for winding of coils, antennas, point-to-point wiring, bus-bar, component leads, ground wire. Pure electrolytic soft, drawn, solid copper annealed and tinned for quick soldering, MIL-W-3861 Type S, QQ-W-343 Type S and ASTM-B-33 specifications.

Alpha No.	Cond. Size	Circ. Mil Area	Nom. O.D.	Net per Spool 1000′	100′
299/3	30AWG	100.5	.010″	$ 12.60	$ 3.88
299/2	28AWG	159.8	.013″	13.38	3.88
299/1	26AWG	254.1	.016″	15.25	3.99
299	24AWG	404.0	.020″	16.62	4.10
298	22AWG	642.4	.025″	20.34	4.30
297	20AWG	1022	.033″	27.85	5.11
296	18AWG	1642	.040″	40.21	6.64
295	16AWG	2583	.051″	63.16	9.19
286	14AWG	4107	.065″	93.24	13.89
289	12AWG	6530	.082″	139.08	20.75
292	10AWG	10380	.103″	327.34	43.39
292/8	8AWG	16510	.129″	508.54	69.03
292/6	6AWG	26250	.162″	818.44	100.00

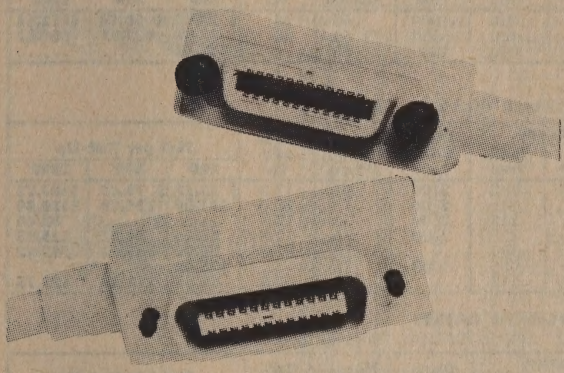
PRICES LISTED ARE FOR GUIDANCE ONLY

IEEE 488 (GPIB) INTERFACE BUS CABLES

Designed for compatibility with the IEEE 488 interface for the interconnection of digital testing and recording instruments. The cable consists of 6 #26 AWG twisted pairs, 10 #26 AWG single conductors, and 1 #24 AWG single conductor. The cable core is covered by a braided, tinned copper shield and a gray PVC jacket. Type No. 5910 is double shielded for added RFI protection.

Alpha No.	Nom. O.D.	Net per Spool 100′	500′	1000′
5900	.350″	$100.00	$345.48	$690.98
5910	.442″	128.97	518.22	1036.47

MOLDED ASSEMBLIES



Alpha provides pretested molded assemblies utilizing the 5900 or 5910 cable and the IEEE standard 488 24-pin connector.

Alpha No.	Length Meters	Feet	Net Each, Lots of 1-49	50 Up
5900/1	1	3.3	$ 64.62	$ 42.83
5900/2	2	6.6	69.45	46.35
5900/3	3	9.9	73.95	47.55
5900/4	4	13.1	77.25	54.26
5900/8	8	26.2	92.63	69.53
5900/12	12	39.4	123.53	101.03
5900/16	16	52.5	147.48	108.30
5910/1	1	3.3	96.93	64.25
5910/2	2	6.6	104.18	69.53
5910/3	3	9.9	110.93	71.33
5910/4	4	13.1	115.83	81.39
5910/8	8	26.2	138.95	104.30
5910/12	12	39.4	185.30	151.55
5910/16	16	52.5	221.22	162.45

MULTIPAIR FOIL SHIELDED DATA CABLE

Conductors are #24 AWG (7/32), annealed, tinned copper. The shield is aluminum/polyester foil with a stranded, tinned copper drain wire. The jacket is gray PVC with foot markers.

Alpha No.	No. of Pairs	Nom. O.D.	Net per Spool 100′	500′	1000′
UL STYLE 2464					
5471	1	.156″	$ 11.29	$ 46.33	$ 95.47
5472	2	.222″	20.50	84.23	168.45
5473	3	.232″	26.73	114.21	221.71
5474	4	.252″	34.45	146.50	284.38
5475	5	.295″	44.29	183.14	355.51
5476	6	.295″	51.10	204.78	421.97
5477	7	.300″	58.37	241.82	469.41
5478	8	.330″	64.15	274.25	548.51
5479	9	.340″	71.58	306.15	594.30
5480	10	.380″	81.40	337.44	663.75
5480/15	15	.425″	118.96	495.72	962.28
5480/19	19	.450″	150.48	627.30	1241.25
5480/25	25	.530″	188.08	809.37	1569.65
5480/50	50	.715″	371.40	1548.86	3135.00
UL STYLE 2344					
5590	5	.350″	$ 152.83	$ 697.17	$1174.81
5591	7	.360″	173.88	793.75	1335.73
5592	12	.450″	247.09	1126.95	1891.05
5593	15	.490″	313.87	1429.50	2395.45
5594	19	.510″	355.26	1618.35	2710.15
5595	27	.580″	479.23	2181.97	3649.47
5596	37	.645″	639.93	2912.19	4866.49
5597	48	.717″	796.86	3625.74	6055.71
5598	60	.765″	1015.54	4619.71	7712.40

ALPHA-BYTE™ DATA CABLE

Cellular polypropylene insulated cable is applicable wherever precision audio, pulse, or RF signals must be transmitted with low distortion, high speed and high data rates. Usable for external interconnection of computer or electronic point-of-sale equipment in areas where high levels of noise interference are expected. Conductors are paired and shielded with aluminum/Mylar/aluminum tape in Type 6072 and with aluminum foil in all other types. A stranded tinned copper drain wire is provided. Outer jacket is gray PVC. **Characteristic Impedance:** Type 6072, 150 ohms; other, 100 ohms. **Capacitance:** Type 6072, between conductors of a pair—8.7 pF/ft; from cond. to shield and all other conductors —15.9 pF/ft; Other Types, between conductors of a pair—12.5 pF/ft; from cond. to shield and all other conductors—22 pF/ft. **Voltage Rating:** 300 V, suggested. UL Listed. Type 6072 is UL Style 2668; Type 6079/27 is UL Style 2490; all others are UL Style 2493.

Alpha No.	No. Pairs	Strand	Nominal Jacket	O.D.	Net per Spool 100′	500′	1000′
6072†	2	Solid	.035″	.420″	$ 48.55	$ 231.18	$ 462.37
6073	3	7/32	.048″	.350″	38.17	172.81	345.63
6076	6	7/32	.048″	.460″	77.15	349.94	699.88
6079	9	7/32	.065″	.570″	113.16	515.30	1030.59
6079/11	11	7/32	.065″	.610″	138.77	632.66	1265.31
6079/12	12	7/32	.065″	.630″	144.71	659.34	1318.68
6079/15	15	7/32	.065″	.700″	184.29	839.97	1679.94
6079/17	17	7/32	.065″	.730″	207.97	947.43	1893.38
6079/19	19	7/32	.065″	.740″	237.38	1081.08	2160.68
6079/27	27	7/32	.087″	.920″	347.46	1582.02	3162.51

†No. 22 AWG; all others No. 24 AWG.

MULTIPAIR CABLE—OVERALL SHIELDED UL STYLE 2464, 80° C, 300 V

Conductors are #22 tinned copper solid with color coded PVC insulation. Conductors are paired and shielded overall with wrapped, Mylar supported, aluminum foil shield. Outer jacket is gray PVC. **Temperature Range:** −20° C to +80° C. **Voltage Rating:** 300 V. Cable passes UL VW-1.

Alpha No.	No. Pairs	Strand	Nominal Jacket	O.D.	Net per Spool 100′	500′	1000′
5902	2	Solid	.032″	.224″	$ 14.26	$ 61.12	$ 122.25
5905	4	Solid	.032″	.265″	24.28	103.12	206.24
5906	6	Solid	.035″	.321″	29.53	129.79	267.44
5909	9	Solid	.037″	.373″	42.76	192.78	385.56
5909/15	15	Solid	.040″	.437″	74.51	342.57	670.05
5909/19	19	Solid	.040″	.475″	61.28	421.52	843.03
5909/27	27	Solid	.045″	.571″	120.73	573.75	1113.75

MULTIPAIR DATA CABLES

Paired construction cables with color coded, high density, polyethylene or polypropylene insulation. Shields are polyester supported aluminum foil with the aluminum directed inwards. Type 2468 has an additional overall shield. Stranded, tinned copper drain wire. Types 2464 thru 2468 use common axis cabling.

UL STYLE 2106, 60° C, 600 VOLTS

Alpha No.	No. Pairs	AWG	Strand	Nom. O.D.	Net per Spool 100′	500′	1000′
2471	1	16	19/29	.304″	$23.69	$112.79	$225.57
2472	1	14	19/27	.340″	36.10	171.89	343.78
2473	1	12	19/25	.400″	55.81	265.76	525.71

COMPOSITE TWO PAIR—ONE PAIR SHIELDED

Alpha No.	No. Pairs	AWG	Strand	Nom. O.D.	Net per Spool 100′	500′	1000′
2464	2	22	7/30	.165″	$21.20	$ 71.88	$143.74
2465	2	20	7/28	.230″	30.58	107.59	215.17
2468	2	25	7/33	.165″	17.52	76.04	152.08
2469	2	22	7/30	.205″	21.53	102.54	205.08

105° C, 200 VOLTS

Alpha No.	No. Pairs	AWG	Strand	Nom. O.D.	Net per Spool 100′	500′	1000′
2460	1	22	Solid	.118″	$14.20	$41.53	$83.08
2461	1	22	7/30	.135″	14.87	46.92	93.85

105° C, 400 VOLTS

Alpha No.	No. Pairs	AWG	Strand	Nom. O.D.	Net per Spool 100′	500′	1000′
2463	4	22	7/30	.235″	$55.56	$206.25	$412.50
2466	2	22	7/30	.165″	17.90	76.58	153.15
2467	4	20	7/28	.345″	67.44	321.15	642.29

UL STYLE 2717, 105° C, 400 VOLTS

Alpha No.	No. Pairs	AWG	Strand	Nom. O.D.	Net per Spool 100′	500′	1000′
1243/2	2	22	7/30	.198″	$28.50	$135.71	$271.42

alpha Coaxial & Twinaxial Data Cables

UL STYLE 1354, 1478 93-OHM FLEXIBLE COAXIAL CABLE

Alpha No.	MIL No. RG-	Center Conductor Mat.*	Center Conductor Strand	Dielectric	Shields* 1st	Shields* 2nd	Jacket Mat.*	Jacket O.D. Ins.	Oper. Volts rms	Nom. Imped. Ohms	Cap. pF/ft.	Net per Put-Up 100′	Net per Put-Up 500′	Net per Put-Up 1000′
9062A	62A/U	CW	Solid	SSP	C	.....	PVC	.242	750	93	13.5	$ 15.47	$ 73.66	$ 147.31
9805	62A/U	CW	Solid	SSP	C	.....	PVC	.260	750	93	13.5	22.62	107.71	209.09
9162	62A/U	C	Solid	SST	C	.....	FEP	.225	750	93	13.5	119.85	599.25	1198.50
9806	.....	SC	Solid	FPE	A/M	.....	PVC	.115	1500	93	14.0	16.98	54.35	108.70
9500	.....	SC	Solid	FPP	A/M	.....	LM	.080	1000	100	.....	135.01	.....	.....

UL STYLE 1354 50-OHM FLEXIBLE COAXIAL CABLE

Alpha No.	MIL No. RG-	Center Conductor Mat.*	Center Conductor Strand	Dielectric	Shields* 1st	Shields* 2nd	Jacket Mat.*	Jacket O.D. Ins.	Oper. Volts rms	Nom. Imped. Ohms	Cap. pF/ft.	Net per Put-Up 100′	Net per Put-Up 500′	Net per Put-Up 1000′
9801	58/U	C	Solid	FPE	A/M	TC	PVC	.216	1600	50	26	$ 18.62	$ 88.66	$172.11
9802†	8/U	C	7/19	FPE	C	C	PE	.480	4500	50	26	67.69	322.32	664.17
9450	.....	SC	Solid	FEP	A/M	.....	LM	.040	1000	50	.....	135.01	.....	.....

†Triaxial construction.

UL STYLE 1354 75-OHM FLEXIBLE COAXIAL CABLE

Alpha No.	MIL No. RG-	Center Conductor Mat.*	Center Conductor Strand	Dielectric	Shields* 1st	Shields* 2nd	Jacket Mat.*	Jacket O.D. Ins.	Oper. Volts rms	Nom. Imped. Ohms	Cap. pF/ft.	Net per Put-Up 100′	Net per Put-Up 500′	Net per Put-Up 1000′
9803	59/U	C	7/30	FPE	C	.....	PVC	.242	2100	75	17.3	$ 23.72	$ 79.45	$163.71
9159	59B/U	CW	Solid	FEP	C	.....	FEP	.215	2100	75	20.5	147.00	735.00	1470.00
9843	6/U	C	Solid	FPE	A/M	.....	PVC	.242	2500	75	17.3	.....	.....	97.45
9804	6/U	C	Solid	FPE	A/M	TC	PVC	.270	2500	75	17.3	14.20	64.57	125.33
9807	.....	C	Solid	PE	TC	TC	PE	.304	.....	75	21.0	52.80	251.41	502.82
9475	.....	SC	Solid	FPP	A/M	.....	LM	.065	1000	75	.....	135.01	.....	.....
9845	59B/U	CW	Solid	PE	C	.....	NCV	.242	.....	75	20.5	44.49	211.88	423.75

LO-TOX® COAXIAL PLENUM CABLES

Temperature Range: −65° C to +260° C. Meets requirements of NEC Article 725-2(b), 760-4(d), 800-3(d).

Alpha No.	MIL No. RG-	Center Conductor Mat.*	Center Conductor Strand	Dielectric	Shields* Mat.*	Shields*	Jacket Mat.*	Jacket O.D. Ins.	Oper. Volts rms	Nom. Imped. Ohms	Cap. pF/ft.	Net per Put-Up 100′	Net per Put-Up 500′	Net per Put-Up 1000′
9159	59B/U	CW	Solid	FEP	C	.....	FEP	.215	.....	75	20.5	$147.00	$735.00	$1470.00
9162	62A/U	CW	Solid	SST	C	.....	FEP	.225	.....	93	13.5	119.85	599.25	1198.50

95 AND 100 OHM TWINAXIAL CABLE

Alpha No.	Conductors* 1st	Conductors* 2nd	Conductors* Strand	Dielectric	Shields* 1st	Shields* 2nd	Coverage %	Drain Wire	Jacket Mat.*	Jacket O.D.	Net per Put-Up 100′	Net per Put-Up 500′	Net per Put-Up 1000′
9816	BC	BC♯	7/26	PE	TC	TC	96	.....	NCV	.420	$94.71	$393.98	$764.78
9817	BC	TC	7/28	PE	TC	.....	85	.....	PVC	.330	40.17	191.27	394.13
9818	BC	TC	7/28	PE	TC	.....	95	.....	PVC	.330	54.09	209.24	431.15

♯Center strand tinned for identification.

1, 2, AND 3 PAIR DATA CABLES

78 OHM CABLES

Alpha No.	Conductors No.	Conductors Mat.*	Conductors Strand	Dielectric	Shields* 1st	Shields* 2nd	Coverage %	Drain Wire	Jacket Mat.*	Jacket O.D.	Net per Put-Up 100′	Net per Put-Up 500′	Net per Put-Up 1000′
9814	2	TC	7/28	PE	A/M	TC	100	.....	PVC	.243	$30.23	$107.18	$214.35
9815	2	TC	7/28	PE	TC	.....	93	.....	PVC	.242	26.58	106.40	219.25

100 OHM CABLE

Alpha No.	Conductors No.	Conductors Mat.*	Conductors Strand	Dielectric	Shields* 1st	Shields* 2nd	Coverage %	Drain Wire	Jacket Mat.*	Jacket O.D.	Net per Put-Up 100′	Net per Put-Up 500′	Net per Put-Up 1000′
9819	4	TC	#28	PE	A/M	TC	100	TC	PVC	.290	$26.15	$124.52	$249.03

124 OHM CABLE

Alpha No.	Conductors No.	Conductors Mat.*	Conductors Strand	Dielectric	Shields* 1st	Shields* 2nd	Coverage %	Drain Wire	Jacket Mat.*	Jacket O.D.	Net per Put-Up 100′	Net per Put-Up 500′	Net per Put-Up 1000′
9820	2	BC	#16	FPE	A/M/A	TC	100	.....	PVC	.440	$61.27	$291.77	$583.85
9821	2	TC	7/33	PE	A/M	.....	100	TC	PVC	.242	14.55	56.80	113.60
9822	6	TC	7/33	PE	A/M	.....	100	TC	PVC	.450	73.90	306.31	612.61

150 OHM CABLE

Alpha No.	Conductors No.	Conductors Mat.*	Conductors Strand	Dielectric	Shields* 1st	Shields* 2nd	Coverage %	Drain Wire	Jacket Mat.*	Jacket O.D.	Net per Put-Up 100′	Net per Put-Up 500′	Net per Put-Up 1000′
9823	2	TC	19/34	FPE	A/M/A	.....	100	TC	PVC	.350	$32.81	$156.22	$312.44

200 OHM CABLE

Alpha No.	Conductors No.	Conductors Mat.*	Conductors Strand	Dielectric	Shields* 1st	Shields* 2nd	Coverage %	Drain Wire	Jacket Mat.*	Jacket O.D.	Net per Put-Up 100′	Net per Put-Up 500′	Net per Put-Up 1000′
9824	2	SCW	#29	FPE	A/M	.....	100	TC	PVC	.245	$25.55	$114.29	$228.58

*Materials—Conductors and Shields: C, copper; CW, copper-covered steel; SC, silver-covered copper; SCW, silver-plated, copper-covered steel; TC, tinned copper; BC, bare copper; A/M, Aluminum/Mylar shield tape; A/M/A, aluminum/Mylar/aluminum shield tape. Dielectric: SSP, semisolid polyethylene; SST, semisolid Teflon; FPE, cellular (foam) polyethylene; FPP, cellular (foam) polypropylene; FEP, fluorinated ethylene propylene; PE, solid polyethylene. Jackets: FEP, fluorinated ethylene propylene; LM, laminated Mylar; PE, solid polyethylene; NCV, non-contaminating polyvinylchloride; PVC, polyvinylchloride.

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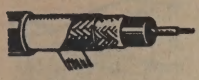
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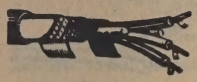
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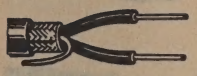
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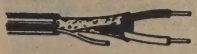
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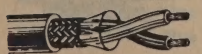

H

J

MICROPHONE AND SHIELDED POWER SUPPLY CABLES

Great abrasion and impact resistance; extra limp so cable lies flat. **No. 8410:** 3 strands copper, 4 strands copper covered steel, cellulose yarn braid, rubber insul., rayon braid, tinned copper braid shield, cellulose yarn wrap, black rubber jacket. **No. 9396:** Same, except PVC insul., tinned copper serve shield, and gray PVC jacket. **No. 9399:** Bare cadmium copper conductor, cotton serve, rubber insul., cabled with fillers, conductive textile wrap shield, tinned copper braid shield, cotton serve, brown rubber jacket. **Nos. 9394 and 9395:** Tinned copper conductor, conductive textile wrap shield, tinned copper serve shield, black neoprene jacket. **No. 9397:** Tinned copper conductor, vinyl insul., conductors cabled with fillers, bare copper spiral shield, matte white or matte gray jacket. **No. 9398:** Same, except color code white, green, brown. **No. 9211:** Tinned copper stranded conductors, polyethylene insul., cabled with conductive tape, Beldfoil® shield with stranded #22 AWG tinned copper drain wire. **Nos. 8406 and 8413:** Tinned cadmium bronze, cotton serve, rubber insul., cabled with fillers, 100% coverage conductive textile wrap shield, tinned copper braid shield, cotton serve, black rubber jacket. **All Others:** Tinned copper, cotton wrap, rubber insul., conductors cabled, rayon braid, tinned copper braid shield, cotton wrap, black rubber jacket. Conductor Color Coding: **1,** white; **2,** black; **3,** red; **4,** green; **5,** blue; **6,** brown; **7,** yellow; **8,** orange.

Belden No.	Fig.	No. of Cond.	AWG and (Stranding)	Cap.,* pF/ft.	Nom. O.D.	Net Each, Spool of 15′	25′	50′	100′	250′	500′	1000′
8410	A	1	25 (7 x 33)	33	.245″	....	$12.60	$22.05	$40.25	$92.30	152.05*	.....
9394	A	1	20 (26 x 34)	55	.190″	....	.....	.....	.....	.....	108.40*	178.65*
9395	F	1	18 (41 x 34)	55	.235″	....	.....	.....	.....	.....	125.00*	214.95*
9396	A	1	25 (7 x 33)	75	.100″	....	.....	.....	18.70	33.05	.....	.....
8413‡	B	2	24 (45 x 40)	55	.190″	$8.25	12.75	23.50	43.90	100.95	166.30*	.....
8406‡	B	3	24 (45 x 40)	60	.223″	....	.....	.....	55.55	.....	217.65*	.....
8412	C	2	20 (26 x 34)	55	.263″	....	13.50	24.50	46.25	104.95	172.95*	345.90*
8402•	C	2	20 (26 x 34)	55	.263″	....	.....	.....	48.05	113.95	187.80*	375.60*
8428ƒ	C	2	18 (41 x 34)	60	.290″	....	.....	.....	60.55	.....	228.70*	457.35
8408†•	C	2	16 (65 x 34)	55	.385″	....	.....	.....	82.90	.....	328.20	.....
9399	B	2	24 (25 x 40)	55	.195″	....	.....	.....	46.60	.....	173.65	347.25
9397	B	2	24 (105 x 44)	40	.185″	....	.....	.....	35.80	.....	125.00	217.20
9211	E	2	25 (7 x 33)	..	.247″	....	.....	.....	.....	.....	83.55	137.70*
8423	C	3	20 (26 x 34)	60	.272″	....	.....	28.05	50.80	118.40	195.15	390.30
9398	D	3	24 (105 x 44)	70	.186″	....	.....	.....	41.80	.....	126.85	253.65
8424	C	4	20 (26 x 34)	60	.290″	....	.....	30.60	57.15	125.00*	220.20*	440.40
8407ƒ•	C	4	16 (65 x 34)	55	.416″	....	.....	.....	95.75	193.80	.....	.....
8425	C	5	20 (26 x 34)	60	.318″	....	.....	.....	79.75	160.20	.....	.....
8426	C	6	20 (26 x 34)	60	.344″	....	.....	.....	97.95	197.10	.....	.....
8427	C	7	20 (26 x 34)	60	.355″	....	.....	.....	106.75	214.65	.....	.....
8418	C	8	20 (26 x 34)	60	.381″	....	.....	.....	120.70	240.55	.....	.....

*Capacitance between one conductor and remaining conductors (if any) connected to shield. †Brown Hypalon® jacket; 8408 has heavy duty brown Hypalon jacket. ‡Miniature cable. ƒBlack neoprene jacket; •Passes the FR-1 vertical flame test.

BROADCAST AUDIO CABLES

Nos. 8437 and 8441: Tinned copper, vinyl insulated, conductors cabled, 8441 stranded, and 8437 solid tinned copper drain wire, tinned copper braid shield, black vinyl jacket. **Nos. 8450, 8451 and 9451:** Tinned copper, polypropylene insulated, conductors cabled, stranded tinned copper ground drain wire, Beldfoil® aluminum-polyester shield, paper wrap, black or gray vinyl jacket (specify); **No. 9451,** gray vinyl jacket only. Jacket and shield on No. 9541 are bonded so both can be removed on automatic stripping equipment. All types are 2-conductor. **Color Coding:** Black, red.

Belden No.	Fig.	AWG and (Stranding)	Nom. O.D.	Cap.* pF/ft.	Work Volts	Net Each, Spool of 100′	250′	500′	1000′
8437•▲	D	22 (Solid)	.200″	85	300	.....	.....	$ 99.05*	$163.20*
8441•▲	D	22 (16 x 34)	.210″	86	300	$25.05	.....	108.50*	178.80*
8450†•	E	22 (Solid)	.118″	76	200	13.95	$24.75	49.45*	98.85*
8451†•	E	22 (7 x 30)	.135″	67	200	15.05	28.80	57.55*	115.05*
9451•	E	22 (7 x 30)	.135″	67	200	.....	.....	74.10*	125.00

*Between one conductor and other conductor connected to shield. †Miniature. •Passes the FR-1 vertical flame test. ▲U.L. Listed.

TWO CONDUCTOR SHIELDED CABLE

Variety of gauges, insulations, shieldings and jackets meet every service requirement. Uniform quality for dependable service. **Fig. F Types:** Tinned copper, vinyl insulated, conductors cabled, tinned copper spiral wrapped shield, chrome vinyl jacket. **Fig. G Types:** Tinned copper, polyethylene insulated, conductors cabled, Beldfoil aluminum-polyester shield, stranded tinned copper drain wire, chrome vinyl jacket, except **No. 8460,** conductor insulated with Geosol insulation, Copperweld drain wire and white vinyl jacket. **Fig. H Type:** Tinned copper, rubber insulated, conductors cabled, separator, braided tinned copper shield, chrome vinyl jacket. **Fig. J Type:** Balanced pair instrumentation cable featuring short lay cabling to minimize pick-up of electromagnetic interference and special conductive textile tape to minimize microphonic noise. Tinned copper, polypropylene insulated, conductors cabled, noise reducing tape, 24 AWG stranded tinned copper drain wire, Beldfoil aluminum-polyester shield, black vinyl jacket. **No. 9154** similar to **Fig. G,** except vinyl insulated, twisted pair, 22 AWG wire, rose gray vinyl jacket; UL Listed (Style 2094).

Belden No.	Fig.	AWG and (Stranding)	Nom. O.D.	Color Coding	Cap.,* pF/ft.	Work Volts	Net Each, Spool of 100′	250′	500′	1000′
8739•▲	F	22 (Solid)	.160″	Blk, red	66	350	$16.60	.....	$ 68.55*	$125.00
8737•▲	F	22 (7 x 30)	.170″	Blk, red	70	350	17.95	$37.80	75.45*	125.00*
8759•▲	F	20 (7 x 28)	.195″	Blk, red	79	350	22.40	.....	88.40*	145.65*
8790•	F	18 (7 x 26)	.231″	Red, wht	92	450	27.80	58.25	116.40*	191.85*
8780•	F	16 (19 x 29)	.266″	Blk, wht	98	450	34.70	.....	125.00*	247.95*
8640•	G	28 (Solid)	.090″	Blk, red	105	100	.....	25.60	51.05*	.....
9460	G	18 (16 x 30)	.222″	Blk, clear	49	450	.....	.....	86.20■	142.05■
9461	G	22 (7 x 30)	.180″	Blk, clear	47	350	.....	.....	60.10■	120.15■
9462•▲	G	22 (7 x 30)	.178″	Blk, red	90	300	19.15	.....	72.45*	125.00*
9464	G	20 (7 x 28)	.204″	Blk, clear	49	350	.....	.....	73.35■	125.00■
9198	G	26 (19 x 38)	.160″	Red, wht	50.1	...	24.30	.....	92.75■	152.85*
9199	G	26 (19 x 38)	.165″	Red, wht, black	50	...	26.75	.....	101.60■	167.40
8641•▲	G	24 (7 x 32)	.164″	Blk, clear	42	350	15.20	.....	60.80*	121.60*§
8761•▲	G	22 (7 x 30)	.171″	Blk, clear	47	350	.....	.....	61.15*	122.30*§
8762•▲	G	20 (7 x 28)	.200″	Blk, clear	49	350	16.30	32.80	65.45*	125.00*§
8760•▲	G	18 (16 x 30)	.222″	Blk, clear	44	450	.....	39.15	78.30*	129.00*§
8719•▲	G	16 (19 x 29)	.292″	Blk, clear	47	600	.....	.....	125.00*	227.85*§
8720•▲	G	14 (19 x 27)	.340″	Blk, clear	47	750	.....	.....	173.65*	347.25§
8718•▲	G	12 (19 x 25)	.400″	Blk, clear	49	1000	.....	.....	260.55*	521.01§
9154•▲	G	20 (7 x 28)	.194″	Blk, red	100	300	.....	.....	62.80*	125.00*
8208	H	18 (16 x 30)	.255″	Red, wht	77	200	35.40	.....	127.45*	254.85*
9452	J	24 (19 x 36)	.135″	Blk, red	58	200	18.30	.....	73.65*	125.00*

*Between one conductor and other conductor connected to shield. •Passes the FR-1 vertical flame test. ▲U.L. Listed. ®TM: Beldfoil of Belden. §Also available in 2000′ put-up.

***ALSO AVAILABLE IN UNREEL PACKAGE AT SAME PRICE. ■UNREEL PACKAGE ONLY.**

TWO CONDUCTOR UNSHIELDED CABLES

Fig. A Types: Copper, vinyl insulated, cabled. **Fig. B Types:** Copper, vinyl insulated, cabled, chrome vinyl jacket. **Fig. C Types:** Copper, vinyl insulated, jacket color as noted, parallel cable. All conductors tinned except as noted.

Belden No.	Fig.	AWG and (Stranding)	Colors ‡	Nom. O.D.	Suggested Work Volts	Net Each, Spool of 50′	100′	500′	1000′
8481•▲	A	22 (Solid)*	1	.114″	300	....	$ 7.25	$ 23.70*	$ 47.35*
8482•	A	19 (Solid)*	1	.130″	350	....	9.50	34.85*	69.75*
8492•	A	19 (Solid)†	2	.170″	600	....	....	.....	80.45*
8460•▲	A	18 (7 x 26)	3	.175″	450	....	14.15	53.90*	107.75*
8470•▲	A	16 (19 x 29)	3	.206″	600	....	....	64.35*	125.00*
9151▲	A	22 (7 x 30)†	2	.108″	300	....	....	25.60*	51.15*
9152•▲	A	20 (10 x 30)†	2	.125″	300	....	....	31.40*	62.80*
9153•▲	A	18 (16 x 30)†	2	.142″	300	....	....	42.45*	84.85*
9497•▲	A	16 (19 x 29)	7	.206″	600	....	....	84.30*	138.90*
8442•▲	B	22 (7 x 30)	4	.165″	350	....	8.95	34.40*	68.80*
8205•▲	B	20 (10 x 30)	4	.190″	350	....	11.20	40.50*	81.00*
8486•	B	19 (Solid)*	1	.162″	350	....	....	48.50*	97.05*
8461•▲	B	18 (7 x 26)	3	.226″	450	....	17.85	70.35*	125.00*
9740•▲	B	18 (16 x 30)	4	.220″	400	....	....	65.25*	125.00*
8471•▲	B	16 (19 x 29)	3	.256″	600	....	....	100.75*	166.05*
8473•	B	14 (19 x 27)	3	.332″	600	....	....	131.55*	263.10
8477•	B	12 (19 x 25)	3	.384″	600	....	....	185.10*	370.20
8782	C	24 (7 x 32)†	5	.058 x .115	300	$ 3.29§	4.84	16.30*	32.60*
8781•	C	22 (Solid)†	.....	.060 x .120	300	....	5.40	16.20*	32.40*
8649•	C	20 (7 x 28)	6	.073 x .146	300	....	7.45	26.75*	53.55*
9712	C	22 (7 x 30)†	8	.065 x .130	300	4.24	6.20	21.75*	43.50*
9708	C	18 (16 x 30)†	8	.110 x .207	300	6.15	9.75	38.35	76.65*
9716	C	16 (65 x 34)†	8	.155 x .299	300	11.85	18.85	66.25*	125.00*

*Bare. †One cond. tinned. ‡Colors: 1—Brn, tan; 2—specify wht or brn; 3—blk, wht; 4—blk, red; (jacket color) 5—specify chrome, brown, clear or wht; 6—chrome, clear; 7—org, blk; 8—clear. §25′, $2.22. ▲UL Listed.

THREE CONDUCTOR UNSHIELDED CABLES

Fig. D Type: Bare copper, vinyl insulated and cabled. **Fig. E Types:** Copper, vinyl insulated, cabled. Chrome vinyl jacket. **Fig. F Types:** Copper, vinyl insulated, parallel cable.

8483•	D	19 (Solid)	6	.132″	300	....	$14.20	$ 56.55	$113.05
8443▲	E	22 (7 x 30)*	7	.160″	200	$4.00#	10.50	42.25*§	84.45*
8487•	E	19 (Solid)	6	.180″	300	....	....	69.20*	125.00*
8701•	F	22 (Solid)†	8	.060 x .190	300	....	10.40	37.80	75.55
9498•▲	D	16 (19 x 29)	9	.220″	450	....	....	122.60*	202.05*

*Tinned. †One conductor tinned. ‡Colors: 6, brown, gray, tan; 7, black, green, red; 8, chrome; 9, white, brown, red; orange, black and orange with black stripe. §250′, $21.15. ▲U.L. Listed. #25′.

MICROPHONE AND SHIELDED POWER SUPPLY CABLES

Nos. 8401 and 8411: 3 strands copper, 4 strands copper covered steel, cellulose yarn braid, polyethylene insulated, tinned copper braid shield, chrome vinyl jacket. **No. 8434:** 3 strands copper, 4 strands Copperweld, tinned, polyethylene insulated, black and red conductors under Beldfoil® ISO-Shield™, stranded ground wire, green and clear conductors under overall Beldfoil aluminum-polyester shield, chrome vinyl jacket. Pairs cabled on common axis to reduce diameter. **No. 8420:** Tinned cadmium bronze, cotton wrap, polyethylene insulated, cabled with fillers, rayon braid, tinned copper braid shield, chrome vinyl jacket. **No. 8723:** Tinned copper, polypropylene insulated, black and red under Beldfoil ISO-Shield, green and white under Beldfoil aluminum-polyester shield, stranded tinned copper common drain wire, chrome vinyl jacket. Pairs cabled on common axis to reduce dia. **No. 8729:** Tinned copper, polyethylene insulated, conductors cabled, Beldfoil aluminum-polyester shield, three 23 AWG solid copper covered steel, one 25 AWG stranded copper covered steel drain wires, white vinyl jacket. Conductors color-coded red, black, green and clear. **Nos. 9533 thru 9546:** Tinned copper, PVC insulated, conductors cabled, Beldfoil aluminum-polyester shield with 24 AWG drain wire, chrome PVC jacket. **No. 9418:** Tinned copper, vinyl insulated, conductors cabled, Beldfoil aluminum-polyester shield with 20 AWG tinned copper drain wire, chrome vinyl jacket. **All Others:** Tinned copper, polyethylene insulated, conductors cabled, rayon braid, tinned copper braid shield, chrome vinyl jacket.

Belden No.	Fig.	No. of Cond.	AWG and (Stranding)	Cap.,* pF/ft.	Nom. O.D.	Net Each, Spool of 15′	25′	50′	100′	250′	500′	1000′
8411	G	1	25 (7 x 33)	40	.144″	$4.42	$6.40	$10.20	$19.40	$39.05	$78.00*	128.55*
8401	G	1	25 (7 x 33)	25	.200″	5.45	7.35	13.20	23.95	49.90	99.65*	164.25*
8420†•	H	2	24 (45 x 40)	40	.185″	7.85	11.60	18.05	33.60	76.90	126.70*	.....
8422	I	2	22 (16 x 34)	32	.231″	6.90	10.50	20.20	34.80	74.00	125.00*	243.90*
8403•	I	3	20 (26 x 34)	45	.244″	10.05	....	25.95	48.50	106.40	175.35*	350.70*
8404•▲	I	4	20 (26 x 34)	40	.248″	10.75	....	....	52.05	117.05	192.90*	385.80*
8405•	I	5	20 (26 x 34)	40	.275″	....	....	....	.....	125.00	225.45*	450.90*
8434	J	4	25 (7 x 33)	40	.165″	....	....	....	20.85	.....	90.45*	149.10*
8723	K	4	22 (7 x 30)	62	.165″	....	....	....	21.30	.....	91.10*	150.15*
8729▲	L	4	22 (19 x 34)	42	.265″	....	....	....	.....	.....	143.65*	287.25*
9533•▲	L	3	24 (7 x 32)	30§	.168″	....	....	....	21.30	.....	81.35*	134.10*
9534•▲	L	4	24 (7 x 32)	30§	.180″	....	....	....	26.15	.....	99.20*	163.50*
9535•▲	L	5	24 (7 x 32)	30§	.190″	....	....	....	30.70	.....	117.70*	193.95*
9536•▲	L	6	24 (7 x 32)	30§	.205″	....	....	....	34.05	.....	125.00*	222.30*
9537•▲	L	7	24 (7 x 32)	30§	.205″	....	....	....	36.40	.....	125.00*	238.50*
9538•▲	L	8	24 (7 x 32)	30§	.220″	....	....	....	39.90	.....	136.20*	272.40*
9539•▲	L	9	24 (7 x 32)	30§	.240″	....	....	....	44.15	.....	150.40*	300.75*
9540•▲	L	10	24 (7 x 32)	30§	.250″	....	....	....	46.15	.....	164.20*	328.35*
9541•▲	L	15	24 (7 x 32)	30§	.280″	....	....	....	80.75	.....	288.85*	577.65*
9542•▲	L	20	24 (7 x 32)	30§	.310″	....	....	....	107.65	.....	385.50*	771.00
9543•▲	L	25	24 (7 x 32)	30§	.370″	....	....	....	125.00	.....	477.00	954.00
9544•▲	L	30	24 (7 x 32)	30§	.390″	....	....	....	146.75	.....	572.25	1144.50
9545•▲	L	40	24 (7 x 32)	30§	.440″	....	....	....	192.50	.....	751.50	1503.00
9546•▲	L	50	24 (7 x 32)	30§	.490″	....	....	....	238.45	.....	930.00	1858.50
9418▲	J	4	18 (16 x 30)	110	.245″	....	....	....	38.40	.....	125.85*	251.70*

*Between one conductor and remaining conductors (if any) connected to shield. †Miniature. ▲U.L. Listed. §Capacitance between conductors. •Passes the FR-1 vertical flame test.

75-OHM PRECISION VIDEO CABLES

High quality carrier of video signal in color or monochrome studios; 100% sweep tested.

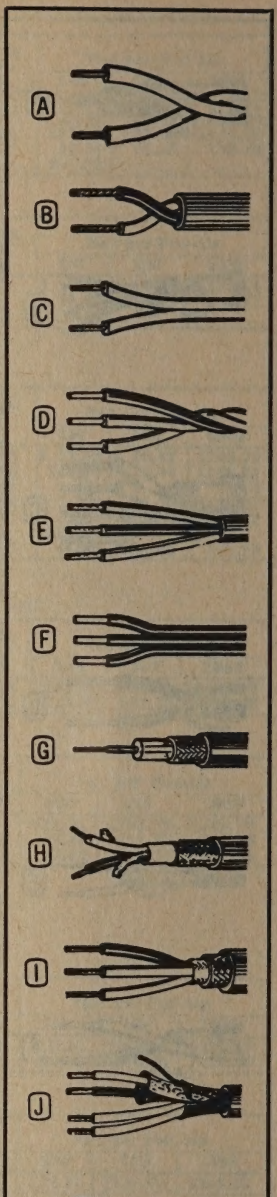
Belden No. 8279 (Fig. M)—Has 23 (7 x 31) bare compacted conductor, polyethylene insulated, tinned copper braid shield, black polyethylene jacket. Nom. impedance, 75 ohms. Nom. capacitance, 21 pF/ft. Nom. O.D., .220″; fits RG-59/U connectors.
100′ Spool, Net.....**$39.95** **250′ Spool,** Net.....**$86.55** **500′ Spool,** Net.....**$142.60**

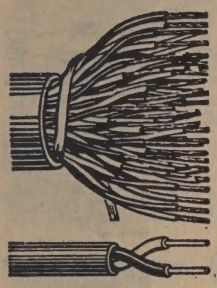
Belden No. 8281 (Fig. N)—Has 20 (solid) copper conductor, polyethylene insul., tinned copper double braid shield, black polyethylene jkt. Nom. imped., 75 ohms. Nom. cap., 21 pF/ft. Nom. O.D., .304″.
500′ Spool, Net.....**$253.95** **1000′ Spool,** Net.....**$507.90**

Belden No. 9231• (Fig. N)—Same as 8281 except gray non-contaminating vinyl jacket.
500′ Spool, Net.....**$316.30** **1000′ Spool,** Net.....**$632.55**

Belden No. 9209 (Fig. M)—Has 23 (7 x 32) bare compacted conductor, polyethylene insulated, Duobond tinned copper braid shield, black polyethylene jacket.
500′ Unreel, Net.....**$150.15** **Belden No. 8299 Adapter**—Use with PL-259 connector and 8281, 9231 cable only. Net/25.....**$ 11.95**

•ALSO AVAILABLE IN UNREEL PACKAGE AT SAME PRICE.




A

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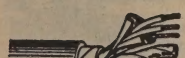
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E

MULTIPLE PAIR UNSHIELDED SOUND CABLES (FIG. A)

Made with 80° C vinyl plastic compounds for high dielectric strength and best physical properties. Conductors are paired with a short-lay twist for conductor balance. Tinned copper, vinyl insulated, cabled in color-coded pairs, chrome vinyl jacket. Voltage, 200 V working except 18 gauge, 400 V. U.L. Listed.

Belden No.	No. of Pairs	AWG and (Stranding)	Nom. O.D.	Net Each, Spool of 100′	500′	1000′
8740•	1	22 (Solid)	.150″	$ 8.45	$ 30.30▪	$ 60.65▪
8741•	2	22 (Solid)	.205″	15.15	58.55▪	117.05*
9744•	2	22 (7 x 30)	.234″	.....	69.00*	125.00*
9156	2	18 (16 x 30)	.282″	.....	125.00*	206.55*
9750•	3	20 (10 x 30)	.301″	28.60	125.00	210.30
8742•	3	22 (Solid)	.240″	19.70	81.55*	134.40*
9745•	3	22 (7 x 30)	.280″	.....	102.10*	168.30*
8690•	3	18 (16 x 30)	.362″	45.60	166.95*	333.90
8757•	4	22 (Solid)	.255″	.....	107.95*	177.90*
9746•	4	22 (7 x 30)	.295″	.....	125.00	214.95
9157	4	18 (16 x 30)	.353″	52.25	194.40	388.80
9158•	5	22 (Solid)	.298″	28.80	125.00	213.90
9159•	5	18 (16 x 30)	.409″	.....	257.95	515.85
9751•	6	20 (10 x 30)	.370″	53.15	198.90	397.80
8743•	6	22 (Solid)	.305″	32.15	125.00*	236.55*
8747•	6	22 (7 x 30)	.320″	38.60	144.40	288.75
8691•	6	18 (16 x 30)	.550″	95.75	358.75	717.45
9160•	8	22 (Solid)	.336″	.....	165.40	330.75
9161•	8	18 (16 x 30)	.469″	111.40	417.00	834.00
9752•	9	20 (10 x 30)	.447″	78.55	301.95	603.90
8744•	9	22 (Solid)	.354″	46.50	176.95	353.85
8748•	9	22 (7 x 30)	.389″	57.35	221.25	442.50
8692•	9	18 (16 x 30)	.590″	125.00	492.75	985.50
8753•	11	22 (Solid)	.384″	58.90	228.00	456.00
9747•	12	22 (7 x 30)	.440″	81.65	304.35	608.70
9741•	12	18 (16 x 30)	.690″	168.10	656.25	1312.50
8754•	13	22 (Solid)	.409″	66.00	257.35	514.65
9755•	15	20 (10 x 30)	.535″	123.40	471.00	942.00
8745•	15	22 (Solid)	.420″	79.85	304.75	609.45
8749•	15	22 (7 x 30)	.455″	95.75	371.80	743.55
9742•	15	18 (16 x 30)	.800″	208.90	816.00	1630.50
8755•	19	22 (Solid)	.445″	101.95	381.00	762.00
9748•	19	22 (7 x 30)	.520″	125.00	469.50	939.00
9743•	19	18 (16 x 30)	.880″	264.20	1030.50	2059.50
8756•	23	22 (Solid)	.510″	.....	462.75	925.50
9749•	23	22 (7 x 30)	.570″	154.65	603.00	1206.00
8746‡•	27	22 (Solid)	.550″	.....	1056.00†	1056.00†
8750‡•	27	22 (7 x 30)	.595″	.....	1411.50†	1411.50†

*In self-dispensing Convert-a-Pak. †Per 1000 feet. ‡Available 250′, 500′, 1000′ or 2000′ spools: All spools one piece; lengths may vary +20%, −0%. •Pass FR-1 vertical flame test.

UNSHIELDED SOUND CABLES

Belden No. 8751• (Fig. B)—51 pairs of shielded cable, #22 solid tinned copper, vinyl insulated, Beldfoil aluminum-polyester shield over color-coded cabled pairs, #22 (7 x 30) stranded ground drain wire, chrome vinyl jacket. Working volts, 200. Nom. O.D., .700″. Specify length§.
1000 ft., Net.....**$2730.00**
Less than 1000′, per ft. **3.32**

Belden No. 9753• (Fig. C)—Same as 8751 except: 102 pairs; nom. O.D., 1.100″. Specify length§.
1000 ft., Net.....**$5280.00**
Less than 1000′, per ft. **6.45**
§Available 250′, 500′, 1000′ or 1500′ spools: All spools one piece; lengths may vary +20%, −0%.

Belden No. 8752• (Fig. B)—38 pairs of shielded cable, same as 8751 but polypropylene insulated. Nom. O.D., .600″. Specify length♦.
1000 ft., Net.....**$2323.50**
Less than 1000′, per ft. **2.82**
♦Available 250′, 500′ or 1000′ spools: All spools one piece; lengths may vary +20%, −0%. Above cables pass FR-1 vertical flame test.

WRITE FOR COLOR CODING

MULTIPLE PAIR INDIVIDUALLY SHIELDED CABLES (FIG. D)

Conductors 22 gauge vinyl or 18 and 22 gauge polypropylene insulated, cabled in color-coded pairs, each pair and its ground wire under Beldfoil® aluminum-polyester shield, overall chrome vinyl jacket. Working voltage, 300 V, 22 AWG; 350 V, 20 AWG; 400 V, 18 AWG. Nom. capacitance between conductors, 77 pF/ft., vinyl; 55 pF/ft., polypropylene. Pass FR-1 vertical flame test.

*Vinyl; all others polypropylene insulation. All spools one piece; lengths may vary +20%, −0%. U.L. Listed. †Per 1000 ft.

Belden No.	No. of Pairs	AWG and (Stranding)	Nom. O.D.	Net Each, Spool of 100′	250′	500′	1000′
8767*	3	22 (Solid)	.279″	$ 35.35	.....	$131.25*	$262.50
8768*	6	22 (Solid)	.394″	71.90	.....	273.70	547.35
8764*	9	22 (Solid)	.440″	97.50	.....	389.25	778.50
8765*	11	22 (Solid)	.485″	117.30	.....	462.75	925.50
8766*	15	22 (Solid)	.540″	155.05	.....	635.25	1270.50
8777	3	22 (7 x 30)	.295″	40.05	$ 92.55*	152.50*	304.95
8778	6	22 (7 x 30)	.410″	80.35	159.90	319.80	639.60
8774	9	22 (7 x 30)	.450″	125.00	235.15	470.25	940.50
8775	11	22 (7 x 30)	.495″	125.00	279.40	558.75	1117.50
9768	12	22 (7 x 30)	.495″	148.50	299.65	599.25	1198.50
8776	15	22 (7 x 30)	.570″	178.80	369.40	738.75	1477.50
9769	17	22 (7 x 30)	.620″	217.00	431.25	862.50	1725.00
8769	19	22 (7 x 30)	.630″	242.30	492.75	985.50	1969.50
8773	27	22 (7 x 30)	.760″	333.15	2799.00†	2799.00†	2799.00†
9873	3	20 (10 x 30)	.350″	49.50	111.40	183.55	367.05
9874	6	20 (10 x 30)	.480″	98.85	186.10	372.10	744.15
9875	9	20 (10 x 30)	.560″	125.00	271.90	543.75	1087.50
9876	11	20 (10 x 30)	.585″	164.80	328.15	656.25	1312.50
9877	12	20 (10 x 30)	.605″	177.10	352.90	705.75	1411.50
9879	15	20 (10 x 30)	.660″	214.15	426.75	853.50	1705.50
9773	3	18 (16 x 30)	.392″	63.25	.....	235.45	470.85
9774	6	18 (16 x 30)	.575″	125.00	.....	482.25	964.50
9775	9	18 (16 x 30)	.630″	187.80	.....	727.50	1455.00
9776	12	18 (16 x 30)	.765″	248.10	.....	969.00	1938.00
9777	15	18 (16 x 30)	.830″	309.35	.....	1207.50	2415.00
9402	2	20 (10 x 30)	.300″	.....	.....	125.00▪	226.35*

MULTIPLE PAIR INDIVIDUALLY SHIELDED DIRECT BURIAL, AUDIO AND DATA CABLE (FIG. E)

Especially designed for direct burial installation. Tinned copper, polypropylene insulated, Beldfoil aluminum-polyester shield over individually twisted pairs with 22 AWG stranded tinned copper drain wire, black high density polyethylene jacket.

Belden No.	No. of Pairs	AWG and (Stranding)	Nom. O.D.	Net Each, Spool of 100′	500′	1000′
9883	3	20 (10 x 30)	.340″	.....	$194.20	$388.35
9886	6	20 (10 x 30)	.480″	.....	408.75	817.50
9890	10*	20 (Solid)	.310″	.....	239.25	478.50
9894	15*	20 (Solid)	.390″	.....	310.80	621.60
9802	2*	20 (Solid)	.190″	.....	58.35	116.70
9803	3*	20 (Solid)	.205″	.....	74.35	125.00

*Conductors; not paired.

▪ALSO AVAILABLE IN UNREEL PACKAGE AT SAME PRICE. ▪UNREEL PACKAGE ONLY.

DATA AND INSTRUMENTATION CABLES

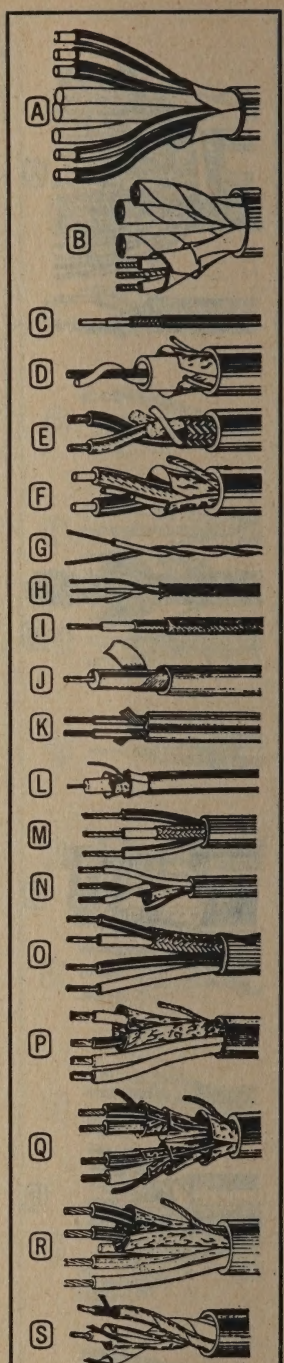
Belden No. 9784* (Fig. B)—Six pair; 24 AWG (7 x 32) stranded tinned copper, foam polypropylene insulation, cond. cabled, each pair has separate aluminum-polyester shield with 24 AWG drain wire, chrome vinyl jacket. Nom. O.D., .494"; nom. cap. between cond., 12 pF/ft. WV, 60 V.
500' Spool, Net.....**$321.75** **1000' Spool,** Net.....**$643.50**
Belden No. 8725* (Fig. B)—Four pair; 20 AWG (7 x 28) tinned copper cond., polypropylene insulated. four groups of 2 conductors with 22 AWG drain wire. Each group individually Beldfoil aluminum-polyester shield with polyester tape wrap, chrome vinyl jacket. Nom. O.D., .345"; cap. between cond., 27 pF/ft. WV, 400 V. Cabled around common axis.
500' Spool, Net.....**$314.85** **1000' Spool,** Net.....**$629.70**
Belden No. 8700 (Fig. C)—28 AWG (Solid) tinned copper, polypropylene insul., bare copper braid shield, black vinyl jacket. Shield coverage, 91%. Nom. O.D., .054". Nom. cap., 48 pF/ft.
25' Spool, Net.....**$8.10** **50' Spool,** Net.....**$13.50**
100' Spool, Net.....**$23.15** **250' Spool,** Net.....**$53.25**
Belden No. 9272^ (Fig. E)—Two 20 AWG (7 x 28) tinned copper cond., polyethylene color coded insulation, tinned copper braid shield, blue vinyl jacket. Nom. O.D., .242"; cap., 19.7 pF/ft. U.L. Listed.
100' Spool, Net...**$32.60** **500' Spool,** Net.....**$125.00*** **1000' Spool,** Net....**$214.95***
Belden No. 9271*^ (Fig. F)—Two 28 (Solid) tinned copper cond., polyethylene color coded insulation Beldfoil aluminum-polyester shield with stranded tinned copper drain wire, blue vinyl jacket. Nom. cap., 12.2 pF/ft. 25 AWG (7 x 33); nom. O.D., .242". U.L. Listed.
100' Spool, Net...**$17.85** **500' Spool,** Net.....**$66.95*** **1000' Spool,** Net....**$125.00***

HI-FI, STEREO AND PHONOGRAPH CABLES

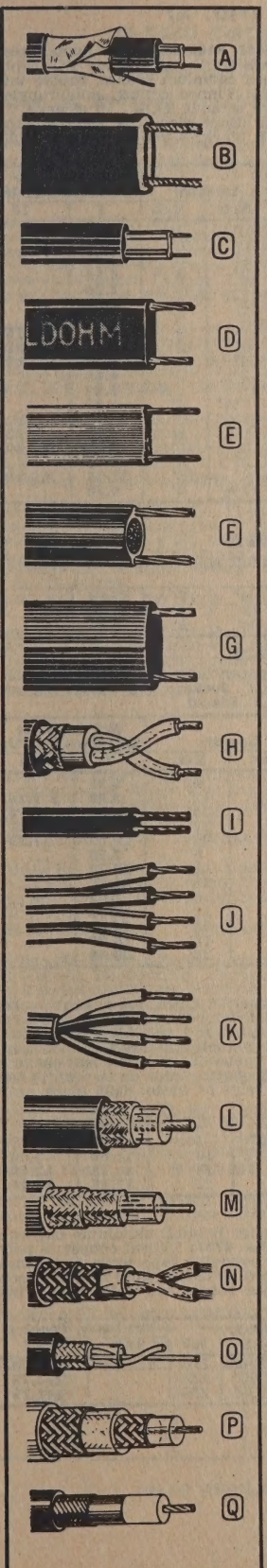
Belden No. 8430* (Fig. G)—Phono arm cable has two 32 AWG, 7 x 40 stranded, tinned copper conductors, vinyl insulated, twisted pair. O.D., .050" nominal. Coded black, red. Capacitance, 21 pF/ft., nom.
10' Spool, Net.....**$2.89** **25' Spool,** Net.....**$4.02** **250' Spool,** Net.....**$23.25**
Belden No. 9436* (Fig. G)—Same as 8430 except: Four conductors color coded blk, red, wht, grn; O.D., .065" nom.; capacitance between conductors 22 pF/ft.
10' Spool, Net.....**$4.93** **25' Spool,** Net.....**$7.00** **100' Spool,** Net.....**$16.50**
Belden No. 8429* (Fig. H)—Phono arm cable same as above, but Tith tinned copper braid shield. Capacitance 50 pF/ft. one conductor to other conductor and shield. Nom. O.D., .057".
10' Spool, Net.....**$3.82** **25' Spool,** Net.....**$6.35** **250' Spool,** Net.....**$42.80**
Belden No. 8419* (Fig. H)—Similar to the above but has three conductors for three-wire systems. Capacitance one cond. to other cond. and shield, 50 pF/ft. O.D., .067" nom. Coded blk, red, wht.
10' Spool, Net.....**$4.22** **25' Spool,** Net.....**$7.45** **250' Spool,** Net.....**$52.55**
Belden No. 9437* (Fig. H)—Same as 8429 except 4 cond. color coded blk. red, wht, grn. Nom. O.D., .072"
10' Spool, Net.....**$5.30** **25' Spool,** Net.....**$8.50** **100' Spool,** Net.....**$25.75**
Belden No. 8421 (Fig. J)—Hi-Fi connecting cable has single 25 AWG, 7 x 33 stranded of 3 strands tinned copper, 4 strands copper covered steel; cellular polyethylene insulated for low loss, tinned copper spiral wrapped shield and chrome vinyl jacket. O.D., .180" nominal. Capacitance, 18 pF/ft., nominal.
15' Spool, Net.....**$5.35** **25' Spool,** Net.....**$7.10** **50' Spool,** Net.....**$12.75**
100' Spool, Net.....**$21.20** **250' Spool,** Net.....**$46.90**
Belden No. 9456 (Fig. J)—Hi-Fi connecting cable has single 30 AWG (7 x 38 stranded, tinned, copper covered steel), foam polyethylene insulated, tinned copper spiral wrapped shield, gray vinyl jacket. O.D., .160", nominal. Capacitance, 12 pF/ft., nominal.
25' Spool, Net.....**$10.05** **100' Spool,** Net.....**$27.40**
Belden No. 9454—Two of No. 9456 side-by-side with black vinyl jacket. Polarity marked.
25' Spool, Net.....**$17.95** **100' Spool,** Net.....**$48.50**
Belden No. 8416 (Fig. K)—Stereo, language lab. Same as 8421 except: Polyethylene insulated; color coded red, clear (polarity rib on red); individually shielded. O.D., .106" x .213". Nom. cap., 35 pF/ft. between conductors, each channel. **15' Spool,** Net.....**$ 6.15** **25' Spool,** Net.....**$ 7.70**
50' Spool, Net.....**$14.40** **100' Spool,** Net.....**$25.60** **250' Spool,** Net.....**$57.10**
Belden No. 8417* (Fig. L)—Min. audio connecting cable, totally shielded. Same as 8416 except single cond. with double Beldfoil aluminum-polyester shield, inner shield folded, 26 AWG stranded tinned copper, grd. drain wire. Nom. O.D., .140". Nom. cap., 25 pF/ft. between cond.
15' Spool, Net.....**$4.93** **25' Spool,** Net.....**$5.90** **50' Spool,** Net.....**$ 9.05**
100' Spool, Net.....**$17.20** **250' Spool,** Net.....**$37.35**
Belden No. 9264* (Fig. V)—Hi-fi cable has one 24 AWG, 7 x 32 stranded conductor, flame retardant polyethylene ins. Beldfoil aluminum-polyester shield, white vinyl jacket. No. O.D., .122 x .146"". Nom. impedance, 50 ohms. Nom. cap between cond's., 34 pF/ft. UL Listed. **100' Spool,** Net..**$15.85**
250' Spool, Net.....**$33.15** **500' Spool,** Net.....**$66.20** **1000' Spool,** Net.....**125.00**

SPECIAL AUDIO AND SOUND CABLES

Belden No. 8734* (Fig. M)—Tinned copper, vinyl insulated, 1 white coded conductor with tinned copper braid shield, 3 conductors cabled, chrome vinyl jacket; unshielded conductors coded black, red. Conductors 22 AWG, 7 x 30 stranded. O.D., .194" nominal. Suggested 350 V working.
100' Spool, Net.....**$22.75** **500' Spool,** Net.....**$90.85*** **1000' Spool,** Net....**$149.70***
Belden No. 8763 (Fig. N)—Three 20 AWG, 7 x 28 stranded, tinned copper conductors polyethylene insulated; 2 conductors (black red) shielded in Beldfoil aluminum-polyester shield; unshielded conductor coded clear, #20 stranded tinned copper ground drain wire, chrome vinyl jacket. O.D., .210" nominal. Suggested 350 V working. **500' Spool,** Net...**$101.85*** **1000' Spool,** Net...**$167.85***
Belden No. 8732^ (Fig. O)—Four 22 AWG, 7 x 30 stranded tinned copper conductors polyethylene insulated; tinned copper braid shield over 2 (black, clear) conductors; unshielded conductors coded black, clear; overall chrome vinyl jacket. O.D., .188" x .296" nominal. Suggested 350 V working. U.L. Listed.
100' Spool, Net....**$28.25** **500' Spool,** Net....**$115.25*** **1000' Spool,** Net....**$189.90***
Belden No. 8722* (Fig. P)—Four 20 AWG, 7 x 28 stranded, tinned copper conductors vinyl insulated; Beldfoil aluminum-polyester shield over 2 conductors (black, red); unshielded conductors coded green, white; #22 stranded tinned ground drain wire, chrome vinyl jkt. O.D., .230" nom. Suggested 350 WV. Pairs cabled on common axis to reduce dia. **500' Spool,** Net.**$125.00*** **1000' Spool,** Net.**$217.35***
Belden No. 8724* (Fig. P)—Same as 8722, but 22 AWG, 7 x 30 stranded, 24 AWG stranded tinned copper ground drain wire, 200 working volts; polypropylene insulated, nominal O.D., .165".
250' Spool, Net.....**$44.05** **500' Spool,** Net.....**$88.10*** **1000' Spool,** Net....**$145.20***
Belden No. 9155*^ (Fig. P)—Same as 8724 but 20 AWG, 7 x 28 shielded, and 18 AWG, 16 x 30 unshielded, 22 AWG stranded tinned copper drain wire; rose gray vinyl jacket. O.D., .256" nominal. Suggested 300 V. working. U.L. Listed. **500' Spool,** Net....**$125.00*** **1000' Spool,** Net....**$226.35***
Belden No. 8728^ (Fig. Q)—Four 22 AWG, 7 x 30 stranded, tinned copper, polypropylene insulated, cabled in pairs, each pair has Beldfoil aluminum-polyester shield with copper drain wire and polyester film over shields, overall Beldfoil aluminum-polyester shield, stranded tinned copper drain wire, chrome vinyl jacket. Color coded red, blk, grn, wht. Pairs cabled on common axis to reduce diameter. O.D., .198" nom. 400 WV, suggested. U.L. Listed. **500' Spool,** Net.**$133.05*** **1000' Spool,** Net.**$266.10***
Belden No. 8730 (Fig. R)—Four 22 AWG, 7 x 30 stranded, tinned copper, polypropylene insulated; Beldfoil aluminum-polyester shield over one pair (red, blk) with stranded tinned copper drain wire; unshielded coded green, white; chrome vinyl jacket. Pairs cabled on separate axis for reduced magnetic coupling. O.D., .205" nom. 200 WV suggested.
500' Spool, Net.....**$125.00*** **1000' Spool,** Net.....**$207.15***
Belden No. 8733 (Fig. S)—Three 22 AWG, 7 x 30 stranded, tinned copper conductors, polyethylene insulated, each has separate Beldfoil aluminum-polyester shield; ground wire for each conductor is tinned cadmium bronze ribbon under Beldfoil aluminum-polyester shield; conductors cabled and color coded, black red and clear. Overall chrome vinyl jacket. Nominal .205" O.D. Suggested 350 V working.
100' Spool, Net.....**$26.70** **500' Spool,** Net.....**$104.65***
Belden No. 8788 (Fig. T)—Same as 8733 but vinyl insul., color coded blk, red, grn, plus 2 cond. unshielded. cabled around vinyl filler (yel., blue). Nom. O.D., .236". **500' Spool,** Net.....**$142.75***
Belden No. 8640* (Fig. U)—Two 28 AWG solid copper, Geosol™ insulated, conductors cabled in pairs, Beldfoil aluminum-polyester shield each pair, 30 AWG solid tinned copper covered steel drain wire, white vinyl jacket. Color coded blk, red. Nom. O.D., .090"; cap. between cond. 55 pF/ft.
250' Spool, Net.....**$25.60** **500' Spool,** Net.....**$51.05***



®TM: Beldfoil of Belden. *Passes the FR-1 vertical flame test. ^Unreel available, same price. ^UL Listed.



TRANSMISSION LINE CABLES

300 OHM IMPEDANCE TWIN LEAD WIRE

No. 9090 Metro: Two 26 AWG 7 × 34 stranded copper covered steel conductors, orange polyethylene insulation and web between conductors, cellular polyethylene oval insulation, Beldfoil® aluminum-polyester shield stranded tinned drain wire, brown or tan vinyl jacket. **No. 9085 Maxi:** Two 22 AWG 7 × 30 stranded copper covered steel parallel conductors, cellular brown polyethylene oval jacket. **No. 8290 Permohm®:** 100% sweep tested. Two 22 AWG 7 × 30 stranded copper covered steel conductors, orange polyethylene insulation and web between conductors, cellular polyethylene oval insulation, Beldfoil aluminum-polyester shield, stranded tinned drain wire, brown polyethylene jacket. **No. 8285 Permohm:** Two 22 AWG 7 × 30 stranded copper covered steel parallel conductors, orange polyethylene insulation and web between conductors, cellular brown polyethylene oval jacket. **No. 8230 Weldohm®:** Two 20 AWG 7 × 28 stranded bare copper covered steel parallel conductors, brown polyethylene insulated. **No. 8225:** Two 20 AWG 7 × 28 stranded bare copper parallel conductors, brown polyethylene insulated. **No. 8226:** Same as 8225 except for indoor use only; specify ivory or clear. **No. 8275 Cellulne®:** Two 20 AWG 7 × 28 stranded bare copper covered steel parallel conductors, brown polyethylene jacket with inert gas filled unicellular polyethylene core. **No. 8235:** Rated 1 kW for amateur transmitting and receiving. Two 18 AWG 7 × 26 stranded bare copper parallel conductors, brown polyethylene insulated.

Belden No.	Fig.	Nominal O.D. Inch	Nominal Atten.* dB	Net Each, Coil of 25′	50′	75′	100′	Net Each, Spool of 250′	500′	1000′
9090	A	.215 × .345	6.4	$7.30	$ 9.85	$12.65	$15.40	.....	$ 73.15	.....
9085	B	.165 × .400	2.8	3.52	4.82	5.95	7.40	.....	30.55	$ 61.05
8290	A	.305 × .515	3.5†	.....	19.05	25.15	31.85	$74.10	125.00	.....
8285	C	.255 × .468	2.8	.....	8.20	10.95	14.05	30.50	61.00	121.95
8230	D	.072 × .400	2.2	2.60	3.73	4.99	6.20	.....	29.15	54.80
8225	D	.058 × .400	2.2	2.37	3.53	4.53	5.60	.....	26.30	49.50
8226	E	.058 × .400	2.2	2.37	3.53	4.53	5.60	.....	.....	.....
8275	F	.300 × .400	2.1	.....	7.35	10.05	12.85	.....	57.45	114.85
8235	G	.185 × .520	2.2▲	.....	.....	.....	18.15	.....	79.75	.....

*Attenuation per 100′ at 300 MHz. †At 213 MHz. ▲At 400 MHz.

SHIELDED 100-OHM IMPEDANCE LINE (FIG. H)

Belden No. 8227●▼—One tinned, one bare 20 AWG, 7 × 28 stranded copper conductors, polyethylene insulated, cabled, in polyethylene jacket, tinned copper braid shield with overall black vinyl jacket. O.D., .325″ nom. Cap., 15.5 pF/ft. nom. Attenuation 4.1 dB at 100 MHz, 10.2 dB at 400 MHz. U.L. Listed. **500′ Spool,** Net . . **$193.20: 1000′ Spool,** Net . . **$386.40: 2000′ Spool,** Net . . **$774.00**

72 OHM IMPEDANCE CABLES (FIG. I)

Belden No. 8222—Two 20 AWG 7 × 28 stranded bare copper parallel conductors, brown polyethylene insulated. O.D., .075″ × .128″. Cap., 20.3 pF/ft. nom. Attenuation 7.7 dB at 100 MHz, 15.9 dB at 400 MHz. **100′ Spool,** Net.. **$8.45 500′ Spool,** Net **$35.40**

Belden No. 8210—Rated 1 kW (RF). Two 13 AWG 7 × 21 stranded bare copper parallel conductors, brown polyethylene insulated. O.D., 166″ × .278″. Cap., 21 pF/ft. nom. Attenuation, 3.8 dB at 100 MHz, 16.0 dB at 900 MHz. **100′ Spool,** Net ..... **$43.15 250′ Spool,** Net..... **$85.30**

ANTENNA ROTATOR CABLE

Fig. J. Types: Bare copper, parallel. 8464 chrome vinyl insulated, 1 cond. tinned and insulation ribbed. 9404 gold vinyl insulated, 8463 brown polyethylene insulated, 9403 black polyethylene insulated, 1 cond. tinned. Suggested working, 200 V, **Fig. L Type:** Bare copper cond. vinyl insulated, cabled, chrome vinyl jacket. Color Coded: 1—Black; 2—Green, 3—Red, 4—White, 5—Yellow. Suggested working, 200 V; 8489, 400 V.

Belden No.	Fig.	No. Cond.	AWG and (Stranding)	Nom. O.D., Inch	Net Each, Spool of 50′	75′	100	500′	1000′
8463	J	5	20 (7 × 28)	.070 × .375	$10.40	$15.20	$20.05	$ 88.40	.....
8464●	J	4	20 (7 × 28)	.070 × .390	9.30	12.60	16.40	67.80	$125.00
9403	J	3	20 (7 × 28½)	.075 × .350	6.00	8.10	10.10	47.15	.....
9404	J	3	20 (7 × 28½)	.075 × .360	6.35	8.60	10.65	49.60	.....
8484●	K	4	20 (7 × 28)	.180	.....	.....	17.20	72.75*	125.00*
8489‡●▼	K	4	18 (16 × 30)§	.250	.....	.....	25.75	112.30*	185.10*
8485●	K	5	20 (7 × 28)	.190	.....	.....	21.20	90.45*	149.10*
8488†●	K	8	22 (7 × 30)	.205	.....	.....	24.60	107.20*	176.70*

†Color coded blk, blue, brn, grn, orange, red, wht, yel. ‡Color coded blk, wht, red, grn. §Tinned copper. #250′, $56.15. ●Passes the FR-1 vertical flame test. ▼U.L. Listed.

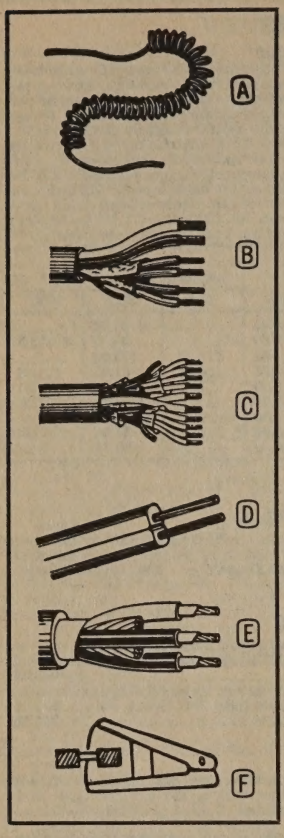
RG/U TRANSMISSION LINE CABLES

Polyethylene insulation over conductors except as otherwise indicated.

Belden No.	Fig.	No. RG-	AWG and (Stranding)	Shields No.	Shields Type	Jacket	Nom. O.D.	Net Each, Spool of 25′	50′	100′	500′	1000′
8237●§	L	8/U	13 (7 × 21) b	1	b	BV	.405″	.....	$25.75	$47.90	$156.60	$313.20
9251●▼	L	8A/U	13 (7 × 21) b	1	b	BN	.405″	.....	.....	67.10	214.90	429.75
8242●§	M	9/U	13 (7 × 21) a	2	a, b	GN	.420″	.....	.....	216.40	.....	1944.00
8238●§	L	11/U	18 (7 × 26) c	1	b	BV	.405″	.....	.....	51.15	165.90	331.80
9232▼	M	11/U	14 (19 × 26½) b	2	b	B	.520″	.....	.....	.....	562.50	1125.00
8261●●	L	11A/U	18 (7 × 26) c	1	b	BN	.405″	.....	.....	.....	191.25	382.50
9250●●	N	22B/U	18 (7 × .0152) d	2	c	BN	.420″	.....	.....	112.70	386.25	772.50
8259§	L	58A/U	20 (19 × .0071) c	1	c	BV	.195″	$7.00	10.65	20.30	70.80*	125.00*
8240§▼	L	58/U	20 (Solid) b	1	c	BV	.195″	6.60	10.20	17.95	63.70*	125.00*
8262*	L	58C/U	20 (19 × .0071) c	1	c	BN	.195″	.....	.....	.....	83.90*	138.30*
8263*	L	59B/U	.023 (Solid)‡	1	b	BV	.242″	.....	.....	.....	105.95*	174.60*
8255*▼	O	62B/U	24 (7 × 32)†‡	1	b	BN	.242″	.....	.....	.....	125.00*	210.00*
9252*▼	L	122/U	22 (27 × 36) c	1	c	BN	.160″	.....	.....	24.75	94.10*	155.10*
8216*▼	L	174/U	26 (7 × 34)‡	1	c	BN	.100″	.....	.....	16.40	59.00	117.95
8218	L	.....	27 (7 × 35)‡	1	c	BV	.150″	.....	.....	21.85	80.35*	132.45*
8267●●▼	L	213/U	13 (7 × 21) b	1	b	BN	.405″	.....	.....	.....	214.90	429.75
8268●●▼	M	214/U	13 (7 × .0296) a	2	a	BN	.425″	.....	.....	.....	1086.00	2172.00
9273*▼	M	223/U	19 (Solid) a	2	a	BN	.208″	.....	.....	122.40	423.75*	848.00
9222	P	.....	20 (7 × 28) c	2	c	YV	.260″	.....	.....	40.35	140.95*	.....
9267	P	59/U	20 (Solid) b	2	b	B	.360″	.....	.....	76.85	301.30	602.55
9239	Q	174/U	26 (7 × 34)	1	c	BV	.101″	.....	.....	19.15	72.80	125.00
9223	Q	58/U	22 (7 × 30) c	1	c	BV	.195″	.....	.....	29.25	121.05	199.50
9224	Q	59/U	22 (Solid)	1	b	BV	.242″	.....	.....	31.60	125.00*	206.25*
9208	L	58/U	13 (7 × 21) b	1	b	#	.397″	.....	.....	41.45	130.00	259.95
9201	L	58/U	20 (Solid) b	1	b	#	.193″	.....	.....	9.70	37.00*	73.95*
9310▼	Q	58/U	20 (Solid) b	2	c, ●	BV	.195″	.....	.....	17.20	62.35*	124.70*
9311▼	Q	58/U	20 (19 × 32) c	2	c, ●	BV	.195″	.....	.....	25.75	96.85*	159.60*

*MIL-C-17D spec. §JAN-C-17A spec. †Semi-solid polyethylene insulation. ‡Bare copper covered steel. a—Silver-coated copper. b—Bare copper. c—Tinned copper. d—Bare copper, one cond. has tinned center strand, ●—Duobond®. BN—Black non-contaminating vinyl. BV—Black vinyl. GN—Gray non-contam. vinyl. YV—Yellow vinyl. B—Black neoprene. ●Passes the FR-1 vertical flame test. ▼U.L. Listed. #Black or white vinyl jacket.

***ALSO AVAILABLE IN UNREEL PACKAGE AT SAME PRICE.**



STRIP-IT TOOL (FIG. F)

Belden No. 8196—A precision tool, simple in design and foolproof in operation. Indispensable for electronic technicians, assemblers and electricians. Adjustment bar set with a touch of the finger. Engineered for thousands of operations with one set of blades. Can also be used to cut small size wires.
Net Each.....**$17.75**

CB-AMATEUR RADIO COAXIAL CABLE

Individually packaged and fitted with PL-259 connectors on both ends, RG 58A/U (Models 9350 thru 9352), or 8/U (all others) cables for use with two way systems. Low loss foam; 50 ohms impedance. Outer diameter, .195" for RG 58A/U, and .405" for 8/U. All in black color.

Belden No.	Length	Net Each
9349	3′	$ 7.20
9350	15′	8.40
9346	18′	6.40
9347	20′	7.25
9351	25′	9.60
9352	50′	12.70
9353	25′	16.90
9354	50′	23.85
9355	75′	32.95
9356	100′	40.75

®TM: Beldfoil of Belden.

RETRACTILE CABLES AND CORDS (FIG. A)

MICROPHONE CABLES

No. 8409: Tinned copper, nylon insulated, neoprene jacket. **Nos. 9465, 9466 and 9467:** Same, except spiral tinned copper shield. **Nos. 8415, 8490 and 9415:** Five strands TCW, 16 strands TC, rubber insulated, paper tape, neoprene jacket. **Nos. 8499 and 9499:** Tinned cadmium bronze, rubber insulated, spiraled TC shield, cotton wrap, neoprene jacket. **No. 8605:** Tinned copper, polypropylene insulated, spiraled TC shield, gray PVC jacket. **All Others:** Five strands TCW, 16 strands TC, rubber insulated, double Beldfoil® aluminum-polyester shield with drain wire same as conductors, paper tape, neoprene jacket. **Conductor Color Coding: 1,** white; **2,** black; **3,** red; **4,** green; **5,** blue. Capacitance given is of shielded conductor.

Belden No.	Conductors	AWG and (Stranding)	Nominal O.D.	Nominal Coil O.D.	Nominal Cap. pF/Cord	Length Retr.	Length Ext.	Net Each per Standard Put-Up 1	Net Each per Standard Put-Up 15
9470	2 unshielded	33 (Tinsel)	.105″	½″	.....	10½″	5′	$ 4.00	.....
9468	1 shld, 2 unshld	31 (Tinsel)	.150″	½″	900	20″	10′	11.95	.....
9469	4 unshielded	31 (Tinsel)	.150″	½″	.....	20″	10′	10.50	.....
9466	1 shld, 2 unshld	28 (7 x 36)	.160″	5/8″	1000	12″	6′	5.80	.....
9465	1 shld, 2 unshld	28 (7 x 36)	.175″	11/16″	1230	15″	7½′	7.30	.....
9467	1 shld, 2 unshld	28 (7 x 36)	.175″	11/16″	1000	12″	6′	6.85	.....
8409	4 unshielded	28 (7 x 36)	.165″	5/8″	.....	12″	6′	5.05	.....
8415	4 unshielded	23 (21 x 36)	.250″	7/8″	.....	11½″	6′	5.90	$ 5.25*
9415	4 unshielded	23 (21 x 36)	.250″	7/8″	.....	30″	15′	12.65	10.80
9499	1 shielded	24 (45 x 40)	.170″	11/16″	910	24″	12′	9.30	7.80†
9471	1 shld, 2 unshld	23 (21 x 36)	.250″	7/8″	725	12″	5′	4.88	.....
9472	1 shld, 2 unshld	23 (21 x 36)	.250″	7/8″	950	18″	7½′	6.20	.....
8499	1 shielded	24 (45 x 40)	.170″	11/16″	285	7½″	4′	4.26	.....
8605	1 shielded	24 (19 x 36)	.160″	11/16″	680	21½″	12′	6.50	.....
8497	1 shfelded,	23 (21 x 36)	.250″	7/8″	510	11½″	6′	6.50	5.35*
9417	2 unshielded	23 (21 x 36)	.250″	7/8″	1200	30″	15′	13.40	10.90
8491	2 ind. shielded,	23 (21 x 36)	.275″	1 1/16″	510	12″	6′	7.50	.....
9416	2 unshielded	23 (21 x 36)	.275″	15/16″	1200	30″	15′	17.85	15.15
8490	5 unshielded	23 (21 x 36)	.265″	7/8″	.....	11½″	6′	6.50	.....

*Standard Put-Up of 50. †Standard Put-Up of 10.

75 OHM VIDEO COAXIAL CABLES

Stranded tinned copper conductor, polyethylene insulation, Beldfoil shield, tinned copper serve shield, gray PVC jacket.

9447	1 coaxial	25 (7 x 33)	.242″	1⅛″	42	6″	2′	$3.84	.....
9448	1 coaxial	25 (7 x 33)	.242″	1⅛″	84	12″	4′	5.05	.....
9449	1 coaxial	25 (7 x 33)	.242″	1⅛″	168	24″	8′	7.85	.....

NEOPRENE POWER CONTROL CABLES

Bare copper, paper wrap, rubber insulation, cabled with fillers, paper tape wrap, black neoprene jacket. Straight portion 12″ each end (except 6″ on 8601, 8602, 8603). **Jacket:** .045″ thick; removed 1½″ each end. **Color Coding: 1,** white; **2,** black; **3,** green; **4,** red. U.L. Listed.

Belden No.	No. of Cond.	Type	AWG and (Stranding)	Nominal O.D.	Nominal Coil O.D.	Length Retr.	Length Ext.	Net Each per Standard Put-Up 1	Net Each per Standard Put-Up 15
8601	2	SVO	18 (41 x 34)	.270″	15/16″	12″	6′	$ 4.93	.....
9476	2	SVO	18 (41 x 34)	.270″	15/16″	24″	12′	9.00	$ 7.25
9477	2	SVO	18 (41 x 34)	.270″	15/16″	48″	25′	14.30	11.70
9478	3	SVO	18 (41 x 34)	.275″	15/16″	24″	12′	11.50	9.35
9479	3	SVO	18 (41 x 34)	.275″	15/16″	48″	25′	19.85	17.15
8602	3	SJO	18 (41 x 34)	.360″	1⅜″	12″	6′	7.50	.....
9480	3	SJO	18 (41 x 34)	.360″	1⅜″	24″	12′	13.20	.....
9481	3	SJO	18 (41 x 34)	.360″	1⅜″	48″	25′	21.75	.....
8603	3	SJO	16 (65 x 34)	.370″	1 7/16″	12″	6′	7.55	.....
9484	3	SJO	16 (65 x 34)	.370″	1 7/16″	24″	12′	14.95	.....
9485	3	SJO	16 (65 x 34)	.370″	1 7/16″	48″	25′	25.40	.....
9482	4	SJO	18 (41 x 34)	.385″	1 7/16″	24″	12′	15.20	.....
9483	4	SJO	18 (41 x 34)	.385″	1 7/16″	48″	25′	25.40	.....

VINYL TELEPHONE CORDS

8495: Bare cadmium bronze, vinyl insulated, conductors cabled, paper wrapped, black vinyl jacket. One end stripped 2¾″, spade terminals attached and hook strain relief clamped over jacket. Other end stripped 3/16″ and spade terminals attached. **Color Coding: 1,** white; **2,** black; **3,** red. **All Others:** Tinsel conductors, vinyl insulated, vinyl jacket. One end stripped 7″, spade terminals attached and hook strain relief clamped over jacket. Other end has red and black conductors pulled out of jacket and cut to 3″ length, spade terminals attached, molded plastic strain relief, 6¼″ jacket remains on two white conductors, spade terminals attached. Jacket available in black, light beige or white; 8495 black only; 9440 colors, black and light beige only.

8495	3	.....	23 (21 x 36)	.220″	7/8″	10″	4½′	$ 5.95	.....
9443	4	.....	31 (Tinsel)	.195″	¾″	10½″	5′	9 00	$ 7.70
9440	4	.....	31 (Tinsel)	.195″	¾″	22″	10′	11.50	9.50
9441	4	.....	31 (Tinsel)	.195″	¾″	33″	15′	14.65	12.40
9442	4	.....	31 (Tinsel)	195″	¾″	48″	25′	17.85	15.25

JUKE BOX CABLES

No. 8786: Tinned copper, vinyl insulated, 4 conductors, cabled under Beldfoil aluminum-polyester shield; 2 unshld. cond., 22 AWG drain wire; chrome vinyl jacket. **No. 8787:** Tinned copper; 8 polythylene insulated cond., cabled in 2 quads each has transparent polyester tape wrap and tinned copper wire, with Beldfoil aluminum-polyester shield color coded red, green; 2 vinyl insulated conductors; chrome vinyl jacket. **No. 8784:** 10 unshielded, tinned copper conductors, color coded vinyl insulation, cabled, chrome vinyl jacket. Pass FR-1 flame test.

Belden No.	Fig.	No. Cond.	AWG and (Stranding)	Nom. O.D.	WV	Net Each, Spool of 100′	Net Each, Spool of 500′
8786	B	6	2-22 (7x30), 4-24 (7x32)	.256″	350	$31.60	$125.00*
8787	C	10	8-24 (7x32), 2-22 (7x30)	.290″	350	.....	213.75*
8784§	....	10	2-16 (26x30), 1-20 (10x30), 7-22 (7x30)	.299″	300	.....	201.75*

§U.L. Listed.

***ALSO AVAILABLE IN UNREEL PACKAGE AT SAME PRICE.**

PRICES LISTED ARE FOR GUIDANCE ONLY

CLOSED CIRCUIT TELEVISION CABLES THAT ANSWER MOST CCTV AND VTR CABLE APPLICATION NEEDS

Belden No. 9254* (Fig. A)—13-conductor camera extension cable. Recommended for remote control, closed circuit and cue line applications. Has two 20 AWG (10 x 30) tinned copper, vinyl insulated, color coded conductors. Nine 22 AWG (7 x 30) tinned copper, vinyl insulated, 2 conductors cabled, Beldfoil® shield, 2 conductors cabled unshielded, 5 conductors unshielded. Two foam polypropylene insulated coaxial cables. Nominal impedance, 75 ohms, color coded. Tinned copper braid shield. Chrome vinyl jacket, .550" nominal O.D. UL Listed, Style 2497.
100 ft., Net.....**$176.75** **250, 500, 1000 or 1500 ft.,** Net per 1000 ft.*.....**$1489.50**

Belden No. 9259 (Fig. B)—RG-59 type coax cable with stranded center conductor. Recommended for camera to recorder to monitor connections. Stranded center conductor adds the flexibility needed to resist severe twisting, bending and other stresses which occur in many CCTV applications. Has 22 AWG stranded bare copper conductor, cellular polyethylene insulation, bare copper braid shield, black vinyl jacket, 75 ohm, .242" nominal O.D. UL Listed, Style 1354.
50 ft., Net **$16.60** **100 ft.,** Net **$28.25** **500 ft.,** Net **$97.40*** **1000 ft.,** Net **$160.50***

Belden No. 9260 (Fig. C)—6-conductor shielded remote control cable. Recommended for applications where remote switching of video camera function is required. Six 20 AWG (7 x 28) tinned copper conductors, vinyl insulated, black, white, red, green, orange, blue. Overall tinned copper braid shield. Overall gray vinyl jacket, .305" nominal O.D. UL Listed, Style 2464.
50 ft., Net..**$38.60** **100 ft.,** Net..**$63.80** **500 ft.,** Net..**$214.20** **1000 ft.,** Net **$428.40**

Belden No. 9261 (Fig. D)—12-conductor shielded remote control cable. Recommended for applications where remote switching of video camera function is required. Has twelve 20 AWG (7 x 28) tinned copper conductors, vinyl insulated, color coded. Overall tinned copper braid shield. Overall gray vinyl jacket, .410" nominal O.D. UL Listed, Style 2464.
50 ft., Net..**$66.20** **100 ft.,** Net..**$105.60** **500 ft.,** Net..**$362.05** **1000 ft.,** Net..**$724.05**

Belden No. 9262 (Fig. E)—13-conductor remote control and video cable. Recommended for use in installations requiring external drive signals, tallies, intercom, switching and video operations. Has twelve 20 AWG (7 x 28) tinned copper conductors, vinyl insulated, color coded. One 75-ohm coax, 22 AWG stranded bare copper conductor, foam polyethylene insulated, bare copper braid shield, polyester tape wrapped. Overall tinned copper braid shield. Overall gray vinyl jacket, .460" nominal O.D. UL Listed.
50 ft., Net..**$87.00** **100 ft.,** Net..**$125.00** **500 ft.,** Net..**$503.25** **1000 ft.,** Net..**$1006.50**

Belden No. 9265—Siamese type cable, RG59/U type and twisted pair, RG59/U has 1 conductor 22 AWG BC coax with cellular polyethylene insulation, bare copper shield. Nom. impedance, 75 ohms. Twisted pair is 2 conductor, 22 AWG TC with vinyl insulation, Beldfoil aluminum-polyester shield, black vinyl jacket. Nom. O.D., .242" x .445".
500 ft., Net.....**$164.70** **1000 ft.,** Net.....**$329.40**

TV CAMERA CABLES

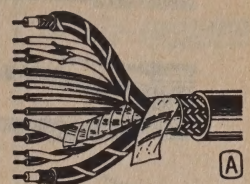
Belden No. 8280* (Fig. F)—28-conductor camera cable. Four 18 AWG (16 x 30) tinned copper, vinyl insulated, color coded; 21-22 AWG (7 x 30) tinned copper, vinyl insulated, cabled in 3 groups of 7, color coded; 3 coaxial cables color coded, nominal impedance 51 ohms; tinned copper braid shield; chrome vinyl jacket .750" nom. O.D. U.L. Listed.
100 ft., Net.....**$330.60** **250, 500 or 1000 ft.,** Net per 1000 ft.*.....**$2829.00**

Belden No. 8286*—Similar to above, but nom. impedance 75 ohms. Additionally, the group of four 18 AWG and a group of seven 22 AWG conductors are separately wrapped with Beldfoil aluminum-polyester shield with stranded drain wire and polyester tape over each group. Jacket is black Hypalon®, .730" O.D.
100 ft., Net.....**$330.60** **250, 500 or 1000 ft.,** Net per 1000 ft.*.....**$2832.00**

Belden No. 9253*—Recommended for transistorized TV cameras. UL listed. Similar to Fig. G except with shield. 28-conductor TV camera cable has four 18 AWG (16 x 30) tinned copper, vinyl insulated, color coded conductors, Beldfoil® aluminum-polyester shield around 4 conductors with stranded drain wire, polyester tape over this shielded group. 21-22 AWG (7 x 30) tinned copper, vinyl insulated, cabled in three groups of 7, color coded, one group of 7 has Beldfoil aluminum-polyester shield overall with a stranded drain wire, polyester tape over this shielded group. Three coaxial cables, nom. impedance 75 ohms. RG 59/U type with foam polypropylene insulation. Tinned copper braid shield, chrome vinyl jacket .810" nom. O.D. U.L. Listed.
100 ft., Net.....**$379.70** **250, 500 or 1000 ft.,** Net per 1000 ft.*.....**$3223.50**

Belden No. 8282* (Fig. G)—13-conductor TV eye cable. Eight 22 AWG (7 x 30) tinned copper, vinyl insulated, color coded; one 22 AWG (7 x 30) polyethylene insulated; two 18 AWG (16 x 30) tinned copper conductors, vinyl insulated, black and red; one RG-58A/U 50-ohm coax cable, one 72-ohm coax, stranded conductor, polyester tape wrapped, chrome vinyl jacket .470" nom. O.D.
100 ft., Net.....**$146.05** **250, 500, 1000 or 1500 ft.,** Net per 1000 ft.*.....**$1233.00**

®TM: Beldfoil of Belden; Hypalon of DuPont. *One piece spools; length may vary +20% −0% from length shown. *Passes FR-1 vertical flame test.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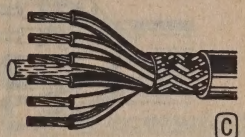
B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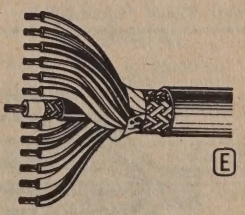
D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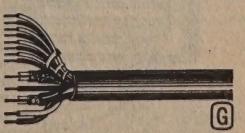
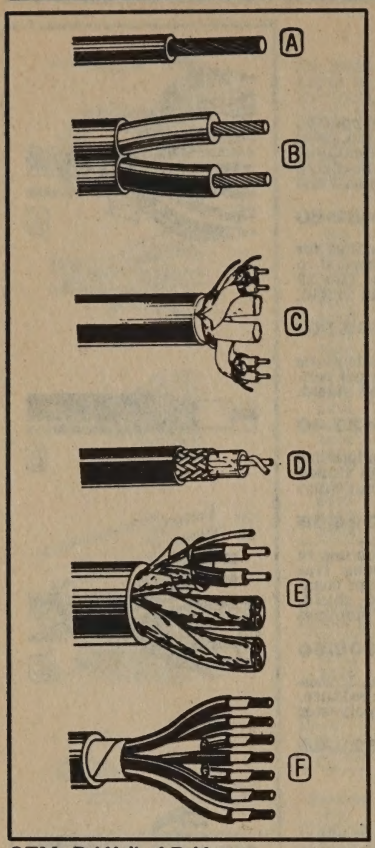

G

PAIRED TELEPHONE CABLES

Tinned solid copper conductors, vinyl insulated, pairs twisted, silver gray vinyl jacket. U.L. Listed.

Belden Number	No. of Pairs	AWG	O.D., Ins.	Net Each, Spools of		
				100'	500'	1000'
9561	1	24	.150	$ 7.90	$ 30.60	$ 61.15
9562	2	24	.195	13.65	51.35*	102.65*
9566	6	24	.285	30.05	124.85*	205.80*
9568	8	24	.300	38.70	130.00	259.95
9570	10	24	.350	47.15	159.30	318.60
9585	25	24	.495	125.00	463.50	927.00

***ALSO AVAILABLE IN UNREEL PACKAGE AT SAME PRICE**



®TM: Beldfoil of Belden.

PRIMARY WIRE, MARINE AND AUTO

Bare copper, vinyl insulated. S.A.E. type G.P.T.

Belden No.	Fig.	AWG and (Stranding)	Nom. O.D.	Color Code	Net Each, Spool of 100′	500′
8685	A	16 (19 x 29)	.102″	Black	$12.75	.....
8684	A	14 (19 x 27)	.117″	Green	17.50	.....
8683	A	12 (19 x 25)	.142″	Red	26.25	.....
8682	A	10 (19 x 23)	.175″	White	37.40	.....
8681	A	8 (19 x 21)	.219″	Chrome	57.15	.....
8680	A	6 (37 x 21)	.290″	Chrome	115.95	.....

DUPLEX PRIMARY WIRE

Tinned copper, vinyl insulated, conductors parallel, chrome vinyl jacket.

8677	B	16 (19 x 29)	.164″ x .276″	Brn, Red	$ 26.40	$110.60
8675	B	14 (19 x 27)	.189″ x .326″	Brn, Red	33.70	126.90
8673	B	12 (19 x 25)	.213″ x .384″	Brn, Red	49.00	189.10
8678	B	10 (19 x 23)	.243″ x .436″	Brn, Red	69.25	282.45
9679	B	8 (19 x 21)	.317″ x .572″	Brn, Red	125.00	571.60

7 MM IGNITION WIRE

Tinned iron wire conductor. EPDM rubber insulated and high temperature jacket.

8689*	C	20 (7 x 28)	.278″	.....	$29.70	.....

*Passes FR-1 vertical flame test.

DATA, INSTRUMENTATION AND COMPUTER CABLES

Belden No. 9851 (Fig. C)—200 ohm video twinax. Two conductor, 29 AWG solid silver coated copper covered steel. Cellular flame retardant polyethylene insulation. Beldfoil® shield, overall. Chrome vinyl jacket. Nom. O.D., .245″. U.L. Listed, Style 2606.
100′ Spool, Net..**$30.40** **500′ Spool,** Net .**$125.00** **1000′ Spool,** Net.**$224.10**

Belden No. 9269 (Fig. D)—IBM No. 323921. Type 62A/U. 22 AWG solid bare Copper-covered steel. Semi-solid polyethylene insulation. Bare copper shield. Black, non-contaminating vinyl jacket. Nom. O.D., .242″. U.L. Listed. Style 1354.
500′ Spool, Net..**$90.30*** **1000′ Spool,** Net.**$148.80*** **2000′ Spool,** Net.**$297.60**

Belden No. 9268* (Fig.D)—IBM No. 5252750. Type 62A/U. 22 AWG solid bare Copper-covered steel. Semi-solid flame retardant polyethylene insulation. Bare copper shield. Black vinyl jacket. Nom. O.D., .260″. U.L. Listed, Style 1354.
500′ Spool, Net.**$125.00*** **1000′ Spool,** Net.**$211.20*** **2000′ Spool,** Net.**$422.40**

MULTIPLE UNPAIRED TYPE SO NEOPRENE CONTROL CABLES (FIG. F)

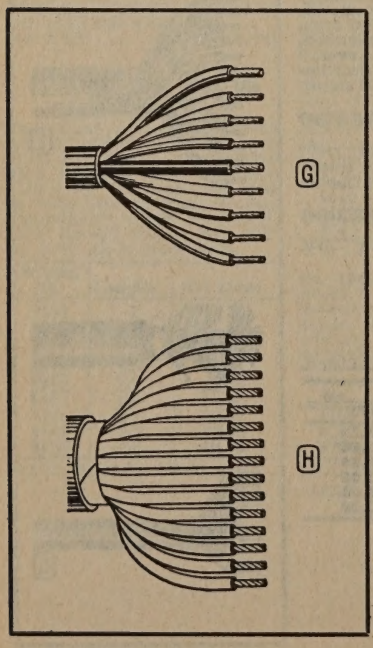
General purpose industrial and utility control applications, remote control of automatic electric equipment and motor control. Heavy duty neoprene jacket offers excellent resistance to oils, acids, oxidation, weathering, ozone abrasion and impact. Bare copper, 16 AWG (65 x 34), rubber insulated, conductors cabled with fillers, black neoprene jacket. Suggested Working Voltage: 600 V.
Color Coding available on request.

Beld. No.	*	Nom. O.D.	Net Each, Spool of 100′	500′	1000′
9420*	5	.520″	$106.40	$424.50	$849.00
9422*	7	.560″	125.00	559.50	1119.00
9424*	9	.610″	171.00	712.50	1425.00
9425*	12	.720″	230.65	975.00	1948.50
9427*	16	.800″	289.20	1221.00	2440.50
9429*	20	.880″	355.90	1522.50	.....

*No. of conductors. U.L. Listed.
*Passes FR-1 vertical flame test.

MULTIPLE UNPAIRED CONTROL AND AUDIO CABLES

Tinned copper, vinyl insulated, conductors cabled, chrome vinyl jacket. Suggested Working Voltage: 22 AWG, 200 V; 18 AWG, 400 V; 16 AWG and 14 AWG, 600 V. **Color Coding available on request.** Pass FR-1 vertical flame test.



Belden No.	Fig.	No. of Cond.	AWG and (Stranding)	Nom. O.D.	Net Each, Spool of 15′	25′	100′	250′	500′	1000′
8444*	G	4	22 (7 x 30)	.178″	....	$4.59	$14.15	$28.85	$ 57.70*	$115.40*
8445*	G	5	22 (7 x 30)	.190″	....	5.55	16.60	34.40	68.80*	125.00*
9430*	G	7	22 (7 x 30)	.210″	....	....	.....	.....	107.85*	177.75*
9421*	G	8	22 (7 x 30)	.229″	....	....	31.70	.....	125.00*	206.55*
9423*	G	9	22 (7 x 30)	.229″	....	....	35.15	.....	125.05*	250.05*
8456*	G	10	22 (7 x 30)	.260″	....	....	39.50	.....	145.50*	291.00*
8457*	G	12	22 (7 x 30)	.260″	....	....	44.45	.....	165.40*	330.75*
8458*	G	15	22 (7 x 30)	.320″	....	....	70.00	.....	254.50	508.95
9431*	G	20	22 (7 x 30)	.345″	....	....	88.30	.....	328.80	657.60
8459*	G	25	22 (7 x 30)	.370″	....	....	109.30	.....	411.75	823.50
9432*	G	30	22 (7 x 30)	.400″	....	....	125.00	.....	472.50	945.00
9433*	G	40	22 (7 x 30)	.455″	....	....	160.60	.....	625.50	1251.00
9434*	G	50	22 (7 x 30)	.500″	....	....	.....	.....	783.00	1566.00
9444*	G	4	20 (10 x 30)	.208″	....	....	17.40	.....	75.55*	125.00*
9445*	G	5	20 (10 x 30)	.230″	....	....	21.30	.....	91.55*	150.90*
9439*	G	7	20 (10 x 30)	.250″	....	....	35.05	.....	127.20*	254.40*
9455*	G	9	20 (10 x 30)	.310″	....	....	46.35	.....	171.00	342.00
9457*	G	12	20 (10 x 30)	.330″	....	....	57.10	.....	214.80	429.60
9458*	G	15	20 (10 x 30)	.380″	....	....	74.75	.....	286.05	572.10
8446*	G	6	4-22 (7 x 30) 2-18 (16 x 30)	.232″	$6.70	....	29.50	$63.80	125.00*	210.15*
8447*	G	7	5-22 (7 x 30) 2-18 (16 x 30)	.250″	....	....	35.05	74.45	125.00*	245.25*
8448*	G	8	6-22 (7 x 30) 2-18 (16 x 30)	.254″	7.70	....	37.15	80.85	133.20*	266.40*
9405*	G	8	6-18 (16 x 30) 2-16 (26 x 30)	.377″	....	....	.....	125.00	222.10	444.15
8449*	G	9	7-22 (7 x 30) 2-18 (16 x 30)	.265″	8.10	....	39.25	87.45	144.15*	288.30*
8465*	G	5	18 (16 x 30)	.286″	....	....	31.60	71.55	125.00*	235.65*
8467*	G	7	18 (16 x 30)	.324″	....	....	52.35	117.25	193.20	386.40
8469*	G	9	18 (16 x 30)	.379″	....	....	67.10	128.25	256.45	512.85
8466*	G	12	18 (16 x 30)	.412″	....	....	92.40	183.60	367.15	734.25
8468*	G	15	18 (16 x 30)	.490″	....	....	125.00	.....	488.25	976.50
8619*	G	19	18 (16 x 30)	.505″	....	....	148.05	.....	578.25	1156.50
9626	H	25	18 (16 x 30)	.600″	....	....	191.10	.....	744.75	1489.50
8620	H	4	16 (19 x 29)	.375″	....	....	49.50	.....	190.00	379.95
9620	H	5	16 (19 x 29)	.405″	....	....	65.00	.....	222.60	445.20
8621	H	7	16 (19 x 29)	.455″	....	....	91.20	.....	334.35	668.70
9621	H	9	16 (19 x 29)	.510″	....	....	110.75	.....	413.25	826.50
8622	H	12	16 (19 x 29)	.600″	....	....	125.00	.....	564.75	1129.50
8623	H	15	16 (19 x 29)	.685″	....	....	199.50	.....	814.50	1627.50
8624	H	19	16 (19 x 29)	.715″	....	....	244.95	.....	987.00	1972.50
9622	H	25	16 (19 x 29)	.820″	....	....	.....	.....	1134.00	2266.50
8627	H	4	14 (19 x 27)	.495″	....	....	88.65	.....	332.25	664.50
9623	H	5	14 (19 x 27)	.560″	....	....	107.20	.....	396.75	793.50
8628	H	7	14 (19 x 27)	.630″	....	....	125.00	.....	570.75	1141.50
8629	H	12	14 (19 x 27)	.770″	....	....	241.45	.....	1000.50	1999.50

*U.L. Listed.

***ALSO AVAILABLE IN UNREEL PACKAGE AT SAME PRICE**

PRICES LISTED ARE FOR GUIDANCE ONLY

TEST PROD WIRE (FIG. A)

Extremely limp and flexible wire has high dielectric strength. Tinned copper 18 AWG, 65 x 36 stranded, separator, rubber insulated, specify red or black. No. 8897 made per MIL-W-13169. Miniature type 8890, 24 AWG, 45 x 40 stranded tinned copper, cotton separator, rubber insulated, specify red or black.

Belden No.	Nom. O.D.	Breakdown Volts	Suggested Work V‡	Net Each, Spool of 10′	14′*	25′	100′	500′	1000′
8899†	.144″	20,000	5,000	$3.11	$3.49	$4.93	$15.95	$58.00*	$115.95*
8897	.144″	20,000	5,000	....	....	....	.....	66.00*	.....
8898	.230″	29,000	10,000	4.55	....	8.10	21.20	87.95	.....
8890	.066″	10,000	1,000	....	....	4.10	10.10	42.90	.....

*7 ft. of red; 7 ft. of black. †25′; 100′ and 500′ also available in blue, white, gray, green or yellow. ‡For intermittent duty only.

COILED TEST PROD WIRE (FIG. B)

Coiled test prod wire, prevents that cluttered up work bench. Retracted length 8 inches, stretched length, 5 feet. Tinned copper wire, rubber insulated, red and black. Complete with prods. AWG and stranding, 20 (42 x 36). Nom. O.D., .173″. Breakdown, 20,000 V; suggested working, 5,000 V.

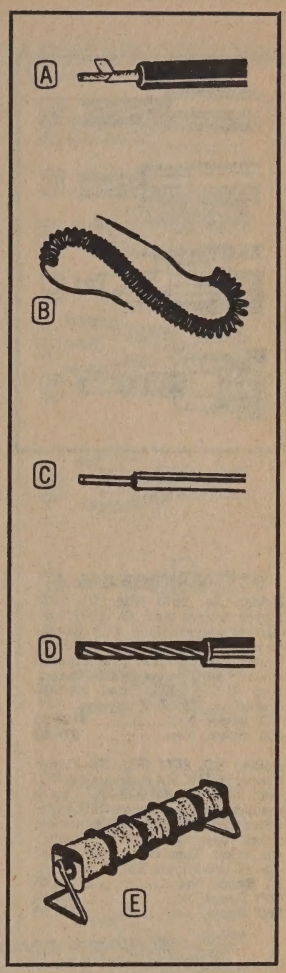
Belden No. 8878—One red and one black. Net per Pair. **$13.30**

Belden No. 8879—Same as above, less prods. Net per Pair..... **5.65**

UL HOOK-UP AND LEAD WIRES

Belden No.	Fig.	AWG and (Stranding)	Nom. O.D.	Stock Colors†	Net Each, Spool of 100′	500′	1000′	5000′#
UL STYLE 1007, CSA TYPE TR-64, RATED 300 V, 80° C								
Tinned copper, vinyl insulation. Rated to 600 V peak for electronic circuits.								
9930	D	30 (7 x 38)	.044″	1–5, 7–10, 13	$4.53	.....	$30.95	.....
9928	D	28 (7 x 36)	.047″	1–5, 7–10, 13	4.28	.....	28.80	.....
9926	D	26 (7 x 34)	.051″	1–5, 7–10, 13	4.53	.....	30.25	.....
9923	D	24 (7 x 32)	.056″	1–5, 7–10, 13	4.68	.....	31.30	.....
9921	D	22 (7 x 30)	.062″	1–5, 7–10, 13	5.35	.....	37.35	.....
9922•	D	22 (7 x 30)	.062″	1–5, 7–19, 13	....	.....	.....	$36.40
9919	D	20 (7 x 28)	.069″	1–5, 7–10, 13	6.50	.....	44.60	.....
9920•	D	20 (7 x 28)	.068″	1–5, 7–10, 13	....	.....	.....	44.95
9918•	D	18 (16 x 30)	.079″	1–5, 7–10, 13	7.00	.....	50.80	47.15
9916	D	16 (26 x 30)	.092″	1–5, 7–10, 13	9.85	.....	76.65	.....
UL STYLE 1015, CSA TYPE TEW, RATED 600 V, 105° C								
Tinned copper, vinyl insulation. Rated to 2500 V peak for electronic circuits.								
9720•	C	24 (Solid)	.083″	2, 4, 5, 8–10, 13	....	.....	.....	$25.15
9924•	D	24 (7 x 32)	.088″	1–5, 9, 10, 13	$ 5.50	.....	$39.35	.....
9722•	C	22 (Solid)	.088″	2, 4, 5, 8–10, 13	....	.....	.....	30.95
8920•	D	22 (7 x 30)	.093″	1–5, 9, 10, 13	5.90	.....	42.45	33.70
9822•	D	22 (7 x 30)	.093″	2, 4, 5, 9, 10, 13	....	.....	.....	38.40
8919•	D	20 (10 x 30)	.100″	1–5, 9, 10, 13	7.25	.....	53.55	43.70♦
9820•	D	20 (7 x 28)	.099″	2, 5, 9, 10, 13	....	.....	.....	47.70♦
8918•	D	18 (16 x 30)	.110″	1–5, 9, 10, 13	8.95	.....	63.90	58.10♦
9818•	D	18 (7 x 26)	.105″	2, 5, 9, 10	....	.....	.....	64.45♦
8917•	D	16 (26 x 30)	.123″	1–5, 9, 10, 13	11.05	$ 46.60	95.00	77.20♦
8916•	D	14 (41 x 30)	.138″	1–5, 9, 10, 13	15.75	65.90	.....	.....
9812•	D	12 (65 x 30)	.158″	1–5, 9, 10, 13	26.05	46.00▲	.....	.....
9910•	D	10 (65 x 28)	.183″	2, 4, 9, 10	36.60	64.65▲	.....	.....
9908•	D	8 (84 x 27)	.250″	2, 4, 9, 10	63.55	113.70▲	.....	.....
UL STYLE 1061, CSA TYPE SR-PVC, RATED 300 V, 80° C								
Tinned copper, semi-rigid vinyl insulation. Suitable for wire-wrap applications.								
9978•	C	30 (Solid)	.030″	1–5, 7–10, 13	$4.26	.....	$28.60	.....
9987•	D	30 (7 x 38)	.032″	1–5, 7–10, 13	4.53	.....	30.95	.....
9977•	C	28 (Solid)	.033″	1–5, 7–10, 13	3.40	.....	22.95	.....
9986•	D	28 (7 x 36)	.035″	1–5, 7–10, 13	4.28	.....	28.80	.....
9976•	C	26 (Solid)	.036″	1–5, 7–10, 13	2.95	.....	19.70	.....
9985•	D	26 (7 x 34)	.039″	1–5, 7–10, 13	4.53	.....	30.25	.....
9975•	C	24 (Solid)	.040″	1–5, 7–10, 13	3.13	.....	20.75	.....
9984•	D	24 (7 x 32)	.044″	1–5, 7–10, 13	4.68	.....	31.15	.....
9983•	D	22 (7 x 30)	.050″	1–5, 7–10, 13	5.25	.....	33.70	.....
9982•	D	20 (7 x 28)	.057″	1–5, 7–10, 13	6.50	.....	40.80	.....
9981•	D	18 (19 x 30)	.066″	1–5, 7–10, 13	6.85	.....	51.55	.....
9980•	D	16 (19 x 28)	.078″	1–5, 7–10, 13	8.75	.....	68.25	.....
UL STYLE 1095, RATED 300 V, 80° C								
Tinned bonded copper, vinyl insulation.								
9828•	D	28 (7 x 36)	.043″	2, 4, 5, 8–10, 13	$4.48	.....	$32.40	$30.40
9826•	D	26 (7 x 34)	.047″	2, 4, 5, 8–10, 13	5.10	.....	36.80	34.05
9824•	D	24 (7 x 32)	.053″	2, 4, 5, 8–10, 13	4.73	.....	34.05	31.30
UL STYLE 3046, CSA TYPE CL903, RATED 300 V, 90° C								
Tinned copper, neoprene insulation.								
9604	D	18 (16 x 30)	.142″	2, 4, 5, 6, 8–10	$14.40	.....	$105.60	$ 83.90
9605	D	16 (26 x 30)	.155″	2, 4, 5, 6, 8–10	17.05	.....	123.25	99.20♦
9606	D	14 (41 x 30)	.170″	2, 4, 5, 6, 8–10	23.75	.....	150.30	126.00♦
9607	D	12 (65 x 30)	.190″	2, 4, 5, 6, 8–10	31.95	.....	198.90	181.50♦
UL STYLE 3190 CSA TYPE CL1052								
Tinned copper, Hypalon insulation.								
9600	D	22 (7 x 30)	.093″	2, 4, 5, 8–10, 13	$ 9.05	.....	$ 65.00	$58.45
9601	D	20 (10 x 30)	.100″	2, 4, 5, 8–10, 13	10.75	.....	76.65	70.10
9602	D	18 (16 x 30)	.110″	2, 4, 5, 8–10, 13	12.20	.....	86.85	78.30
9603	D	16 (26 x 30)	.123″	2, 4, 5, 8–10, 13	15.85	.....	111.75	99.05

†Stock Colors: See table below right. #Per 1000′. ♦4000′ spool. ‡3000′ spool. ▲250′ spool. •Passes FR-1 vertical flame test.



HOOK-UP WIRE KITS (FIG. E)

Assortments of hook-up wire colors in portable metal dispenser rack. One spool of each color is supplied. Pass the FR-1 vertical flame test.

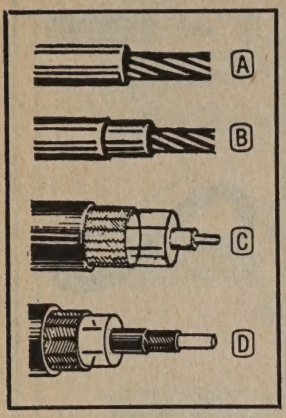
Beld. No.	Wire Type and No.	Stock Colors†	Net Kit
8816	18 (Strnd.) 8522-25*	1-6, 9, 10	27.30
8822	20 (Solid) 8529-25*	1-10	26.95
8823	20 (Solid) 8529-100‡	2, 5, 6, 9, 10	29.05
8824	20 (Strnd.) 8523-25*	1-6, 9, 10	24.95
8825	20 (Strnd.) 8502-100‡	2, 4, 5, 9, 10	35.85
9530	22 (Solid) 8530-25*	1-10	25.30
9531	22 (Strnd.) 8524-100‡	2, 5, 6, 9, 10	28.70

*25 ft. spools. ‡100 ft. spools.

†STOCK COLORS

Code No.	Color
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Light blue
7	Violet (purple)
8	Gray (slate)
9	White
10	Black
13	Dark blue

***ALSO AVAILABLE IN UNREEL PACKAGE AT SAME PRICE.**



MIL SPEC HOOK-UP WIRE

MIL-W-16878 TYPE B VINYL (FIG. A)

Tinned copper, vinyl insulated for general purpose wiring with high resistance to moisture and solvents. Rated 600 VDC at 105° C. Pass the FR-1 vertical flame test.

Belden No.	Type Desig.	AWG and (Stranding)	Nom. O.D.	Stock Colors†	Net Each, Spool of			
					Solid Colors		Striped Colors	
					100′	1000′	100′	1000′
8599	B-32	32 (7 × 40)	.029″	1-10	$6.75	$47.50	.....	.....
8598	B-30	30 (7 × 38)	.032″	1-10	5.40	37.90	.....	.....
8597	B-28	28 (7 × 36)	.035″	1-10	5.30	34.40	.....	.....
8505	B-26	26 (7 × 34)	.309″	1-10, 14-22	5.25	37.70	$5.45	$39.50
8509	B-24	24 (19 × 36)	.045″	1-10	6.75	42.45	.....	.....
8504	B-24	24 (7 × 32)	.044″	1-10, 14-22	5.40	34.95	5.55	36.80
8503	B-22	22 (7 × 30)	.050″	1-10, 14-22	5.90	38.05	6.05	39.90
8502	B-20	20 (7 × 28)	.058″	1-10, 14-22	7.20	45.90	7.35	47.70
8501	B-18	18 (7 × 26)	.068″	1-10, 14-22	7.70	58.45	7.90	60.25
8500	B-16	16 (19 × 29)	.077″	1-10, 14-22	9.75	77.35	9.95	79.20

MIL-W-16878 TYPE B VINYL-NYLON JACKET—RATED 600 VDC AT 115° C (FIG. B)

Tinned copper conductor, vinyl insulated with nylon jacket overall. Pass the FR-1 vertical flame test.

Belden No.	Type Designation	AWG and (Stranding)	Nom. O.D.	Stock Colors†	Net Each, Spool of	
					100′	1000′
8515	B-26	26 (7 × 34)	.045″	1-10	$7.35	$51.90
8519	B-24	24 (19 × 36)	.051″	1-10	7.70	57.35
8514	B-24	24 (7 × 32)	.050″	1-10	7.15	49.50
8518	B-22	22 (19 × 34)	.057″	1-10	8.70	65.55
8513	B-22	22 (7 × 30)	.056″	1-10	7.85	55.90
8517	B-20	20 (19 × 32)	.065″	1-10	9.30	70.80
8512	B-20	20 (7 × 28)	.064″	1-10	8.20	63.00
8516	B-18	18 (19 × 30)	.075″	1-10	11.60	90.30
8511	B-18	18 (7 × 26)	.074″	1-10	10.40	78.30
8510	B-16	16 (19 × 29)	.083″	1-10	10.85	99.20

MIL-W-76 TYPE MW VINYL (FIG. A)

Tinned copper conductor, vinyl insulated, medium wall. Rated 1000 V at 80° C. Stock Colors†: 25′, colors 1-13; all others, 1-22 except as noted. Pass the FR-1 vertical flame test.

Belden No.	MIL-W-76 Type Designation	AWG and (Stranding)	Nom. O.D.	Net Each, Spool of				
				Solid Colors			Stripped Colors	
				25′	100′	1000′	100′	1000′
8538	MW-C 24(1)U	24 (Solid)	.054″	.....	$4.90	$26.95	$5.10	$28.80
8525	MW-C 24(7)U	24 (7 × 32)	.058″	.....	5.15	34.05	5.35	35.85
8530§	MW-C 22(1)U	22 (Solid)	.059″	$2.53	4.90	30.95	5.10	32.80
8524§	MW-C 22(7)U	22 (7 × 30)	.064″	2.64	5.75	39.90	5.95	41.70
8529	MW-C 20(1)U	20 (Solid)	.066″	2.69	5.85	38.80	6.00	40.60
8523§	MW-C 20(7)U	20 (10 × 30)	.070″	3.11	6.75	45.35	6.90	47.15
8528‡	MW-C 18(1)U	18 (Solid)	.074″	.....	7.55	53.35	.....	.....
8522§	MW-C 18(16)U	18 (16 × 30)	.080″	3.40	7.95	59.70	8.15	61.55
8521	MW-C 16(19)U	16 (26 × 30)	.098″	.....	11.20	85.75	11.40	87.55
8520	MW-C 14(19)U	14 (41 × 30)	.111″	.....	15.85	125.00	16.05	125.00
8527*	MW-C 12(19)U	12 (65 × 30)	.130″	.....	23.95	158.85	.....	.....
8531*	MW-C 16(1)U	16 (Solid)	.085″	.....	9.30	74.80	.....	.....

Stock Colors†: *1-10 only; ‡1-13 only; §1-30.

DC HI-VOLTAGE CABLE

Belden No. 8870 (Fig. C)—Solid copper covered steel, 22 AWG; conductive polyethylene with Koroa-Guard™ polyethylene insulation; tinned copper braid equipotential sheath; black polyethylene jacket. Nom. O.D., .440″. Rated 160 kW breakdown, 80,000 V working.
100′ Spool, Net..... **$125.00**
250′ Spool, Net..... **279.90**

Belden NO. 8871 (Fig. D)—Tinned Copper braid (CMA equiv. to 16 AWG) over solid polyethylene rod, black conductive polyethylene with Koroa-Guard, clear polypropylene insulation, tinned copper braid, black polyethylene jacket. Nom. O.D., .830″. Rated 400 kV breakdown, 200 kV working.
25′ Spool, Net..... **$ 126.45**
100′ Spool, Net..... **587.50**
250′ Spool, Net..... **1261.50**

MIL-W-16878 IRRADIATED PVC (FIG. A)

Tinned copper, irradiated PVC insulated. UL listed. Meets MIL-W-16878 as follows: (At 105° C max.) Type B, 600 V rms max. Type C, 1000 V rms max. **AWM:** Style 1429, 300 V peak for electronic use only, 80° C max. Style 1430, 300 V rms (600 V peak for electronic use only), 105° C max. Stock Colors†: 1 thru 10. Pass the FR-1 vertical flame test.

Belden No.	MIL-W 16878 Type	Style No.	AWG and (Stranding)	Nom. O.D.	Net Ea. Spool of 1000′
83402§	B-26*	1429	26 (Solid)	.039″	$39.50
83403§	B-24*	1429	24 (Solid)	.044″	40.35
83404§	B-22*	1429	22 (Solid)	.050″	44.80
83412§	B-26	1429	26 (7 × 34)	.039″	43.70
83413§	B-24	1429	24 (7 × 32)	.044″	44.80
83414§	B-22	1429	22 (7 × 30)	.050″	50.70
83415§	B-20	1429	20 (7 × 28)	.058″	63.10
83416§	B-18	1429	18 (7 × 26)	.068″	79.35
83423§	B-24	1429	24 (19 × 36)	.045″	53.05
83424§	B-22	1429	22 (19 × 34)	.051″	60.60
83425‡§	B-20	1429	20 (19 × 32)	.059″	64.55
83443§	C-24	1430	24 (7 × 32)	.058″	51.15
83444§	C-22	1430	22 (7 × 30)	.065″	62.00
83445§	C-20	1430	20 (7 × 28)	.072″	72.35
83446‡§	C-18	1430	18 (7 × 26)	.082″	84.90

*Solid cond. not recog. in MIL-W-16878. ‡Stock Color†: 9 only. §U.L. Listed.

MIL-W-16878 TEFLON* HOOK-UP WIRE (FIG. A)

Concentrically stranded silver coated copper conductor insulated with extruded TFE Teflon. Pass FR-1 vertical flame test. Colors 1 thru 10. ▲U.L. Listed
*Registered DuPont TM.

TYPE EE, 1000 V, 200° C

Belden No.	Type Desig.	AWG and (Stranding)	Nom. O.D.	Net Each, Spool of*		
				100′	500′	1000′
83023▲	EE-24	24 (19 × 36)	.053″	$27.70	$150.25◆	.....
83025▲	EE-22	22 (7 × 30)	.058″	26.20	142.65◆	
83026▲	EE-22	22 (19 × 34)	.060″	30.75	167.25◆	$167.25
83027▲	EE-20	20 (19 × 32)	.068″	37.70	204.15◆	204.15
83028▲	EE-20	20 (7 × 28)	.066″	33.40	181.75◆	.....
83029▲	EE-18	18 (19 × 30)	.079″	48.05	261.70◆	261.70
83030▲	EE-16	16 (19 × 29)	.086″	56.80	309.25◆	309.25

TYPE ET, 250 V, 200° C, MINIATURE

83041▲	ET-32	32 (7 × 40)	.021″	$16.30	.....	$107.30
83043▲	ET-30	30 (7 × 38)	.024″	18.10	.....	118.95
83045▲	ET-28	28 (7 × 36)	.027″	18.65	.....	122.80
83046▲	ET-26	26 (7 × 34)	.031″	19.15	.....	125.00
83047▲	ET-26	26 (7 × 32)	.036″	22.15	.....	125.00
83048▲	ET-24	24 (19 × 36)	.037″	26.40	.....	143.50
83049▲	ET-22	22 (7 × 30)	.042″	22.85	.....	125.00
83050▲	ET-22	22 (19 × 34)	.044″	29.50	.....	159.15

*Spools may contain more than one piece, min. lgth. of any one piece is 25 ft.: 500′ and 1000′ lgths. may vary ±10%; 100′ lgths. exact. ▲U.L. Listed. ◆Per 1000 Ft.

†STOCK COLORS

Specify color when ordering. First color in stripe combination is body color; second and third are stripes.

Code No.	Color Comb.	Code No.	Color Comb.	Code No.	Color Comb.
1	Brown	11	Tan	21	Wht/Gray
2	Red	12	Pink	22	Wht/Violet
3	Orange	13	Dark Blue	23	Wht/Blk/Red
4	Yellow	14	Wht/Blk	24	Wht/Blk/Grn
5	Green	15	Wht/Red	25	Wht/Blk/Yel
6	Light Blue	16	Wht/Grn	26	Wht/Blk/Blue
7	Violet (purple)	17	Wht/Yel	27	Wht/Blk/Brn
8	Gray (slate)	18	Wht/Blue	28	Wht/Blk/Orng
9	White	19	Wht/Brn	29	Wht/Blk/Gray
10	Black	20	Wht/Orng	30	Wht/Blk/Violet

PRICES LISTED ARE FOR GUIDANCE ONLY

TEFLON HIGH TEMPERATURE WIRE AND CABLE

Belden Teflon® wire products are particularly recommended for miniature cable applications. Teflon is especially suitable for internal wiring soldering applications where insulation melt back is a specific problem. Belden Teflon wiring products are outstanding in their resistance to oil, oxidation, heat, sunlight, flame, and their ability to remain flexible at low temperatures. All have excellent resistance to ozone, water, alcohol, gasoline, acids, alkalis, aromatic hydrocarbons and solvents.

MIL-W-16878, TYPE E TEFLON HOOK-UP WIRE (FIG. A)

Concentrically stranded, silver-coated copper conductor with extruded TFE Teflon insulation rated 600 volts, 200° C. Pass the FR-1 vertical flame test. U.L. Listed.

Belden No.	Type Desig.	AWG (Stranding)	Nom. O.D.	Ins. Thickness	Net Each, Spool of Solid Colors‡ 100′*	500′*	1000′*
83000	E-30	30 (7 × 38)	.033″	.010″	$16.05	$105.10▲	$105.10
83001	E-28	28 (7 × 36)	.036″	.010″	16.10	105.10▲	105.10
83002	E-26	26 (7 × 34)	.041″	.010″	16.30	106.65▲	106.65
83003	E-24	24 (19 × 36)	.046″	.010″	24.05	130.20▲	.....
83004	E-24	24 (7 × 32)	.045″	.010″	19.20	125.00▲	125.00
83005	E-22	22 (7 × 30)	.051″	.010″	21.05	125.00▲	125.00
83006	E-22	22 (19 × 34)	.052″	.010″	26.50	143.55▲	143.55
83007	E-20	20 (19 × 32)	.060″	.010″	32.05	173.65▲	173.65
83008	E-20	20 (7 × 28)	.059″	.010″	28.95	157.20▲	.....
83009	E-18	18 (19 × 30)	.071″	.010″	43.15	234.15▲	234.15
83010	E-16	16 (19 × 29)	.080″	.010″	54.25	295.15▲	295.15

MIL-W-16878, TYPES EE AND ET TEFLON HOOK-UP WIRE (FIG. A)

Same as above except Type EE rated 1000 V, 200° C; Type ET rated 250 V, 200° C. Specifications and pricing on request.

TEFLON-INSULATED RG/U TRANSMISSION LINE CABLES (FIG. B)

Meet MIL-C-copper 17D specifications. Silver-coated copper covered steel conductors with TFE Teflon insulation and silver-coated shields. Pass the FR-1 vertical flame test.

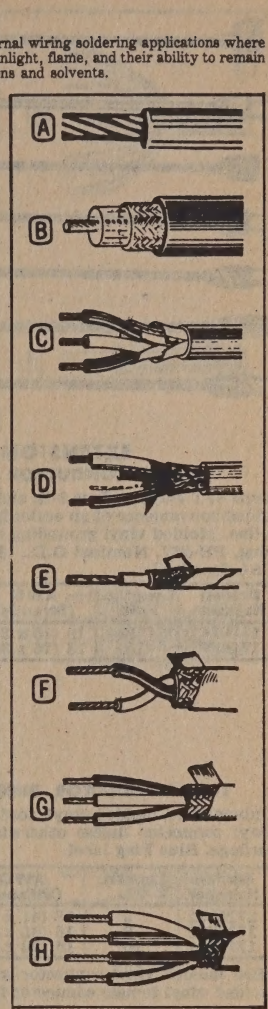
Belden No.	No. RG-	AWG and (Stranding)	No. Shields	Jacket§	Nom. O.D.	Nom. Imp. Ohms	Net Each, Spool of 100′*	500′*	1000′*
83241	141A/U	18 (Solid)	1	BF	.190″	50	$184.90	$1607.00▲	$1607.00
83242	142B/U	18 (Solid)	2	TBF	.195″	50	216.10	1872.00▲	1872.00
83265	178B/U	30 (7 × 38)	1	TBF	.070″	50	59.55	428.85▲	.....
83264	179B/U	30 (7 × 38)	1	TBF	.100″	75	76.00	541.00▲	541.00
83266	180B/U	30 (7 × 38)	1	TBF	.140″	95	125.00	923.00▲	.....
83284	316/U	26 (7 × .0067)	1	TBF	.098″	50	84.55	602.00▲	602.00

FEP TEFLON-INSULATED SPECIAL INSTRUMENTATION CABLES

Noise reducing tape applied over insulated conductors minimizes generated noise due to cable flexing. Shield coverage, 100%. **Operating Temperature:**—70° C to +150° C. **Jacket Working Voltage:** 1000 VDC, shield to ground. **Nos. 83394, 83395 and 83396:** Tinned copper, insulated with FEP Teflon, conductors cabled, noise reducing tape, 22 AWG (7 × 30) nickel coated copper drain wire, special Beldfoil® shield, red silicon rubber jacket. **No. 83393:** Same except 20 AWG (7 × 28) nickel coated copper drain wire and yellow silicone rubber jacket.

Belden No.	Fig.	No. of Cond.	AWG and (Stranding)	Thickness Insulation	Thickness Jacket	Nom. O.D.	Conductor Color Coding	Net Each, Spool of 25′	100′	500′
83394●	C	2	22 (7 × 30)	.015″	.030″	.204″	Blk, wht	$21.65	$82.85	$680.00*▲
83395●	C	3	22 (7 × 30)	.015″	.030″	.213″	Blk, wht, red	27.50	102.75	825.00▲
83396●	C	4	22 (7 × 30)	.015″	.030″	.222″	Blk, wht, red, grn	31.25	119.60	954.00▲
83393	D	2	20 (7 × 28)	.020″	.030″	.245″	Blk, red	30.25	118.95	947.00*▲

*Spools may contain more than one piece, minimum length of any one piece is 25 ft.; 500′ and 1000′ lengths may vary ± 10%, all other lengths are exact. †Specify brown, red, orange, yellow, green, light blue, violet (purple), gray (slate), white, or black. ‡Write for information on color striping (1, 2 or 3 stripes) available at price shown. §BF indicates brown fiberglass; TBF, tinted brown FEP Teflon; WTT, white Teflon tape. #Manufactured to current Government specifications and subsequent revisions. ●Pass the FR-1 vertical flame test. ▲Per 1000 ft. ***Also available in UNREEL package at same price.**

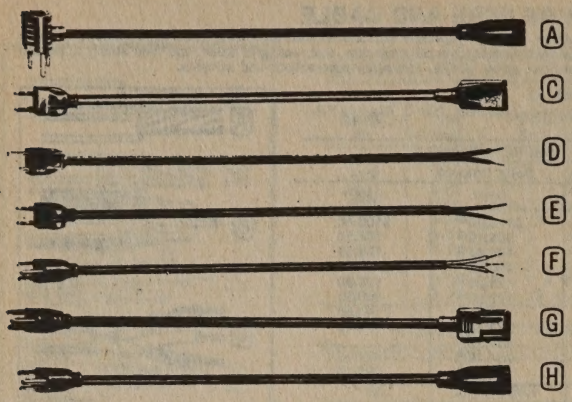


MIL-W-16878, TYPE E SHIELDED TEFLON CABLES

Feature stranded silver-coated copper conductors, MIL-W-16878, Type E extruded TFE Teflon insulation, color-coded, cabled, braided silver-plated copper shield, and white TFE Teflon tape wrapped jacket. Temperature rating, −65° C to +200° C. Shield coverage, 90%. Suggested working voltage, 600 volts rms. Choice of 1-, 2-, 3 or 4-conductor types in 100, 500 or 1000 ft. spools.

Belden No.	Fig.	No. of Cond.	AWG and (Stranding)	Thickness Insulation	Thickness Jacket	Nom. O.D.	Conductor Color Coding	Net Each, Spool of 100′*	500′*	1000′*
83301	E	1	30 (7 × 38)	.010″	.010″	.070″	Wht	$ 78.55	$511.00▲	$511.00
83302	E	1	28 (7 × 36)	.010″	.010″	.073″	Wht	81.20	529.00▲	529.00
83303	E	1	26 (7 × 34)	.010″	.010″	.077″	Wht	79.20	517.00▲	517.00
83304	E	1	24 (19 × 36)	.010″	.010″	.082″	Wht	95.65	627.00▲	627.00
83305	E	1	22 (19 × 34)	.010″	.010″	.089″	Wht	99.20	651.00▲	651.00
83306	E	1	20 (19 × 32)	.010″	.010″	.100″	Wht	121.85	800.00▲	800.00
83307	E	1	18 (19 × 30)	.010″	.010″	.113″	Wht	125.00	879.00▲	879.00
83308	E	1	16 (19 × 29)	.011″	.012″	.123″	Wht	131.05	1044.00▲	1044.00
83315	F	2	30 (7 × 38)	.010″	.010″	.106″	Wht, blk	124.85	816.00▲	816.00
83316	F	2	28 (7 × 36)	.010″	.010″	.112″	Wht, blk	125.00	845.00▲	845.00
83317	F	2	26 (7 × 34)	.010″	.010″	.120″	Wht, blk	123.70	807.00▲	807.00
83318	F	2	24 (19 × 36)	.010″	.010″	.132″	Wht, blk	125.00	962.00▲	962.00
83319	F	2	22 (19 × 34)	.010″	.010″	.144″	Wht, blk	142.20	1136.00▲	1136.00
83320	F	2	20 (19 × 32)	.010″	.012″	.162″	Wht, blk	170.20	1356.00▲	1356.00
83321	F	2	18 (19 × 30)	.010″	.012″	.188″	Wht, blk	195.75	1563.00▲	1563.00
83322	F	2	16 (19 × 29)	.011″	.012″	.200″	Wht, blk	236.80	1890.00▲	1890.00
83330	G	3	30 (7 × 38)	.010″	.010″	.111″	Wht, blk, red	125.00	948.00▲	948.00
83331	G	3	28 (7 × 36)	.010″	.010″	.117″	Wht, blk, red	132.45	990.00▲	990.00
83332	G	3	26 (7 × 34)	.010″	.010″	.126″	Wht, blk, red	128.05	1013.00▲	1013.00
83333	G	3	24 (19 × 36)	.010″	.010″	.136″	Wht, blk, red	150.10	1199.00▲	1199.00
83334	G	3	22 (19 × 34)	.010″	.012″	.156″	Wht, blk, red	179.70	1436.00▲	1436.00
83335	G	3	20 (19 × 32)	.010″	.012″	.175″	Wht, blk, red	208.90	1664.00▲	1664.00
83336	G	3	18 (19 × 30)	.010″	.012″	.196″	Wht, blk, red	253.35	2021.00▲	2021.00
83337	G	3	16 (19 × 29)	.011″	.012″	.218″	Wht, blk, red	309.10	2468.00▲	2468.00
83345	H	4	30 (7 × 38)	.010″	.010″	.119″	Wht, blk, red, grn	142.65	1133.00▲	1133.00
83346	H	4	28 (7 × 36)	.010″	.010″	.126″	Wht, blk, red, grn	148.15	1179.00▲	1179.00
83347	H	4	26 (7 × 34)	.010″	.010″	.135″	Wht, blk, red, grn	148.80	1184.00▲	1184.00
83348	H	4	24 (19 × 36)	.010″	.012″	.151″	Wht, blk, red, grn	191.65	1530.00▲	1530.00
83349	H	4	22 (19 × 34)	.010″	.012″	.166″	Wht, blk, red, grn	217.60	1736.00▲	1736.00
83350	H	4	20 (19 × 32)	.010″	.012″	.185″	Wht, blk, red, grn	255.15	2036.00▲	2036.00
83351	H	4	18 (19 × 30)	.010″	.012″	.215″	Wht, blk, red, grn	313.05	2496.00▲	2496.00
83352	H	4	16 (19 × 29)	.011″	.014″	.235″	Wht, blk, red, grn	393.75	3146.00▲	3146.00

*Spools may contain more than one piece, minimum length of any one piece is 25 ft.; 500′ and 1000′ lengths may vary ± 10%, but 100′ length is exact. All parts listed in above table pass the FR-1 vertical flame test. ®TM: Teflon of DuPont; Copperweld of Copperweld Steel Co.; Beldfoil of Belden. ▲Per 1000 ft.



EXTENSION CORD SETS

THREE-CONDUCTOR ADD-A-LINE (FIG. A)

Type SJT vinyl cordage 8-ft. and 15-ft. black extension cords have added convenience of an outlet in the adapter plug so you can add a line. Molded vinyl grounding connector, PH-108. Vinyl adapter plug, PH-267. Nominal O.D., .328". Blue Flag label. Certified to CSA Standards.

Belden Number	Length, Feet	AWG (Strands)	Rating	Net Each
17462S	8	18 (16 x 30)	1250 W, 10A–125V	$4.81
17463S	15	18 (16 x 30)	1250 W, 10A–125V	6.50

TWO-CONDUCTOR, SINGLE CONNECTOR (FIG. C)

Unbreakable, molded vinyl, cord-holder plug; unbreakable molded vinyl connector unless otherwise noted. Two-conductor rubber cordage. Blue Flag label.

Belden Number	Length, Ft.	AWG (Strands)	Cord-age	Color	Net Each
17259S‡	9	18 (41 x 34)	SV	Gray	$2.45
17870S‡	8	16 (65 x 34)	HP4	Black	1.95
17361S‡	10	16 (26 x 30)	SJ	Black	2.92

*Has molded vinyl connector with dummy center contact. ‡Has molded vinyl female connector for blade prongs.

POWER SUPPLY CORDS

PARALLEL LAMP CORDS (FIG. D)

Unbreakable molded vinyl plug on parallel lamp cord; two conductors, AWG stranding 18 (41 x 34); conductors split 1" and stripped and twisted 5/8". Tan Flag label.

Belden Number	Length, Feet	Cord Type	Specify Color	Net Each
17106S	6	SPT-1 vinyl	Brown, gray, ivory ■	$0.96
17109S	9	SPT-1 vinyl	Brown, white	1.07
17112S	12	SPT-1 vinyl	Brown, white	1.36

SVT, SV, SJ, SVO TWO-CONDUCTOR CORDS (FIG. E)

Power supply type for mixers, tools, etc. Unbreakable, molded vinyl, cord-holder plug; two-conductor cord; outer jacket stripped 1½"; conductors stripped and twisted 5/8". Tan Flag label.

Belden Number	Lgth., Ft.	AWG (Strands)	Type Cord	Color	Net Each
17205S	6	18 (41 x 34)	SVT vinyl	Gray	$1.38
17206S	6	18 (41 x 34)	SV rubber	Gray	1.61
17249S*	6	18 (41 x 34)	SVO neoprene	Black	3.19
17308S	8	18 (16 x 30)	SJ rubber	Black	1.95
17328S	8	16 (26 x 30)	SJ rubber	Black	2.13

*Coiled; conductors stripped ½" and tinned.

THREE-CONDUCTOR CORDS (FIG. F)

Heavy-duty for tools and appliances requiring grounding. Withstands crushing, twisting and pulling. Unbreakable, molded, vinyl grounding plug; outer jacket stripped 2"; conductors stripped and twisted 5/8". Tan Flag label.

Belden Number	Lgth., Ft.	AWG (Strands)	Type Cord	Color	Net Each
17236S†	6	18 (41 x 34)	SV rubber	Black	$1.98
17237S†	6	18 (41 x 34)	SVT vinyl	Gray	1.75
17238S†	8	18 (41 x 34)	SV rubber	Black	2.21
17239S†	8	18 (41 x 34)	SVT vinyl	Gray	1.95
17276C†	20	16 (26 x 30)	SJT vinyl	Gray	5.09
17405S	6	18 (16 x 30)	SJT vinyl	Gray	1.85
17406S	6	18 (16 x 30)	SJ rubber	Black	2.13
17407S	8	18 (16 x 30)	SJT vinyl	Gray	2.13
17408S	8	18 (16 x 30)	SJ rubber	Black	2.35
17409B	8	18 (16 x 30)	SJO neoprene	Black	2.25
17412S	12	18 (41 x 34)	SJ rubber	Black	3.26
17419S	9	16 (65 x 34)	SJ rubber	Black	3.16
17422S	12	16 (65 x 34)	SJ rubber	Black	3.87
17425S	15	16 (65 x 34)	SJ rubber	Black	4.98
17447S♯	6	18 (41 x 34)	SJO neoprene	Black	4.25
17448S♯	6	16 (65 x 34)	SJO neoprene	Black	4.48
17449S♯	12	16 (65 x 34)	SJO neoprene	Black	6.27
17629S*	9	14 (41 x 30)	S rubber	Black	5.53
17635S*	15	14 (41 x 30)	S rubber	Black	9.07

*For heavy-duty power tools; conductors stripped and twisted ¾". †Outer jacket stripped 1½". ♯Coiled. Outer jacket stripped 1½"; conductors stripped and tinned ½".

THREE-CONDUCTOR PROJECTOR AND BUSINESS MACHINE CORDS (FIG. G)

A 1 vinyl insulation on plugs and connectors. Cord is SVT vinyl.

Belden Number	Lgth., Ft.	AWG (Strands)	Rating @ 125 VAC	Color	Net Each
17250C	7½	18 (41 x 34)	10 A	Black	$2.84
17255C	7½	16 (65 x 34)	13 A	Black	3.59
17251C	7½	18 (41 x 34)	10 A	Black	2.84
17254C*	7½	18 (41 x 34)	10 A	Black	2.78
17280S	7½	18 (41 x 34)	7 A	Gray/ Black	2.80
17952S	8	18 (41 x 34)	7 A	Gray	3.08

*No male plug; ends stripped 5/8" and twisted.

LOW-LEAKAGE POWER CORD

Belden SJT Type Low-Leakage 60-Hertz Power Cord reduces the hazards of shock due to current leakage between the two conductors and from the conductors out thru the jacket. Maximum leakage at 120 VAC is 6 microamps to green and 16 microamps to the jacket. Designed for hospitals and critical medical applications. Tan Flag label. Cords have hospital grade grounding plug.

Belden Number	Lgth., Ft.	AWG (Strands)	Rating @ 125 VAC	Color	Net Each
17005S	8	18 (41 x 34)	10 A	Brown	$15.00
17006S	8	16 (65 x 34)	13 A	Brown	15.56
17009S†	8	18 (41 x 34)	10 A	Gray	11.70

†Cord is not low leakage.

THREE-CONDUCTOR EXTENSION CORD SETS (FIG. H)

For business machines, power tools and appliances. Unbreakable, molded vinyl plugs and connectors. Black only. Blue Flag label. Certified to C.S.A. standards.

Belden No.	Lgth., Ft.	AWG (Strands)	Type Cord	Rating @ 125 VAC	Net Each
17460S	10	18 (16 x 30)	SJ rubber	10 A	$ 3.51
17461S	10	16 (26 x 30)	SJ rubber	13 A	4.04
17475S*	25	16 (26 x 30)	SJO neoprene	13 A	10.27
17476S*	50	16 (26 x 30)	SJO neoprene	13 A	16.94
17675S*	25	14 (41 x 30)	SJT vinyl	15 A	19.98
17676S*	50	14 (41 x 30)	SJT vinyl	15 A	35.21

*Duplex grounding connector.

FIRE ALARM AND TRAY CABLES

Power limited, fire protective, signaling circuit cable for use in accordance with NEC article 760 power limited circuits and NEC article 725 class 2 or 3 circuits. Cables are marked as suitable for appropriate tray cable installations. All cables listed pass the U.L. 70,000 BTU flame and tray cable test, the FR-1 vertical flame test and are listed by U.L. and the California State Fire Marshall. **Nos. 9574, 9575, 9578 and 9579:** Bare copper, vinyl insulated, conductors cabled with Beldfoil aluminum-polyester shield and 22 AWG drain wire, red vinyl jacket. **Nos. 9581 and 9583:** Same, except 16 AWG drain wire. **Nos. 9576, 9577 and 9584:** Bare copper, vinyl insulated, conductors cabled, black vinyl jacket. **All Others:** Same, except red vinyl jacket.

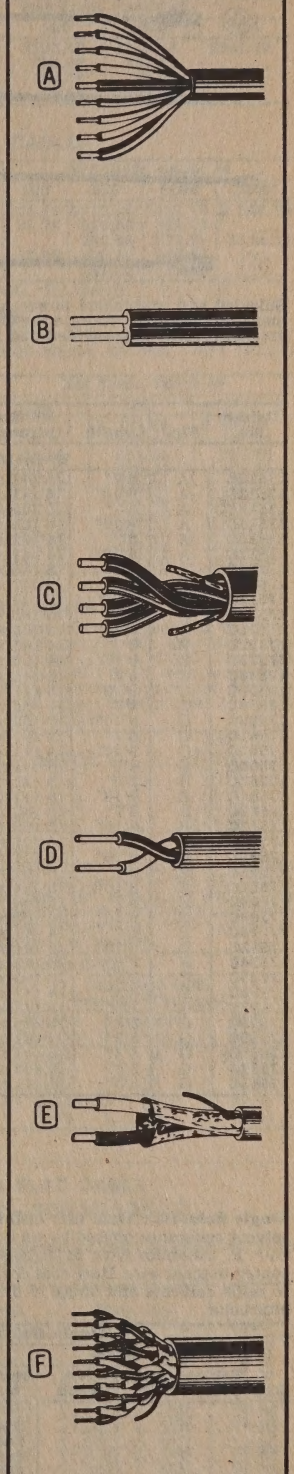
Belden No.	Fig.	No. of Conds.	AWG and (Stranding)	Nom. O.D.	Net Each, Spool of 100′	500′	1000′
9576	A	6	22 (Solid)	.234″	.....	$ 91.30■	$150.45■
9577	A	9	22 (Solid)	.267″	.....	125.00■	208.05■
9584	A	12	22 (Solid)	.302″	.....	134.25	268.50
9596	B	2	19 (polid)	.100″ x .190″	.....	45.45*	90.85
9597	C	4	19 (Solid)	.242″	.....	100.40*	165.45*
9598	C	6	19 (Solid)	.282″	.....	125.00*	244.80*
9571	D	2	18 (Solid)	.224″	.....	66.70■	125.00■
9574	E	2	18 (Solid)	.228″	.....	81.65■	134.55■
9578	E	4	18 (Solid)	.263″	.....	125.00■	213.60
9572	D	2	16 (Solid)	.244″	.....	83.00■	136.80■
9575	E	2	16 (Solid)	.278″	.....	100.65■	165.90■
9579	E	4	16 (Solid)	.293″	.....	135.60■	271.20
9580	D	2	14 (Solid)	.302″	.....	125.00■	213.45
9581	E	2	14 (Solid)	.306″	.....	132.85■	265.65
9582	D	2	12 (Solid)	.334″	.....	145.35	290.70
9583	E	2	12 (Solid)	.338″	.....	173.35	346.65

POWER-LIMITED CIRCUIT CABLES

These cables are quad-rated U.L. Subject 13 and appliance wiring material Style 2464. Certified to CSA standards as appliance wiring material TR-64. Listed by the California State Fire Marshall. Also marked as Tray Cable suitable for Class 2 and 3 circuits. Pass the U.L. 70,000 BTU flame and tray cable test and the FR-1 vertical flame test. **Nos. 9407 thru 9412:** Tinned copper, PVC insulated, conductors cabled, chrome PVC jacket. **Nos. 9312 thru 9322:** Same, except overall Beldfoil aluminum-polyester shield and drain wire. **Nos. 9328 thru 9337 and 9368 thru 9293:** Same, except pairs individually shielded. **Nos. 9491 thru 9495:** Tinned copper, vinyl insulated, conductors cabled, chrome vinyl jacket. **Nos. 9363 thru 9367 and 9512 thru 9565:** Same, except Beldfoil shield and drain wire.

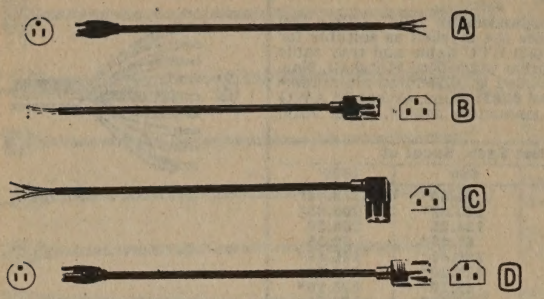
Belden No.	Fig.	No. of Conds.	AWG and (Stranding)	Nom. O.D.	Net Each, Spool of 100′	500′	1000′
9407	D	2	22 (7 x 30)	.200″	$ 16.75	$ 63.25■	$ 125.00■
9408	D	2	20 (10 x 30)	.214″	19.95	75.80■	125.00■
9409	D	2	18 (16 x 30)	.230″	24.30	92.75■	152.85■
9410	D	2	16 (26 x 30)	.260″	35.15	125.00■	222.45■
9411	D	2	14 (41 x 30)	.324″	49.00	160.50■	321.00
9412	D	2	12 (65 x 30)	.364″	62.80	214.60	429.15
9312	E	2	12 (65 x 30)	.366″	75.65	258.85	517.65
9314	E	2	14 (41 x 30)	.326″	53.60	184.15■	368.25
9316	E	2	16 (26 x 30)	.262″	39.25	129.00■	258.00■
9318	E	2	18 (16 x 30)	.236″	31.85	122.15■	201.30■
9320	E	2	20 (10 x 30)	.216″	25.05	95.30■	157.05■
9322	E	2	22 (7 x 30)	.202″	21.30	81.10■	133.65■
9328	F	4	22 (7 x 30)	.316″	36.35	128.85	257.70
9329	F	6	22 (7 x 30)	.331″	46.50	165.90	331.80
9330	F	8	22 (7 x 30)	.360″	59.35	221.25	442.50
9331	F	12	22 (7 x 30)	.431″	92.85	346.90	693.75
9332	F	18	22 (7 x 30)	.500″	125.00	510.75	1021.50
9333	F	22	22 (7 x 30)	.551″	155.70	607.50	1215.00
9334	F	30	22 (7 x 30)	.606″	206.70	805.50	1611.00
9335	F	38	22 (7 x 30)	.646″	268.65	1048.50	2097.00
9336	F	54	22 (7 x 30)	.776″	389.75	3037.50▲	3037.50
9337	F	102	22 (7 x 30)	.970″	734.30	5725.50▲	5725.50
9368	F	4	18 (16 x 30)	.381″	55.55	198.15	396.30
9369	F	6	18 (16 x 30)	.421″	71.75	255.60	511.20
9388	F	8	18 (16 x 30)	.456″	91.50	341.20	682.35
9389	F	12	18 (16 x 30)	.526″	125.00	522.75	1045.50
9390	F	18	18 (16 x 30)	.628″	201.95	789.00	1578.00
9391	F	22	18 (16 x 30)	.686″	246.85	961.50	1923.00
9392	F	30	18 (16 x 30)	.766″	335.75	1311.00	2620.50
9491	A	3	22 (7 x 30)	.210″	20.50	78.20■	128.85■
9492	A	3	20 (10 x 30)	.225″	24.05	91.95■	151.50■
9493	A	3	18 (16 x 30)	.246″	29.25	121.05■	199.50■
9494	A	3	16 (26 x 30)	.274″	41.25	146.80■	293.55■
9495	A	3	14 (41 x 30)	.342″	58.00	206.80	413.55
9363	E	3	22 (7 x 30)	.212″	25.15	95.85■	157.95■
9364	E	3	20 (10 x 30)	.227″	29.15	111.50■	183.75■
9365	E	3	18 (16 x 30)	.248″	32.70	125.00■	232.80■
9366	E	3	16 (26 x 30)	.276″	46.15	164.50■	328.95■
9367	E	3	14 (41 x 30)	.344″	64.25	229.15	458.25
9512	F	4	22 (7 x 30)	.310″	26.70	114.85	189.30
9513	F	6	22 (7 x 30)	.326″	35.25	125.50	250.95
9514	F	8	22 (7 x 30)	.353″	43.35	161.70	323.40
9516	F	12	22 (7 x 30)	.425″	62.65	233.70	467.40
9520	F	18	22 (7 x 30)	.488″	91.20	340.50	681.00
9521	F	22	22 (7 x 30)	.536″	110.75	414.00	828.00
9524	F	30	22 (7 x 30)	.594″	125.00	553.50	1107.00
9526	F	38	22 (7 x 30)	.631″	179.75	701.25	1402.50
9527	F	54	22 (7 x 30)	.761″	250.20	1953.00▲	1953.00
9551	F	102	22 (7 x 30)	.950″	468.05	3651.00▲	3651.00
9552	F	4	18 (16 x 30)	.376″	48.70	173.85	347.70
9553	F	6	18 (16 x 30)	.416″	65.80	234.70	469.35
9554	F	8	18 (16 x 30)	.451″	79.75	298.35	596.70
9556	F	12	18 (16 x 30)	.516″	111.70	418.50	837.00
9559	F	18	18 (16 x 30)	.596″	157.10	614.25	1228.50
9563	F	22	18 (16 x 30)	.676″	191.75	747.75	1495.50
9565	F	30	18 (16 x 30)	.751″	260.85	1018.50	2035.50

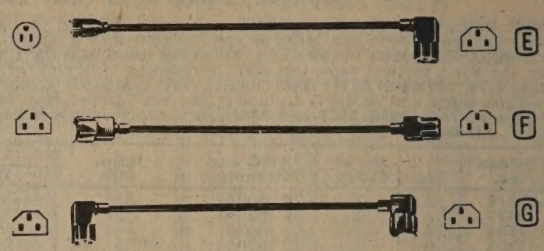
▲Per 1000 ft.



*ALSO AVAILABLE IN UNREEL PACKAGE AT SAME PRICE. ■UNREEL PACKAGE ONLY.

THREE CONDUCTOR POWER SUPPLY CORDS WITH CEE COLOR CODING





Shielded and unshielded power supply cords for electronic equipment. All cords incorporate the CEE (European) color coding and are UL listed, CSA certified and OSHA acceptable.

Belden No.	Fig.	Length	AWG and (Stranding)	Rating @ 125 V	Cord Type	Net Each
UNSHIELDED						
17512C	A	6′7″	18 (41 x 34)	10A	SJT	$2.16
17513C	A	9′10″	18 (41 x 34)	10A	SJT	2.71
17514C	A	6′7″	16 (65 x 34)	13A	SJT	2.49
17515C	A	9′10″	16 (65 x 34)	13A	SJT	3.19
17516C	A	6′7″	14 (41 x 30)	15A	SJT	3.04
17517C	A	9′10″	14 (41 x 30)	15A	SJT	3.88
17254C	B	7′6″	18 (41 x 34)	10A	SVT	2.78
17518C	B	6′7″	18 (41 x 34)	10A	SJT	2.82
17519C	B	9′10″	18 (41 x 34)	10A	SJT	3.37
17520C	B	6′7″	16 (65 x 34)	13A	SJT	3.15
17521C	B	9′10″	16 (65 x 34)	13A	SJT	3.85
17522C	B	6′7″	14 (41 x 30)	15A	SJT	3.69
17523C	B	9′10″	14 (41 x 30)	15A	SJT	4.51
17536C	C	6′7″	18 (41 x 34)	10A	SJT	3.04
17537C	C	9′10″	18 (41 x 34)	10A	SJT	3.57
17538C	C	6′7″	16 (65 x 34)	13A	SJT	3.37
17539C	C	9′10″	16 (65 x 34)	13A	SJT	4.07
17541C	C	6′7″	14 (41 x 30)	15A	SJT	3.88
17542C	C	9′10″	14 (41 x 30)	15A	SJT	4.75
17500C	B	6′7″	18 (41 x 34)	10A	SJT	3.19
17251C	B	7′6″	18 (41 x 34)	10A	SVT	2.84
17501C	B	9′10″	18 (41 x 34)	10A	SJT	3.74
17502C	B	6′7″	16 (65 x 34)	13A	SJT	3.52
17503C	B	9′10″	16 (65 x 34)	13A	SJT	4.24
17504C	B	6′7″	14 (41 x 30)	15A	SJT	4.07
17505C	B	9′10″	14 (41 x 30)	15A	SJT	4.90
17506C	E	6′7″	18 (41 x 34)	10A	SJT	3.41
17507C	E	9′10″	18 (41 x 34)	10A	SJT	3.94
17508C	E	6′7″	16 (65 x 34)	13A	SJT	3.74
17509C	E	9′10″	16 (65 x 34)	13A	SJT	4.44
17510C	E	6′7″	14 (41 x 30)	15A	SJT	4.27
17511C	E	9′10″	14 (41 x 30)	15A	SJT	5.12
17524C	F	3′3″	18 (41 x 34)	10A	SJT	3.95
17525C	F	3′3″	16 (65 x 34)	13A	SJT	4.12
17526C	F	3′3″	14 (41 x 30)	15A	SJT	4.51
17527C	G	3′3″	18 (41 x 34)	10A	SJT	4.42
17528C	G	3′3″	16 (65 x 34)	13A	SJT	4.58
17530C	G	3′3″	14 (41 x 30)	15A	SJT	4.97
17531C	G	3′3″	18 (41 x 34)	10A	SJT	4.42
17532C	G	3′3″	16 (65 x 34)	13A	SJT	4.58
17533C	G	3′3″	14 (41 x 30)	15A	SJT	4.97

Belden No.	Fig.	Length	AWG and (Stranding)	Rating @ 125 V	Cord Type	Net Each
SHIELDED						
17740C	A	6′7″	18 (41 x 34)	10A	SVT	$3.35
17741C	A	9′10″	18 (41 x 34)	10A	SVT	3.94
17612C	A	6′7″	18 (41 x 34)	10A	SJT	3.54
17613C	A	9′10″	18 (41 x 34)	10A	SJT	4.27
17614C	A	6′7″	16 (65 x 34)	13A	SJT	3.88
17615C	A	9′10″	16 (65 x 34)	13A	SJT	4.82
17616C	A	6′7″	14 (41 x 30)	15A	SJT	4.60
17617C	A	9′10″	14 (41 x 30)	15A	SJT	5.68
17749C	B	6′7″	18 (41 x 34)	10A	SVT	4.12
17750C	B	9′10″	18 (41 x 34)	10A	SVT	4.75
17618C	B	6′7″	18 (41 x 34)	10A	SJT	4.31
17619C	B	9′10″	18 (41 x 34)	10A	SJT	5.05
17620C	B	6′7″	16 (65 x 34)	13A	SJT	4.65
17621C	B	9′10″	16 (65 x 34)	13A	SJT	5.60
17622C	B	6′7″	14 (41 x 30)	15A	SJT	5.37
17623C	B	9′10″	14 (41 x 30)	15A	SJT	6.47
17751C	C	6′7″	18 (41 x 34)	10A	SVT	3.91
17752C	C	9′10″	18 (41 x 34)	10A	SVT	4.50
17636C	C	6′7″	18 (41 x 34)	10A	SJT	4.52
17637C	C	9′10″	18 (41 x 34)	10A	SJT	5.27
17638C	C	6′7″	16 (65 x 34)	13A	SJT	4.87
17639C	C	9′10″	16 (65 x 34)	13A	SJT	5.84
17641C	C	6′7″	14 (41 x 30)	15A	SJT	5.57
17642C	C	9′10″	14 (41 x 30)	15A	SJT	6.67
17742C	D	6′7″	18 (41 x 34)	10A	SVT	4.78
17743C	D	9′10″	18 (41 x 34)	10A	SVT	5.38
17600C	D	6′7″	18 (41 x 34)	10A	SJT	4.98
17601C	D	9′10″	18 (41 x 34)	10A	SJT	5.71
17602C	D	6′7″	16 (65 x 34)	13A	SJT	5.33
17603C	D	9′10″	16 (65 x 34)	13A	SJT	6.27
17604C	D	6′7″	14 (41 x 30)	15A	SJT	6.03
17605C	D	9′10″	14 (41 x 30)	15A	SJT	7.13
17745C	E	6′7″	18 (41 x 34)	10A	SVT	4.98
17746C	E	9′10″	18 (41 x 34)	10A	SVT	5.60
17606C	E	6′7″	18 (41 x 34)	10A	SJT	5.20
17607C	E	9′10″	18 (41 x 34)	10A	SJT	5.91
17608C	E	6′7″	16 (65 x 34)	13A	SJT	5.54
17609C	E	9′10″	16 (65 x 34)	13A	SJT	6.47
17610C	E	6′7″	14 (41 x 30)	15A	SJT	6.24
17611C	E	9′10″	14 (41 x 30)	15A	SJT	7.34
17753C	F	3′3″	18 (41 x 34)	10A	SVT	4.95
17624C	F	3′3″	18 (41 x 34)	10A	SJT	5.05
17625C	F	3′3″	16 (65 x 34)	13A	SJT	5.21
17626C	F	3′3″	14 (41 x 30)	15A	SJT	5.67
17754C	G	3′3″	18 (41 x 34)	10A	SVT	5.27
17627C	G	3′3″	18 (41 x 34)	10A	SJT	5.37
17628C	G	3′3″	16 (65 x 34)	13A	SJT	5.54
17630C	G	3′3″	14 (41 x 30)	15A	SJT	5.98
17755C	G	3′3″	18 (41 x 34)	10A	SVT	5.27
17631C	G	3′3″	18 (41 x 34)	10A	SJT	5.37
17632C	G	3′3″	16 (65 x 34)	13A	SJT	5.54
17633C	G	3′3″	14 (41 x 30)	15A	SJT	5.98

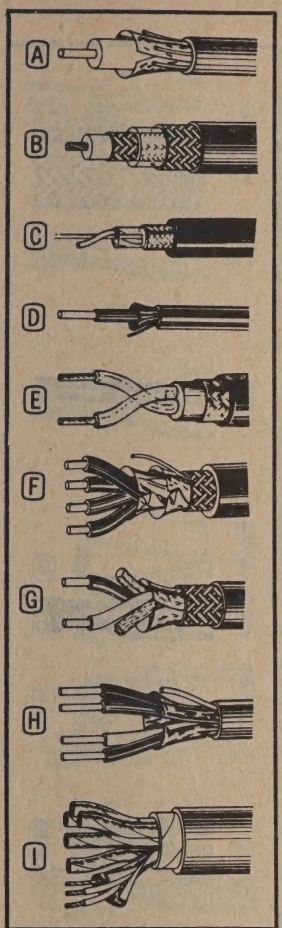
MAGNET WIRE

Single Beldsol®: Dual film insulated magnet wire combines the excellent dielectric characteristics of polyurethane and toughness and solvent resistance offered by an overcoat of nylon. Rated by IEEE tests for 130° C usage and will solder without insulation removal at 750° F. Complies with MIL-W-583 specs. 40 AWG is Beldure® 105° C polyurethane film. **Heavy Armored Poly-Thermaleze:** Dual coated magnet wire. Base coat cross-linked, modified polyester; top coat amide-imide polymer; rated for 180° C usage. Exceptional ability to resist solvents and abuse in difficult windings. Complies with MIL-W-583 specs. 36, 38 and 40 AWG 180° C single polyester-imide, blue color.

	Single Beldsol®						Heavy Poly-Thermaleze								
	¼ lb. Spool			½ lb. Spool			½ lb. Spool			1 lb. Spool			3 and 5 lb. Spools			
Size	Belden No.	Lgth., Ft.	Net Each	Belden No.	Lgth., Ft.	Net Each	Belden No.	Lgth., Ft.	Net Each	Belden No.	Lgth., Ft.	Net Each	Belden No.	Spool Lbs.	Lgth. Ft.	Net Each
14	.....	.....	....	.....	.....	....	8059	40	$ 6.55	8073	80	$10.95	9040	5	410	$53.35
16	.....	.....	....	8048	63	$ 6.65	8060	63	6.70	8074	126	11.50	9041	5	630	55.15
18	.....	.....	....	8049	100	7.00	8061	100	6.85	8075	199	11.85	9042	5	995	57.35
20	.....	.....	....	8050	160	7.00	8062	157	7.20	8076	315	11.95	9043	5	1570	57.35
22	.....	.....	....	8051	254	7.00	8063	250	7.30	8077	501	11.95	9044	5	2500	57.35
24	.....	.....	....	8052	404	7.15	8064	396	7.65	8078	793	12.50	9045	3	2380	35.95
26	.....	.....	....	8053	645	7.45	8065	630	7.85	8079	1260	13.05	9046	3	3770	38.05
28	8040	510	$4.77	8054	1020	7.65	8066	995	8.25	8080	1990	14.15	9047	3	5970	41.05
30	8041	807	5.10	8055	1615	8.30	8067	1570	8.95	8081	3140	16.20	9048	3	9430	46.35
32	8042	1257	5.55	8056	2515	9.05	8068	2440	9.85	8082	4880	18.40	.....	.....	.....	.....
34	8043	2030	5.85	8057	4060	9.65	8069	3930	10.65	8083	7860	20.70	.....	.....	.....	.....
36	8044	3200	6.45	8058	6400	11.05	8070	6200	11.95	8084	12400	24.60	.....	.....	.....	.....
38	8045	5070	7.85	.....	.....	....	8071	9700	14.30	8085	19400	28.80	.....	.....	.....	.....
40	8046	8050	10.75	.....	.....	....	8072	16050	17.65	8086	32100	37.35	.....	.....	.....	.....

®TM: Beldsol and Beldure of Belden.

PRICES LISTED ARE FOR GUIDANCE ONLY



COAXIAL COMPUTER CABLES

Belden No.	Fig.	AWG	Nom. O.D.	pF/Ft.	Imp., Ohms	Shields No.	Shields Type	Net Each, Spool of 100′	500′	1000′	2000′
9889▲	A	18	.216″	26	50	1	a	.....	$105.50	$173.85	$347.70
9888	B	11	.480″	26	50	2	b	.....	325.60	651.15	.....
8254	C	22	.242″	13.5	93	1	b	$22.60	84.40*	139.05*	.....
9393▲	D	30	.115″	14	93	1	c	20.20	66.65	125.00	.....

a—Duofoil; **b**—bare copper braid; **c**—Beldfoil. ▲UL listed.

TWINAXIAL 2 AND 3 PAIR DATA CABLES

Belden No.	Fig.	AWG	No. of Conds.	Nom. O.D.	pF/Ft.	Imp., Ohms	Shields No.	Shields Type	Net Each, Spool of 100′	500′	1000′	2000′
9207▲●	E	20	2	.325″	15.5	100	1	a	$64.35	$211.35*	$422.70	$ 846.00
9855▲●	F	22	4	.290″	15.5	100	2	a,b	36.70	125.80*	251.55	.....
9860▲	G	16	2	.440″	10.9	124	2	a,c	.....	286.05	572.10	1144.50
9863▲	F	25	6	.450″	12.2	124	†	b	87.95	300.30	600.60	.....
9182▲●	F	22	2	.350″	8.8	150	1	c	.....	157.80*	315.60	.....

a—tinned copper braid; **b**—Beldfoil; **c**—Duofoil. †One shield per pair. ▲UL listed.

DATALENE COMPUTER CABLES

No. 9184: Overall Duofoil shield, black vinyl jacket. **No. 9730 thru 9738:** Tinned copper conductors, Datlene insulation, twisted pairs individually shielded with Beldfoil shield, chrome vinyl jacket. All cables are UL listed.

Belden No.	Fig.	No. of Conds.	AWG and (Stranding)	pF/Ft.	Nom. O.D.	Net Each, Spool of 100′	500′	1000′
9184●	H	2	22 (Solid)	8.7	.420″	.....	$ 226.65	$ 453.30
9730	I	3	24 (7 x 32)	12.5	.350″	$ 45.45	169.45	338.85
9731●	I	6	24 (7 x 32)	12.5	.460″	94.55	353.50	706.95
9732●	I	9	24 (7 x 32)	12.5	.570″	125.00	520.50	1041.00
9733●	I	11	24 (7 x 32)	12.5	.610″	158.75	620.25	1240.50
9734●	I	12	24 (7 x 32)	12.5	.630″	170.90	666.00	1332.00
9735●	I	15	24 (7 x 32)	12.5	.700″	211.15	823.50	1647.00
9736●	I	17	24 (7 x 32)	12.5	.730″	245.10	957.00	1912.50
9737●	I	19	24 (7 x 32)	12.5	.740″	279.75	1092.00	2182.50
9738●	I	27	24 (7 x 32)	12.5	.920″	397.45	1551.00	3100.50

●Passes the FR-1 vertical flame test.

GENERAL PURPOSE INTERFACE BUS CABLES

For interfacing computer power with test and measurement hardware without resorting to time-consuming patchwork wiring. Can be used to interconnect up to 15 programmable instruments at one time in star or daisy chain networks. UL approved. Cable has 6 pairs of 26 AWG, 10 single 26 AWG conductors and one single 24 AWG conductor; braid shield with 24 AWG drain wire; semi-rigid PVC insulation; and gray PVC jacket. Cables ends have 24-pin AMP connectors (male and female) with gold plated beryllium copper pins. **Capacitance:** 35 pF/ft for 10 single conductors; 38 pF/ft for 6 pairs. **Impedance:** 70 ohms for 10 single conductors; 75 ohms for 6 pairs.

Belden No.	Length	Net Each	Belden No.	Length	Net Each
9641	100′	$105.40	9643	6.6′	$ 69.00
	500′	349.00	9644	13.1′	78.40
	1000′	697.95	9645	26.2′	93.80
9642	3.3′	65.70	9646	52.2′	125.95

EIA RS-232-C CABLE ASSEMBLIES

The ultimate interface for your data terminal and communications equipment employing serial data exchange. Belden's 25-conductor molded cable assemblies are designed and built to meet EIA Standard RS-232-C and types A through M standard interfaces. Subminiature "D" type male and female connectors assure positive mating and no mix-up. Custom designed assemblies are available on special request. Cable has 25 conductors of #22 AWG (7 x 30) stranded tinned copper with PVC insulation and jacket. Also available in shielded versions; details and prices available on request.

Bulk Cable			Complete Cable Assemblies: Male both ends			Male one end/ Female other end		
Belden Number	Length, Feet	Net Each	Belden Number	Length, Feet	Net Each	Belden Number	Length, Feet	Net Each
8459	100	$109.30	9651	5	$69.75	9652	5	$26.35
	500	411.75	9647	10	28.60	9653	10	29.80
	1000	823.50	9648	25	38.95	9654	25	40.05
			9649	50	56.10	9655	50	57.25
			9650	70	69.75	9656	70	71.05

***ALSO AVAILABLE IN UNREEL PACKAGE AT SAME PRICE.**

BONDED FLAT CABLE
UL STYLE 2697—300 V/80° C

Conductor insulation: .01″ PVC. Color code: brown, red, orange, yellow, green, blue, violet, gray, white, black; colors repeat. Passes FR-1 vertical flame test.

Belden No.	No. of Conds.	AWG (Strands)	Size, Ins. W.	Th.	Net per 1000′
9A22010	10	22(7x30)	.51	.051	$27.10
9A22015	15	22(7x30)	.77	.051	40.75
9A22020	20	22(7x30)	1.01	.051	54.15
9A22030	30	22(7x30)	1.53	.051	81.15
9A24010	10	24(7x32)	.44	.044	20.85
9A24015	15	24(7x32)	.66	.044	31.30
9A24020	20	24(7x32)	.88	.044	41.65
9A24030	30	24(7x32)	1.32	.044	55.65
9A26010	10	26(7x34)	.39	.039	17.65
9A26015	15	26(7x34)	.59	.039	23.55
9A26020	20	26(7x34)	.78	.039	35.10
9A26030	30	26(7x34)	1.17	.039	52.60
9B22010	10	22(19x34)	.51	.051	33.60
9B22015	15	22(19x34)	.77	.051	44.95
9B22020	20	22(19x34)	1.02	.051	67.00
9B22030	30	22(19x34)	1.53	.051	100.35
9B24010	10	24(19x36)	.45	.045	25.60
9B24015	15	24(19x36)	.68	.045	43.00
9B24020	20	24(19x36)	.90	.045	57.25
9B24030	30	24(19x36)	1.35	.045	85.80

LAMINATED FLAT CABLE
UL STYLE 2651—300 V/105° C

Vinyl insulation. Color code: Blue line on edge of cable indicates polarity. Passes FR-1 vertical flame test.

Belden No.	No. of Conds.	AWG (Strands)	Size, Ins. W.	Th.	Net per 1000′
9L28010	10	28(7x36)	.50	.034	$17.35
9L28014	14	28(7x36)	.70	.034	24.20
9L28016	16	28(7x36)	.80	.034	27.30
9L28020	20	28(7x36)	1.00	.034	34.25
9L28024	24	28(7x36)	1.20	.034	40.80
9L28025	25	28(7x36)	1.25	.034	42.55
9L28026	26	28(7x36)	1.30	.034	44.25
9L28034	34	28(7x36)	1.70	.034	57.30
9L28037	37	28(7x36)	1.85	.034	62.35
9L28040	40	28(7x36)	2.00	.034	67.20
9L28050	50	28(7x36)	2.50	.034	84.05
9L28060	60	28(7x36)	3.00	.034	100.80

BRAIDED TINNED COPPER SHIELDING AND BONDING CABLES (FIG. A)

Belden No.	Stranding	Nom. I.D.	Net Each, Spool of 10′	50′	250′	Belden No.	Stranding	Nom. I.D.	Net Each, Spool of 10′	50′	250′
8676	16 x 36	1/16″	$3.06	$ 5.60	$25.05	8669	336 x 36	5/16″	$ 8.70	$ 36.80	$141.30
8674	24 x 36	3/16″	3.35	7.85	34.95	8672	528 x 36	1/4″†	10.05	42.05	161.80
8652	96 x 40	1/4″	3.86	9.30	38.05	8671	864 x 36	15/16″†	13.30	59.45	235.30
8653	48 x 36	1/8″	3.91	10.30	41.25	8662	576 x 34	15/16″†	12.30	51.60	204.25
8654	72 x 36	1/4″	3.95	11.20	47.05	8655	360 x 30	5/8″†	14.60	70.45	253.95
8664	96 x 36	1/8″	4.28	12.65	53.80	8670	480 x 30	3/4″†	18.85	91.95	329.70
8660	96 x 34	5/16″	4.06	11.95	57.25	8656	576 x 30	7/8″†	23.60	113.20	420.00
8668	120 x 34	3/16″	5.50	15.20	67.25	8657	768 x 30	1 1/16″†	31.05	125.10	.....
8663	168 x 34	1/4″	5.85	19.40	85.85	8658	1056 x 30	1 3/8″†	43.45	175.45	.....
8661	192 x 34	1/2″	5.60	17.95	84.00	8659	1680 x 30	1 1/2″†	66.00	272.65	.....

†Flat width. *Spool may contain more than one piece, minimum length of any one piece is 25 ft.

SOLID TINNED COPPER BUS BAR WIRE (FIG. B)

Made in accordance with Federal Spec QQ-W-343.

Belden No.	AWG	Nom. O.D.	Net Each, Spool of 100′	1000′	Belden No.	AWG	Nom. O.D.	Net Each, Spool of 100′	1000′
8011	12	.080″	$19.85	.....	8021	22	.025″	$3.91	$24.60
8012	14	.064″	13.30	$109.60	8022	24	.020″	3.77	20.05
8013	16	.050″	8.70	74.65	8023	26	.016″	3.66	18.60
8019	18	.040″	6.25	47.50	8024	28	.012″	3.53	16.05
8020	20	.032″	4.71	33.15	8025	30	.010″	3.53	15.30

MIL-W-16878 TYPE B MULTI-CONDUCTOR SHIELDED CABLE (FIG. C)

Suitable for general purpose use in communications and instrumentations applications. Stranded tinned copper conductors, vinyl insulated, clear nylon jacket, conductors cabled, tinned copper braid shield, white vinyl jacket. Insulation .010″ thick. WV, 600 V suggested. Conductor Color Code: **1**, white; **2**, black; **3**, red; **4**, green. Pass the FR-1 vertical flame test.

Belden No.	No. of Cond.	AWG and (Stranding)	Nom. O.D.	Shield Cov. %	Nom. Cap.* pF/ft.	Net Each, Spool of 100′	500′	1000′
9965	1	22 (19 x 34)	.100″	92	90	$22.05	$ 97.50	$160.65
9961	1	20 (19 x 32)	.109″	93	100	22.95	102.65	169.20
9951	1	16 (19 x 29)	.139″	93	125	30.40	125.00	227.25
9966	2	22 (19 x 34)	.176″	91	87	36.60	136.15	272.25
9962	2	20 (19 x 32)	.192″	92	95	42.25	155.40	310.80
9952	2	16 (19 x 29)	.238″	92	120	50.80	200.95	401.85
9967	3	22 (19 x 34)	.184″	91	817	50.00	190.30	380.55
9963	3	20 (19 x 32)	.202″	91	95	51.45	204.30	408.60
9953	3	16 (19 x 29)	.250″	91	120	70.00	274.75	549.45
9968	4	22 (19 x 34)	.200″	90	817	55.90	209.50	418.95
9964	4	20 (19 x 32)	.212″	92	95	62.35	245.25	490.50
9954	4	16 (19 x 29)	.270″	91	120	88.40	339.00	678.00

*Capacitance between one conductor and other conductor connected to shield.

MIL-C-3432D 600 VOLT POWER AND CONTROL CABLES (FIG. D)

Intended for military applications to transmit power and control signals. Features tough flexible jacket which is resistant to mechanical abuse and extreme humidity and temperature conditions. Tinned copper conductors, rubber insulated, cabled with fillers, cotton serve, black rubber jacket. Conductor Color Coding: **1**, white; **2**, black; **3**, green.

Belden No.	Type Designation	No. of Cond.	AWG and (Stranding)	Nom. O.D.	Insul. Thk.	Net Each, Spool of 500′	1000′
9215	CO-02 MGF (2/18) 0310	2	18 (41 x 34)	.310″	.033″	$132.85	$265.65
9216	CO-02 MGF (2/16) 0335	2	16 (65 x 34)	.335″	.033″	160.75	321.45
9217	CO-02 MGF (2/14) 0400	2	14 (41 x 30)	.400″	.036″	211.35	422.70
9218	CO-03 MGF (3/18) 0340	3	18 (41 x 34)	.345″	.033″	163.75	327.45
9219	CO-03 MGF (3/16) 0365	3	16 (65 x 34)	.365″	.033″	219.60	439.20

MISCELLANEOUS SPECIAL DUTY WIRES

Belden No. 8868 High Voltage CRT Lead (Fig. E)—Tinned copper 22 AWG, 7 x 30 stranded, conductive polyethylene, polyethylene insulated, red vinyl jacket; extra flexible and small. Rated 50,000 V breakdown; 25,000 V working. O.D., .150″ nominal. **25′ Spool,** Net.....$ 5.40 **100′ Spool,** Net.....$13.65 **500′ Spool,** Net..... 51.45*

Belden No. 8866 High Voltage CRT Lead (Fig. E)—Tinned copper 18 AWG, 16 x 30 stranded, conductive polyethylene, polyethylene insulated, red vinyl jacket. Rated 110 kV breakdown; 40,000 V working. O.D., .208″ nom. **25′ Spool,** Net.....$8.15 **100′ Spool,** Net.....$23.70 **500′ Spool,** Net.....$98.05*

Belden No. 8869 High Voltage CRT Lead (Fig. E)—Tinned copper 22 AWG, 7 x 30 stranded, conductive polyethylene, polyethylene insulated, black vinyl jacket. Rated 35,000 V breakdown, 17,000 V working. Nom. O.D., .120″. **25′ Spool,** Net.....$4.33; **100′ Spool,** Net.....$10.95; **500′ Spool,** Net.....$39.95

Belden No. 9867 High Voltage Lead (Fig. E)—Tinned copper 20 AWG, 7 x 28½ stranded, conductive polyethylene, polyethylene insulated, red vinyl jacket. Rated 60,000 VDC breakdown; 30,000 VDC working. O.D., .185″, nominal. **25′ Spool,** Net.....$7.10; **100′ Spool,** Net.....$17.50; **500′ Spool,** Net.....$66.80

Belden No. 8014* Indoor Aerial Wire (Fig. F)—Tinned copper 25 AWG, 13 x 36 stranded, chrome vinyl insulation. O.D., .044″ nom. **25′ Spool,** Net.....$3.11 **500′ Spool,** Net.....$17.20

Belden No. 9002 Trap Wire—Bare copper 20 AWG (7 groups of 15 strands of 40 AWG wire). O.D., .038″, nominal. **1000′ Spool,** Net.....$97.40

Belden No. 8000 Antenna Wire—Bare copper covered steel 14 AWG (7 x 22 stranding). O.D., .076″ nominal. **50′ Spool,** Net.....$ 6.25; **75′ Spool,** Net.....$ 8.85 **100′ Spool,** Net.....10.95; **1000′ Spool,** Net..... 98.65

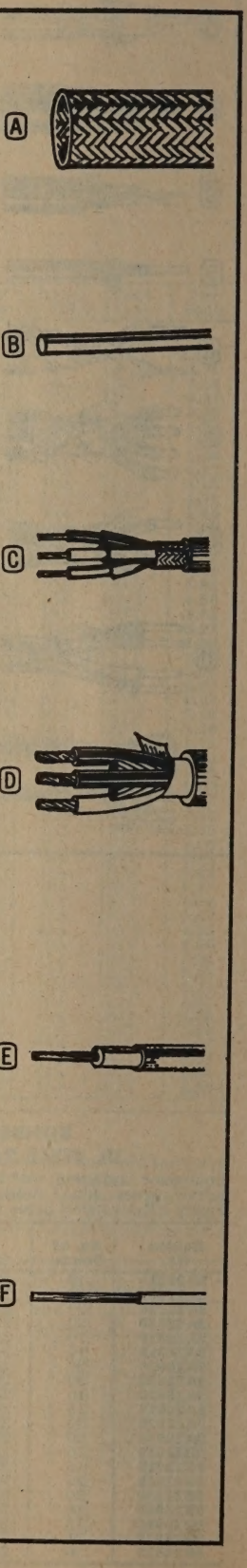
Belden No. 8002—Same, except 16 AWG (7 x 24 stranding. O.D., .060″, nominal. **50′ Spool,** Net.....$4.42; **100′ Spool,** Net.....$7.65

Belden No. 8008 Antenna Wire—Copper, 12 AWG (Solid) with heavy armored Thermaleze insulation. O.D. .084″, nominal. **100′ Spool,** Net $22.40; **150′ Spool,** Net $31.70; **500′ Spool,** Net $96.30

Belden No. 8009—Same, except 14 AWG (Solid). O.D. .067″, nimonal. **100′ Spool,** Net.....$14.30 **150′ Spool,** Net.....$19.60; **500′ Spool,** Net..... 57.90

®TM: Celenamel, Duobond, Duofoil of Belden; Hypalon of DuPont. •Passes the FR-1 vertical flame test.

***ALSO AVAILABLE IN UNREEL PACKAGE AT SAME PRICE.**



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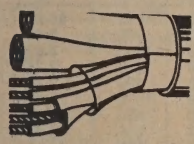
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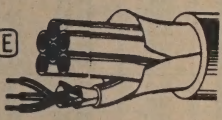
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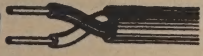
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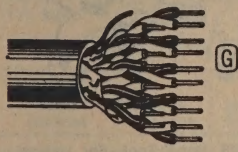
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THREE CONDUCTOR SHIELDED CABLES

Three conductor cable with three conductors shielded; #30 thru #16 gauge. **Fig. K Types:** Tinned copper, vinyl insulated, conductors cabled, tinned copper spiral wrapped shield. Chrome vinyl jacket. **Fig. L Types:** Tinned copper, vinyl insulated, conductors cabled, tinned copper braid shield. Chrome vinyl jacket. No. 8643: Same, but polypropylene insulated conductors cabled around textile strength member. Operating temperature, 105° C max. **Fig. M Types:** Tinned copper, polyethylene insulated, conductors cabled, Beldfoil aluminum-polyester shield, stranded tinned copper ground drain wire (22 AWG for 9770 and 8771, 20 AWG for 8770 and 8772, 18 AWG for 8618), chrome vinyl jacket. **Color Coding:** Black, red and white except 8771, 8772, 8770 and 8618, black, red and clear.

Belden No.	Fig.	AWG and (Stranding)	Nom. O.D.	Cap.,* pF/ft.	Working Volts	Net Each, Spool of 15′	50′	100′	500′	1000′
8791•	A	18 (7 x 26)	.236″	84	450	.....	.....	$33.85	$125.00*	$243.30
8735•▲	B	22 (7 x 30)	.199″	60	350	$5.40	$14.20	24.40	101.85*	167.85*
8643	B	30 (7 x 38)	.086″	43	200	....	.....	28.70	66.20#	.....
8618•▲	C	16 (19 x 29)	.310″	50	600	....	.....	.....	152.25*	304.50
8771•▲	C	22 (7 x 30)	.179″	41	350	....	.....	32.80#	65.45*	125.00*
8772•▲	C	20 (7 x 28)	.204″	51	350	....	.....	.....	75.90*	125.10*
8770•▲	C	18 (16 x 30)	.236″	48	450	....	.....	.....	104.85*	172.80*
9770‡•	C	22 (7 x 30)	.145″	60	200	....	.....	43.90#	87.75*	144.60*

*Capacitance between one conductor and other conductors connected to shield. ‡Polypropylene insulated and brown vinyl jacket. •Passes the FR-1 vertical flame test. †Similar. ▲U.L. Listed. #250 ft.

AUDIO, COMMUNICATION AND INSTRUMENTATION CABLES

Belden No. 9685—Two tinned copper 20 AWG (7 x 30), Beldfoil aluminum-polyester shield with 22 AWG drain wire; one tinned copper 20 AWG (7 x 30) unshielded; pair and single cabled; chrome vinyl jacket. **500′ Unreel Package,** Net..... **$67.10** **1000′ Unreel Package,** Net..... **$125.00**

Belden No. 9686—Three tinned copper 20 AWG (10 x 30) and three tinned copper 16 AWG (26 x 30), vinyl insulation, conductors cabled, chrome vinyl jacket.
500′ Unreel Package, Net..... **$155.20** **1000′ Spool,** Net..... **$310.35**

Multiple Quads Audio and Communication Cables (Fig. D): Polypropylene insulation, 22 AWG (7 x 30) tinned copper, cabled in quads, Beldfoil aluminum-polyester shield over black and red conductors, 24 AWG stranded tinned copper drain wire, clear polyester tape over entire quad, shields color-coded, chrome vinyl jacket. Nom. capacitance, 67 pF/ft. between one conductor and other conductors connected to shield. Nom. O.D., .330″ No. 8726; .450″ No. 8727. Cabled around common axis; request information before planning high and low level circuits in same cable.
Belden No. 8726•—100′ Spool, Net. **$ 76.80** **500′ Spool,** Net... **$287.85** **1000′ Spool,** Net.. **$ 575.70**
Belden No. 8727•—100′ Spool, Net.. **151.05** **500′ Spool,** Net... **642.00** **1000′ Spool,** Net...**1284.00**

Multiple Triplets Audio, Communication and Instrumentation Cables (Fig. E): Tinned copper, polypropylene insulated, 22 AWG (7 x 30) conductors cabled in triplets, each shielded with Beldfoil aluminum-polyester shield, 22 AWG stranded tinned copper drain wire, .020″ white vinyl jacket, individual triplet jackets identified by color-coded stripes, triplets cabled, overall chrome vinyl jacket. Nom. capacitance, 60 pF/ft. between one conductor and other conductors connected to shield. Insulation, .008″ th. Working voltage, 300 V suggested. Conductors color coded black, red and green.
Belden No. 9771•—21 conductors (7 triplets); .550″ nom. diameter. **500′ Spool,** Net....**$ 615.25**
Belden No. 9772•—36 conductors (12 triplets); .740″ nom. diameter. **500′ Spool,** Net....**1045.50**

Telephone Cables (Fig. F): Bare copper 22 AWG (solid), polyethylene insulated, conductors cabled, rose gray vinyl jacket. Insulation, .016″ thick; jacket, .022″ thick.
Belden No. 8795—Two conductor color-coded red, green. Nom. O.D., .160″. U.L. Listed.
500′ Unreel, Net..... **$40.50** **1000′ Spool,** Net..... **$81.00***
Belden No. 8794▲—Three conductor color-coded red, green, yellow. Nom. O.D., .168″. U.L. Listed.
500′ Unreel, Net..... **$42.90** **1000′ Spool,** Net..... **$85.75***
Belden No. 9794▲—Four conductor color-coded green, red, yellow, black. Nom. O.D., .190″; jacket, .025″ th. **500′ Unreel,** Net..... **$53.00** **1000′ Spool,** Net..... **$105.95***
®TM: Beldfoil of Belden. •Passes the FR-1 vertical flame test. ▲U.L. Listed.

MULTIPLE PAIR SHIELDED SOUND AND CONTROL CABLE (FIG. G)

Tinned copper, vinyl insulated twisted pairs, overall Beldfoil aluminum-polyester shield, stranded tinned copper drain wire, chrome vinyl jacket. UL Listed. Pass FR-1 vertical flame test.

Belden No.	No. of Pairs	AWG and (Stranding)	Nom. O.D.	Net Each, Spool of 100′	500′	1000′
9461	1	22 (7 x 30)	.000″	.....	$ 60.10■	$ 120.15■
9302	2	22 (Solid)	.224″	$ 17.50	72.75*	125.00*
9305	4	22 (Solid)	.265″	29.80	122.70*	202.20*
9306	6	22 (Solid)	.321″	35.15	131.10	262.20
9309	9	22 (Solid)	.373″	50.90	189.00	378.00
9315	15	22 (Solid)	.437″	88.65	335.85	671.70
9319	19	22 (Solid)	.475″	109.30	413.25	826.50
9327	27	22 (Solid)	.571″	125.00	562.50	1125.00
9501	1	24 (7 x 32)	.156″	13.85	56.80*	113.60*
9502	2	24 (7 x 32)	.222″	24.40	100.20*	165.15*
9503	3	24 (7 x 32)	.232″	32.80	125.00*	223.95*
9504	4	24 (7 x 32)	.252″	42.25	143.65*	287.25*
9505	5	24 (7 x 32)	.295″	52.70	179.55*	359.10*
9506	6	24 (7 x 32)	.295″	60.80	206.85*	413.70*
9507	7	24 (7 x 32)	.300″	69.45	237.10*	474.15*
9508	8	24 (7 x 32)	.330″	78.65	268.90	537.75
9509	9	24 (7 x 32)	.340″	87.75	300.15	600.30
9510	10	24 (7 x 32)	.380″	96.85	330.85	661.65
9515	15	24 (7 x 32)	.425″	125.00	486.00	972.00
9519	19	24 (7 x 32)	.450″	172.15	615.75	1231.50
9525	25	24 (7 x 32)	.530″	221.65	793.50	1585.50
9550	50	24 (7 x 32)	.715″	437.70	1564.50	3129.00

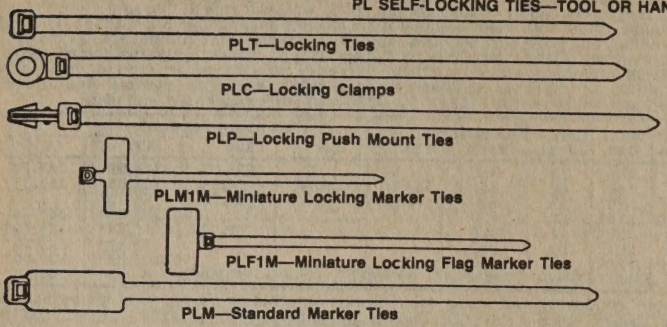
FOAM CORE TRANSMISSION LINE (FIG. H)

Belden No. 9221—Tinned copper 30 AWG, 7 x 38 stranded conductor, cellular polypropylene insulation, tinned copper shield, black vinyl jacket. Nom. cap., 17.4 pF/ft. O.D., .097″ nom. U.L. Listed.
25′ Spool, Net..... **$6.55** **100′ Spool,** Net..... **$18.05** **500′ Spool,** Net..... **$67.00***
Belden No. 8214•—RG-8/U for citizens' band and amateur radio as 50-ohm antenna cable. Copper 11 AWG, 7 x 1⅛ stranded conductor, cellular polyethylene foam insulation, bare copper braid shield with black vinyl jacket overall. Nom. cap., 26 pF/ft. Vel. of propag. 78%, nom. Nom. O.D., .405″. U.L. Listed. **50′ Spool,** Net..... **$ 27.40** **100′ Spool,** Net..... **$ 47.25**
500′ Spool, Net..... **181.60** **1000′ Spool,** Net..... **363.15**
Belden No. 8219—Same, but RG-58/AU with tinned copper 20 AWG, 19 x 32 stranded conductor, tinned copper braid shield; nom. O.D., .195″. U.L. Listed. **100′ Spool,** Net..... **$ 21.50**
500′ Spool, Net..... **$81.00*** **1000′ Spool,** Net..... **133.50***
®TM: Permohm, Duobond, Weldohm, Beldfoil and Celluline of Belden. •Passes the FR-1 vertical flame test.

*ALSO AVAILABLE IN UNREEL PACKAGE AT SAME PRICE. ■UNREEL PACKAGE ONLY.

PAN-TY® ONE PIECE CABLE TIES, CLAMPS, PUSH MOUNT TIES AND MARKERS

PL SELF-LOCKING TIES—TOOL OR HAND INSTALLED



U.L. Recognized

All packages of 50 and 100 PAN-TY cable ties; bulk packages of PLT1M-MP, PLT1.51-MP and PLT2S-MP are supplied in convenient dispenser cartons.

PAN-TY® CABLE TIES, CLAMPS AND MARKERS

Pandult Number	Max. Bundle Dia.	Approx. Length	Std. Pkg.	Std. Ctn.	Net per 100 Std. Pkg.	Net per 100 Std. Ctn.
PLT1M-CP	¾"	3⅞"	100	1000	$4.80	$3.84
PLT1.5M-CP	1¼"	5½"	100	500	4.99	3.99
PLT1.51-CP	1¼"	5½"	100	1000	5.71	4.57
PLT1.5S-CP	1½"	6⅜"	100	500	7.06	5.65
PLT2M-CP	2"	8"	100	500	5.69	4.56
PLT21-CP	2"	8"	100	500	6.78	5.48
PLT2S-CP	1¾"	7⅜"	100	1000	7.23	5.79
PLT31-CP	3"	11½"	100	500	11.81	9.44
PLT3S-CP	3"	11½"	100	500	14.22	11.38
PLT41-CP	4"	14½"	100	500	15.07	12.06
PLT4S-CP	4"	14½"	100	500	16.70	13.38
PLT4H-LP	4"	14½"	50	500	23.76	19.01
PLT8H-LP	9"	30⅝"	50	500	46.38	37.11
PLC1M-S4-CP	¾"	4⅜"	100	500	8.54	6.83
PLC1.5I-S8-CP	1¼"	6⅛"	100	500	9.83	7.86
PLC2S-S6-CP	1¾"	7⅞"	100	500	10.96	8.76
PLC2S-S10-CP	1¾"	7½"	100	500	10.96	8.76
PLC4H-S25-LP	4"	15¼"	50	500	34.97	27.98
PLP1.5I-CP	1¼"	6⅛"	100	500	10.18	8.14
PLP2S-CP	1¾"	7⅞"	100	500	11.80	9.43
PLM1M-CP	¾"	4"	100	500	10.51	8.40
PLF1M-CP	¾"	4⅜"	100	500	10.51	8.40
PLM2M-CP	2"	8"	100	500	12.29	9.83
PLM2S-CP	1¾"	7¼"	100	500	21.14	16.92
PLM4S-CP	4"	14½"	100	500	27.17	21.74

STA-STRAP® CABLE TIES, CLAMPS AND MARKERS

Hand or tool installed—releasable prior to tightening.

Pandult Number	Max. Bundle Dia.	Approx. Length	Std. Pkg.	Std. Ctn.	Net per 100 Std. Pkg.	Net per 100 Std. Ctn.
SST1M-CP	¾"	4"	100	1000	$5.23	$4.19
SST1.5M-CP	1¼"	5½"	100	500	5.44	4.34
SST1.5I-CP	1¼"	5½"	100	1000	5.93	4.74
SST1.5S-CP	1¼"	5¾"	100	500	7.34	5.87
SST2I-CP	2"	$8^{3}/_{16}$"	100	500	7.12	5.68
SST2S-CP	1¾"	6¾"	100	1000	7.49	6.00
SST2H-LP	2"	8"	50	500	17.93	14.35
SST3I-CP	3"	11"	100	500	12.25	9.80
SST3S-CP	3"	11"	100	500	14.78	11.82
SST41-CP	4"	14¾"	100	500	15.64	12.51
SST4S-CP	4"	15"	100	500	17.33	13.87
SST4H-LP	4"	14¾"	50	500	24.66	19.73
SST8H-LP	8"	27½"	50	500	52.09	41.67
SSC2S-S6-CP	1¾"	$7^{7}/_{16}$"	100	500	11.50	9.18
SSC2S-S10-CP	1¾"	$7^{7}/_{16}$"	100	500	11.50	9.18
SSC4S-S6-CP	4"	$15^{7}/_{16}$"	100	500	28.22	22.57
SSC4S-S10-CP	4"	$15^{7}/_{16}$"	100	500	28.22	22.57
SSC4H-S25-LP	4"	$15^{7}/_{16}$"	50	500	36.57	29.20
SSM2S-CP	1¾"	6¾"	100	500	22.10	17.71
SSM4S-CP	4"	14¾"	100	500	28.43	22.74
SSB2S-C	*	6¾"	100	500	13.93	11.15

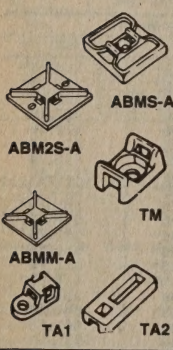
*Any two bundles up to approx. total dia. of 1¼".

Colors: Standard color, natural nylon white; other colors available. 10% additional price.

WRITE OR CALL FOR PRICES AND INFORMATION ON BULK PRICES OF PAN-TY AND STA-STRAP CABLE TIES

CABLE TIE ACCESSORIES

CABLE TIE MOUNTS



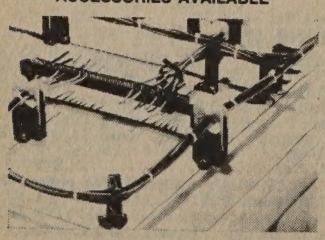
Pandult Number	Mtg.	Uses Tie*	Std. Pkg.	Std. Ctn.	Net per 100 Std. Pkg.	Net per 100 Std. Ctn.
ABMM-A-C	Adh.	M	100	500	$29.07	$23.26
ABM2S-A-C	Adh.	M, I, S	100	500	33.31	26.64
ABMS-A-C	Adh.	M, I, S	100	500	38.11	30.48
TM1S6-C	#6	M	100	500	6.97	5.55
TM2S8-C	#8	M, I, S	100	500	9.38	7.51
TM3S10-C	#10	M, I, S, H	100	500	17.40	13.92
TMEH-S25-QO	¼	All	25	250	44.55	35.65
TA1S8-C	#8	M, I, S	100	500	9.34	7.49
TA2-C	#10	M, I, S	100	500	9.29	7.43
TP2-C	#10	M, I, S	100	500	9.29	7.43
TP4H-C	¼	M, I, S, H	100	500	37.85	30.26

*Cross section; M = Min.; I = Int.; S = Std.; H = Heavy; All = All, including Extra-Heavy.

PRODUCTION INSTALLATION TOOLS

Pandult No. GS2B Hand Tool—For uniform tensioning and cut-off. Installs miniature, intermediate and standard cable ties. Shpg. Wt., 1 lb. approx. **Prices on request. Pandult No. GS4H Hand Tool**—Same, but installs standard and heavy cable ties. Shpg. Wt., 1½ lbs. approx. **Prices on request.**

COMPLETE LINE OF HARNESS BOARD ACCESSORIES AVAILABLE



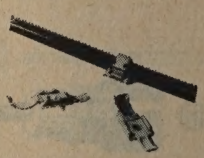
FLAT CABLE MOUNT

Clamps flat cable up to 2" wide. Self-locking.

Pandult No. FCM-2	Mtg.	Std. Pkg.	Std. Ctn.	Net per 100 Std. Pkg.	Net per 100 Std. Ctn.
A-C14	Adhsv.	100	500	$41.71	$33.35
S6-C14	Screw	100	500	38.34	30.68

CLINCHER™ ADJUSTABLE RELEASABLE CLAMP

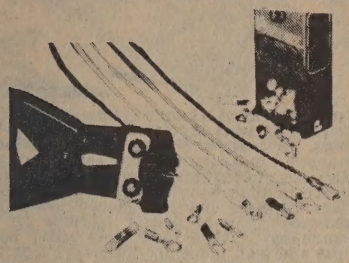
For wire bundles $^{3}/_{16}$" up to $^{11}/_{16}$" O.D. Self-locking.



Pandult No. ARC-	Mtg.	Std. Pkg.	Std. Ctn.	Net per 100 Std. Pkg.	Net per 100 Std. Ctn.
68-A-Q14	Adhsv.	25	250	$45.67	$36.51
68-S6-Q14	Screw	25	250	27.92	22.33

SOLD IN STANDARD PACKAGES ONLY

PAN-TERM® TERMINALS, SPLICES, DISCONNECTS AND INSTALLATION TOOLS

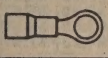


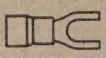
U.L. Recognized

C.S.A. Certified

Panduit Pan-Term terminals and splices are engineered and manufactured to stringent quality standards to accommodate wire sizes from #10 to #26 in complete range of applications. Packaging is in convenient-to-use dispensing boxes. Clear, see-through lid snaps open (and shut) and swings clear for quick terminal access.

VINYL INSULATED (FUNNEL ENTRY†)

Ring Tongue 

Fork Tongue 

Panduit Number	Stud Size	Std. Pkg.	Std. Ctn.	Net per 100 Std. Pkg.	Net per 100 Std. Ctn.
WIRE RANGE 26-22 (MAX. INS., .110")					
PV22-2R-O*	2	100	1000	$13.00	$10.40
PV22-4R-C*	4	100	1000	13.00	10.40
PV22-6R-C*	6	100	1000	13.00	10.40
PV22-8R-C	8	100	1000	13.00	10.40
PV22-10R-C	10	100	1000	13.00	10.40
WIRE RANGE—22-18 RED (MAX. INS., .150")					
PV18-4R-C	4	100	500	$15.14	$12.15
PV18-6R-C*	6	100	500	15.14	12.15
PV18-8R-C*	8	100	500	15.14	12.15
PV18-10R-C*	10	100	500	15.14	12.15
PV18-14R-C	¼	100	500	18.45	14.79
WIRE RANGE—16-14 BLUE (MAX. INS., .170")					
PV14-4R-C	4	100	500	$15.14	$12.15
PV14-6R-C*	6	100	500	15.14	12.15
PV14-8R-C*	8	100	500	15.14	12.15
PV14-10R-C*	10	100	500	15.14	12.15
PV14-14R-C*	¼	100	500	18.45	14.79
WIRE RANGE—12-10 YELLOW (MAX. INS., .210")					
PV10-6R-L	6	50	500	$19.59	$15.72
PV10-8R-L*	8	50	500	19.59	15.72
PV10-10R-L*	10	50	500	19.59	15.72
PV10-14R-L*	¼	50	500	23.21	18.62
PV10-56R-L	5/16	50	500	23.21	18.62
PV10-38R-L	⅜	50	500	23.21	18.62

*Also available in vinyl insulated fork tongues with same insulation. To order, substitute F instead of R in Panduit No. (e.g., PV18-6F-C); same price. †Except 26-22 sizes.

NON INSULATED (BRAZED SEAM)

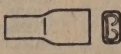
Panduit Number	Wire Range	Stud Size	Std. Pkg.	Std. Ctn.	Net per 100 Std. Pkg.	Net per 100 Std. Ctn.
P22-2R-C*	26-22	2	100	1000	$7.53	$6.00
P22-4R-C*	26-22	4	100	1000	7.53	6.00
P22-6R-C*	26-22	6	100	1000	7.53	6.00
P22-8R-C	26-22	8	100	1000	7.53	6.00
P22-10R-C	26-22	10	100	1000	7.53	6.00
P18-4R-C	22-18	4	100	1000	9.22	7.39
P18-6R-C*	22-18	6	100	1000	9.22	7.39
P18-8R-C*	22-18	8	100	1000	9.22	7.39
P18-10R-C*	22-18	10	100	1000	9.22	7.39
P18-14R-C*	22-18	¼	100	1000	12.45	9.99
P18-38R-C	22-18	⅜	100	1000	12.45	9.99
P18-56R-C	22-18	5/16	100	1000	12.45	9.99
P14-4R-C	16-14	4	100	1000	9.22	7.39
P14-6R-C*	16-14	6	100	1000	9.22	7.39
P14-8R-C*	16-14	8	100	1000	9.22	7.39
P14-10R-C*	16-14	10	100	1000	9.22	7.39
P14-14R-C*	16-14	¼	100	1000	12.45	9.99
P14-38R-C	16-14	⅜	100	1000	12.45	9.99
P14-56R-C	16-14	5/16	100	1000	12.45	9.99
P10-8R-L	12-10	8	50	500	12.99	10.42
P10-10R-L*	12-10	10	50	500	12.99	10.42
P10-14R-L*	12-10	¼	50	500	14.91	11.95
P10-56R-L	12-10	5/16	50	500	14.91	11.95
P10-36R-L	12-10	⅜	50	500	14.91	11.95

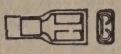
*Also available in fork tongues. To order, replace R in Panduit No. with F (e.g., P18-6F-C); same Price.

FEMALE DISCONNECTS

U.L. Recognized C.S.A. Certified

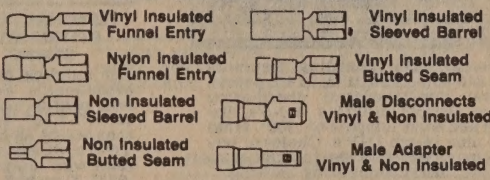
FULLY PRE-INSULATED VINYL

Type DV 

Type DVC (Clear) 

Panduit Number	Wire Range	Max. Ins. Inches	Std. Pkg.	Std. Ctn.	Net per 100 Std. Pkg.	Net per 100 Std. Ctn.
.250" × .032" TAB SIZE						
DV18-250FI-C	22-18	.140	100	1000	$22.72	$18.23
DV14-250FI-C	16-14	.170	100	1000	22.72	18.23
DV10-250FI-L	12-10	.210	50	500	27.10	21.74
.187" × .020" TAB SIZE						
DV18-188FI-C	22-18	.140	100	1000	$22.72	$18.23
DV14-188FI-C	16-14	.170	100	1000	22.72	18.23

OTHER DISCONNECTS AVAILABLE


Vinyl Insulated Funnel Entry
Vinyl Insulated Sleeved Barrel
Nylon Insulated Funnel Entry
Vinyl Insulated Butted Seam
Non Insulated Sleeved Barrel
Male Disconnects Vinyl & Non Insulated
Non Insulated Butted Seam
Male Adapter Vinyl & Non Insulated

BUTT SPLICES

Nylon Insulated
Vinyl Insulated
Clear Vinyl Ins.
Non Insulated

U.L. Recognized

C.S.A. Certified

Panduit Number	Wire Range	Max. Ins. Inches	Std. Pkg.	Std. Ctn.	Net per 100 Std. Pkg.	Net per 100 Std. Ctn.
NYLON INSULATED						
BSN18-C	22-18	.115	100	1000	$19.28	$15.47
BSN14-C	16-14	.148	100	1000	19.28	15.47
BSN10-L	12-10	.210	50	500	28.51	22.87
VINYL INSULATED						
BSV18X-C	22-18	.170	100	1000	$15.83	$12.69
BSV14X-C	16-14	.200	100	1000	15.83	12.69
BSV10-X-L	12-10	.250	50	500	22.92	18.41
CLEAR VINYL INSULATED						
BSVC18X-C	22-18	.170	100	1000	$17.43	$13.98
BSVC14X-C	16-14	.200	100	1000	17.43	13.98
BSVC10X-L	12-10	.250	100	500	25.32	20.30
NON-INSULATED						
BS18-C	22-18	.....	100	1000	$11.30	$9.08
BS14-C	16-14	.....	100	1000	11.30	9.08
BS10-L	12-10	.....	50	500	15.75	12.64

PAN-TERM INSTALLATION TOOLS

CT-100
Versatile, heavy duty tool. Crimps insulated and noninsulated terminals #10 thru #22. Cuts and strips wire, cuts bolts. Has insulation closure pocket.

CT-150
Light duty tool crimps insulated and non-insulated terminals #10 thru #22. Cuts and strips wire, cuts bolts.

CT-200
Crimps non-insulated terminals #10 thru #22. Cuts wire.

CT-250
Crimps insulated terminals.

Both feature long handles which reduce crimping force.

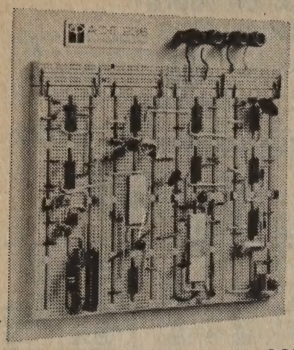
CT-500, CT-510, CT-520, CT-550, CT-570
Controlled-Cycle Crimping Tools
Five precision made tools provide tool-controlled crimps, each designed for different insulation or construction features of the terminals. Wire range of terminals is expanded when crimped with these tools.

A P PRODUCTS Integrated Circuit Accessories, Breadboards, Terminal Strips, Test Clips, Test Probes

FOR DEVELOPMENT BREADBOARDING

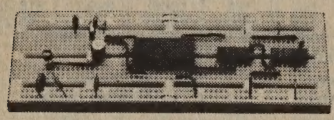
ACE ALL-CIRCUIT EVALUATORS

Two kits and five assembled breadboards for quick build-up and check-out of experimental circuits. All models have integral voltage distribution system with solderless, plug-in tie points on universal .100″ x .100″ matrix for excellent circuit design flexibility. These ACE's accept all DIP's, TO-5's, discrete components and solid wire patch cords to .032″. Use buses for voltage, ground, reset and clock lines, shift command, etc. Five-way binding posts. Aluminum base serves as ground and has gold-anodized protective surface. Multi-tie-point terminals are non-corrosive nickel silver. Four rubber feet included.

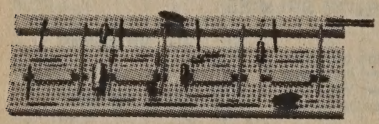


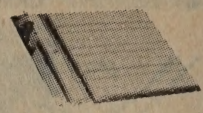
ACE 236

SUPER-STRIPS



Universal, breadboarding elements have 840 solderless, plug-in tie points, integral low-impedance distribution system, accepts all DIP's, TO-5's, discretes and solid jumpers to .032″. Hold up to nine 14-pin DIP's. Choice of terminal materials. Includes integral, non-shorting, instant-mounting backing.





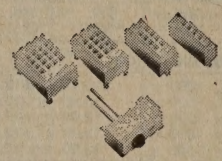
BREADBOARD II

Fully assembled. Unique system of 3 distribution strips, two levels of printed circuits and 3 binding posts. 18 buses are color coded and internally connected to 3 corresponding color binding posts. High distributed capacitance and low inductance design minimizes unwanted voltage spikes, provides superior low impedance system. Same solderless, plug-in matrix features as ACE's. Laminated NEMA G-10 glass epoxy base; circuits and gnd. plane are tin-plated 2-oz. copper; terminals are copper alloy.

AP No.	ACE's and Breadboard II	Tie-Pts.	DIP Cap.	No. Buses	No. Posts	Size (Inches)	Net Each, Lots of 1-9	10-24	25-49	50-99
923333	ACE 200-K (kit)	728	8(16's)	2	2	4 9/16 x 5 9/16	$22.75	$20.93	$19.33	$17.74
923332	ACE 208 (assem.)	872	8(16's)	8	2	4 9/16 x 5 9/16	30.70	28.24	26.09	23.94
923334	ACE 201-K (kit)	1032	12(14's)	2	2	4 9/16 x 7	29.95	27.55	25.45	23.36
923331	ACE 212 (assem.)	1224	12(14's)	8	2	4 9/16 x 7	37.05	34.08	31.49	28.89
923326	ACE 218 (assem.)	1760	18(14's)	10	2	6 1/2 x 7 1/8	49.80	45.81	42.33	38.84
923325	ACE 227 (assem.)	2712	27(14's)	28	4	8 x 9 1/4	63.55	58.46	54.01	49.56
923324	ACE 236 (assem.)	3648	36(14's)	36	4	10 1/4 x 9 1/4	84.75	77.97	72.03	66.10
923605	BB 11 (assem.)	2696	36(14's)	18	3	7 x 9	141.00	129.72	119.85	109.98

TERMINAL AND DISTRIBUTION STRIPS

For building custom breadboards. Solderless, plug-in matrices on .1″ x .1″ centers that accept all DIP's, TO-5's, discretes and solid wire jumpers to .032″. Terminal strips available in 4- and 5-tie-pt. single and dual rows. Distribution strips available with 2 or 6 buses. Includes integral, non-shorting, instant-mounting backing.



TIE-POINT BLOCKS

Four models available with .1″ matrix of solderless, plug-in, 4-tie-point terminals for custom layouts, attaching relays, displays, in/out patching. LED block accepts 3/16″ dia. bulb (not included). All models have solder tails and mount by press-fitting into holes.

AP No.	Tie-Point Blocks	Tie-Points	Net Each Pkg. 20, Lots of 1-9	10-24	25-49	50-99
923297	TB1 (single)	4	$ 4.35	$ 4.00	$3.69	$3.39
923299	TB2 (double)	8	6.95	6.39	5.90	5.42
923301	TB3 (triple)	12	9.85	9.06	8.37	7.68
923303	TB4 (quad)	16	11.65	10.71	9.90	9.08
923305	LB1 (LED)	1	6.75	6.21	5.73	5.26

AP No.	Terminal Strips, Distribution Strips and Super-Strips	Buses, Terminals and Tie Points	DIP Capacity	Size# (In.) L. x W.	Net Each, Lots of 1-9	10-24	25-49	50-99
923273	217L Terminal strip	34 five-tie-point term.	2 (16's)	1.8 x 1.36	$ 5.35	$ 4.92	$ 4.54	$ 4.17
923269	234L Terminal strip	68 five-tie-point term.	4 (16's)	3.5 x 1.36	9.55	8.78	8.11	7.44
923265	248L Terminal strip	96 five-tie-point term.	6 (14's)	4.9 x 1.36	11.20	10.30	9.52	8.73
923261	264L Terminal strip	128 five-tie-point term.	9 (14's)	6.5 x 1.36	14.00	12.88	11.90	10.92
923291	154R Terminal strip	54 four-tie-point term.	*	6.5 x .63	6.75	6.21	5.73	5.26
923289	264R Terminal strip	128 four-tie-point term.	9 (14's)	6.5 x 1.1	11.20	10.30	9.52	8.73
923285	206R Distrib. strip	2 buses of 24 tie points	.....	3.5 x .35	2.40	2.20	2.04	1.87
923281	209R Distrib. strip	2 buses of 36 tie points	.....	4.9 x .35	2.80	2.57	2.38	2.18
923277	212R Distrib. strip	2 buses of 48 tie points	.....	6.5 x .35	3.50	3.22	2.97	2.73
923293	606R Distrib. strip	6 buses of 24 tie points	.....	6.5 x .43	3.95	3.63	3.35	3.08
923252	SS-2 Super-Strip	128 five-tie-point term. &	9 (14's)	6.5 x 2.25	18.50	17.02	15.72	14.43
923748	SS-1 Super-Strip†	8 buses of 25 tie points	9 (14's)	6.5 x 2.25	33.95	31.23	28.85	26.48

*Models 154R and 154G are single strips of terminals; all other strips are dual-row for DIP's. †Gold-plated copper alloy terminals. #Height of all strips is .32 inches.

FOR IC TROUBLESHOOTING

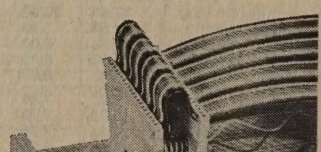
THE LOGICAL CONNECTION.

Molded 16-, 24- or 40-pin IC test clip with 18″ of ribbon cable terminated with either a socket or DIP plug. Sockets mate with .025″ diameter posts on 0.1″ DIP centers. Test clips have test probe access holes.

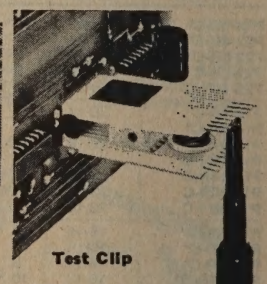
AP No.*	Description	Net Each
923881-16	Logical connection with socket	$14.00
923884-16	Logical connection with DIP plug	14.00
923881-24	Logical connection with socket	27.55
923884-24	Logical connection with DIP plug	27.55
923881-40	Logical connection with socket	38.20
923884-40	Logical connection with DIP plug	36.05

*Suffix denotes number of pins.

AP No.	IC Test Clips	Net Each, Lots of 1-49	50-99	100-249	250-499
923695	TC-8	$ 7.90	$ 7.26	$ 6.71	$ 6.16
923698	TC-14	4.85	4.46	4.12	3.78
923700	TC-16	5.10	4.69	4.33	3.97
923702	TC-16 LSI	9.40	8.64	7.99	7.33
923703	TC-18	10.50	9.66	8.92	8.19
923704	TC-20	12.15	11.17	10.32	9.47
923705	TC-22	13.60	12.51	11.56	10.60
923714	TC-24	14.15	13.01	12.02	11.03
923718	TC-28	15.55	14.30	13.21	12.12
923720	TC-36	20.35	18.72	17.29	15.87
923722	TC-40	21.45	19.73	18.23	16.73



Logical Connection



Test Clip

IC TEST CLIPS—The Originals from AP Products

For positive, non-shorting electrical connection to leads on dual-in-line IC packages. Oscilloscope probes hang free on longer terminal wires in top row of test clip and do not interfere with terminals in bottom row. Sizes for all DIP's, e.g., TC-14 fits 14-pin DIP, etc. Excellent DIP-removal tool. Gold-plated phosphor bronze spring contacts are designed for wiping action. Simplifies testing, troubleshooting and QC inspection.

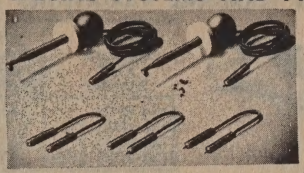
PRICES LISTED ARE FOR GUIDANCE ONLY

Jumpers, Patch Cords, Connectors, PC Cards & Headers

FOR SPECIAL SYSTEMS AND PROTOTYPING

CONNECTOR PINS AND SOCKETS

Two sizes cover from .019″ to .035″ pin dia. Solder cup accepts up to 22 AWG wire. Has exceptionally secure grip. Units cannot be over-stressed, are practically indestructible. Pins are hard brass. Sockets are beryllium copper with brass sleeve, permit no contact damage. All are gold-over-nickel plated.



PATCH CORDS

PVC insulated 26 AWG stranded wire. Two pin sizes, .019″ and .030″. Two socket sizes, .019″–.028″, and .028″–.035″. E-Z Hook ends. Fit .025″ sq. posts and all A P plug-in hardware. Provides integral strain relief. Metal parts are gold-plated.

AP No.	Patch Cord Packaging Description	Net per Pkg. 1-9	Net per Pkg. 10-24
924961	.019″ dia. pin plug to pin plug, 20/pkg., assorted*	$23.95	$22.03
924962†	.030″ dia. pin plug to pin plug, 20/pkg., assorted*	23.95	22.03
924963	.019″/.028″ dia. socket to socket, 20/pkg., assorted*	31.95	29.39
924964†	.028″/.035″ dia. socket to socket, 20/pkg., assorted*	31.95	29.39
924965	.019″ dia. pin to .019″/.028″ socket, 20/pkg., assorted*	25.95	23.87
924966†	.030″ dia. pin to .028″/.035″ socket, 20/pkg., assorted*	25.95	23.87
924967	.019″ dia. pin plug to E-Z Hook, 10/pkg., 15″ long, 5 red and 5 black	25.95	23.87
924968†	.030″ dia. pin plug to E-Z Hook, 10/pkg., 15″ long, 5 red and 5 black	25.95	23.87
924969	.019″/.028″ dia. socket to E-Z Hook, 10/pkg., 15″ long, 5 red and 5 black	28.95	26.63
924970†	.028″/.035″ dia. socket to E-Z Hook, 10/pkg., 15″ long, 5 red and 5 black	28.95	26.63

*Length assortment: 9 at 2″; 6 at 4″; 3 at 6″; 2 at 9″; colors, black, red, yellow, blue. †Mate with A P breadboards, strips and test clips.

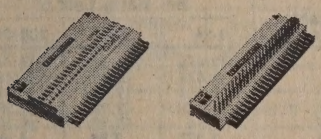
MINIATURE 8-PIN CONNECTORS

Designed for flat ribbon cable. Incorporate above pins and sockets. Part 923625, female, accepts .028″ to .035″ dia. pins. Used on A P test clips,. 025″ square posts, etc. Part 923627, female, accepts .019″ to .028″ dia. pins. Part 923626, male, has .030″ dia. pins. Used with Part 923625 female, terminal strips, etc. Part 923628, male, has .019″ dia. pins. Used with Part 923627 female, etc. Cover provides excellent strain relief. Body constructed of acetal copolymer.

AP No.	Pins and Sockets	Net per Pkg. of 100 1-9	10-24	25-49	50-99
923610	Connector sockets .019″/.028″	$45.95	$42.27	$39.05	$35.84
923612	Connector sockets .028″/.035″	45.95	42.27	39.05	35.84
923614	Connector pins .019″	31.30	28.79	26.60	24.41
923616	Connector pins .030″	31.30	28.79	26.60	24.41

AP No.	8-pin Connectors	Net Each, Lots of 1-9	10-99	100-249	250-499
923625	8-pin connector .028″/.035″ (F)*	$6.50	$5.98	$5.52	$5.07
923626	8-pin connector .030″ (M)	3.95	3.63	3.35	3.08
923627	8-pin connector .019″/.028″ (F)	6.50	5.98	5.52	5.07
923628	8-pin connector .019″ (M)	3.95	3.63	3.35	3.08

*Attaches to test clip.



INTRA CONNECTOR AND SWITCH

Connector mates in-line with standard DIP socket connectors and has pins along the side to allow easy probing of ribbon cable. Intra-Switch has integrated switches to allow on-off switching of circuits with ribbon cable.

AP No.	Description	Net Each
922576-20	20-pin connector	$ 6.75
922576-26	26-pin connector	7.75
922576-34	34-pin connector	9.10
922576-40	40-pin connector	10.10
922576-50	50-pin connector	11.80
922578-20	20-pin switch	13.45
922578-26	26-pin switch	15.45
922578-34	34-pin switch	18.15
922578-40	40-pin switch	20.20
922578-50	50-pin switch	23.55

RIBBON CABLE JUMPERS

DIP jumpers mate with standard IC sockets. Each has probe holes on back of each connector. Conductors are #28 AWG tin coated copper stranded rated at 150 volts. Color coded wires.

AP No.	No. of Pins	Lgth. Ins.	Net Each
PLUG ON ONE END			
924102-36	14	36	$ 4.20
924112-36	16	36	4.60
924122-36	24	36	7.50
924132-36	40	36	12.30
PLUG ON BOTH ENDS			
924106-6	14	6	$ 4.70
924106-12	14	12	4.90
924106-18	14	18	5.10
924106-24	14	24	5.30
924106-36	14	36	5.70
924116-6	16	6	4.90
924116-12	16	12	5.15
924116-18	16	18	5.40
924116-24	16	24	5.65
924116-36	16	36	6.15
924126-6	24	6	7.75
924126-12	24	12	8.15
924126-18	24	18	8.55
924126-24	24	24	8.95
924126-36	24	36	9.75

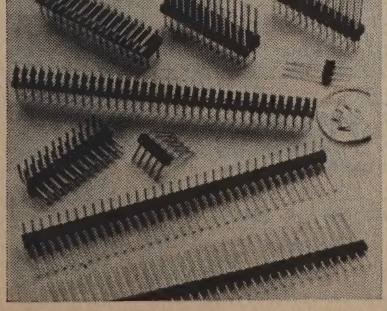
RIBBON CABLE JUMPERS (CONT'D.)

AP No.	No. of Pins	Lgth. Ins.	Net Each
924136-6	40	6	$13.25
924136-12	40	12	13.90
924136-18	40	18	14.55
924136-24	40	24	15.20
924136-36	40	36	16.50
SOCKET ON BOTH ENDS			
924002-06	20	6	$ 6.15
924002-18	20	18	6.65
924002-36	20	36	7.40
924003-06	26	6	8.20
924003-18	26	18	8.80
924003-36	26	36	9.70
924004-06	34	6	10.55
924004-18	34	18	11.35
924004-36	34	36	12.55
924005-06	40	6	12.05
924005-18	40	18	13.05
924005-36	40	36	14.55
924006-06	50	6	13.50
924006-18	50	18	14.70
924006-36	50	36	16.50
SOCKET ON ONE END			
924012-36	20	36	$ 5.80
924013-36	26	36	7.20
924014-36	34	36	9.30
924015-36	40	36	10.85
924016-36	50	36	13.40

Also available with edge connectors on one or both ends.

MALE AND FEMALE HEADERS

Molded-in, straight and right angle male headers have 36 posts per row. They are stackable to make up matrices of .025″ sq. posts on PC boards or to use as patchboards for discrete connections. All mate with female connectors on .100″ spacing. Posts extend .230″ and .100″ beyond .100″ sq. header for wire wrapping and soldering. "Break-to-row-length" feature. Posts are tin-plated hard bronze. Female headers also are stackable and mate with matrices of .025″ sq. or round posts on .100″ centers. Make excellent cable connectors. 36 "tuning-fork" contacts per row are positioned into header strip with .093″ solder tails for PC board mounting. "Cut-to-row-length" feature. Contacts are tin-plated hard brass. Dual-row headers are ultra-sonically welded at factory.



BREADBOARD JUMPER WIRE KIT

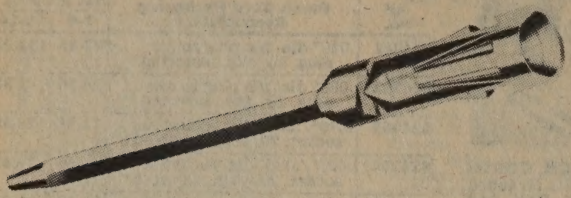
350 insulated 22-ga. wires cut to 14 color-coded lengths from 0.1″ to 5″. Ends are stripped and bent 90°.

AP No. 923351 Kit—Net Each, Lots of: 1–9.....**$13.95**; 10–24....**$12.83** 25–49..... **11.85**; 50–99.... **10.88**

AP No.	Jumper Wire Kit	Net Each, Lots of 1-9	10-24	25-49	50-99
923351	JK1 breadboard jumper wire kit	$13.95	$12.83	$11.85	$10.88

AP No.	Headers	No. Rows	Net Each, Lots of 1-99	100-249	250-499	500-999
929974	Female header	1	$1.49	$1.25	$1.15	$1.12
929975	Female header	2	3.09	2.58	2.38	2.31
929834-01	Male header, straight	1	1.09	.91	.84	.81
929836-01	Male header, straight	2	2.29	1.91	1.76	1.72
929835-01	Male header, rt. angle	1	1.29	1.07	.99	.96
929838-01	Male header, rt. angle	2	2.99	2.49	2.30	2.23

SOCKET TERMINAL VARIATIONS



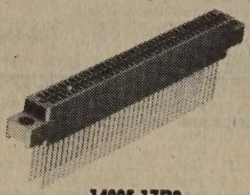
Two-piece, tapered-entry socket terminals feature a four-leaf, machined (neither stamped nor formed), closed-entry inner contact and machined outer sleeve. All Augat boards are supplied with 3-level socket terminals; gold over nickel plated sleeves and contacts. Any board may be purchased with 2-level socket terminals and optional plating combinations, by adding proper suffix to Augat No., as indicated in table.

Example Part Number	Suffix Added to Number	Contact Ptg.	Sleeve Ptg.	Socket Term. Lgth. (ins.)	Replacement Part Number
8136-WG1	None	Gold	Gold	.510	LSG-1FG1-1
8136-WG1-TG	-TG	Gold	Tin	.510	LSG-1FG1-14
8136-WG1-2	-2	Gold	Gold	.370	LSG-1FG6-1
8136-WG1-2TG	-2TG	Gold	Tin	.370	LSG-1FG6-14

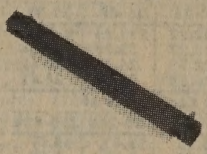
PRICING

Augat Number	Net Each, Lots of		
	100-499	500-999	1000-4999
LSG-1FG1-1	$0.266	$0.231	$0.195
LSG-1FG1-14	.202	.175	.148
LSG-1FG6-1	.274	.237	.201
LSG-1FG6-14	.202	.175	.148

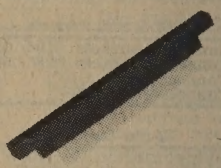
PACKAGING PANEL ACCESSORIES



14005-17P3



14005-13P1



14005-14P1

Connectors for mounting R, W, M and V Series boards. 3-level wrap terminals standard; 2-level wrap terminals available on request.

Augat Number	Description	Applicable Series	Net Each, Lots of		
			1-24	25-99	100-499
14005-1P1	1/8", 120-contact, 60 dual row with polarizing key soldered	R	$19.478	$16.695	$14.469
14005-1P2	1/8", 120-contact, 60 dual row with polarizing key unsoldered	R	19.478	16.695	14.469
14005-19P1	1/16", 120-contact, 60 dual row	R	20.983	17.985	15.587
14005-13P1	Male, 120-contact, 3 rows of 40	W	57.05	48.90	42.38
14005-14P1	Female, 120-contact, 3 rows of 40	W	52.64	45.12	39.104
14005-17P3	72-contact, 36 dual row	M	9.275	7.95	6.89
14005-64P3	Male, 64-contact, 32 dual row	V	42.998	36.855	31.941
14005-64R3	Female, 64-contact, 32 dual row	V	44.923	38.505	33.371
14005-64PC	Male PC, 64-contact, 32 dual row	V	15.05	12.90	11.18
14005-96P3	Male, 96-contact, 3 rows of 32	V	47.32	40.56	35.152
14005-96R3	Female, 96-contact, 3 rows of 32	V	50.03	42.89	37.17

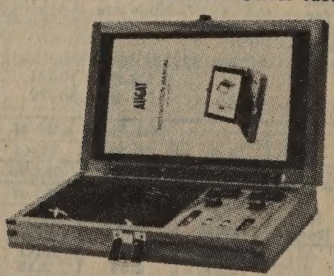
POLARIZING KEYS

Augat Number	Description	Net Each, Lots of			
		1-24	25-99	100-499	500-999
14005-13P3	Male polarizing key for 13P1	$1.75	$1.50	$1.30	$1.10
14005-14P3	Female polarizing key for 14P1	.928	.795	.689	.583
14005-17P2	Polarizing key for "M" Series	.648	.555	.481	.407

FIBEROPTIC DATA TRANSMISSION SYSTEMS

CL10 DATA LINK

A group of interchangeable fiberoptic digital link products which can be assembled into various configurations according to individual needs, allowing the choice of a one-piece integral transmitter or separate driver and emitter assemblies, as well as one-piece receiver or separate detector and preamplifier assemblies. The CL10 Data Link transmits data at rates from DC to a min. of 10 Mb/s NRZ (5 Mb/s RZ) over its maximum length. Cable assemblies use Siecor 155 flame-retardant, large-core, all-glass fiber optical cable.

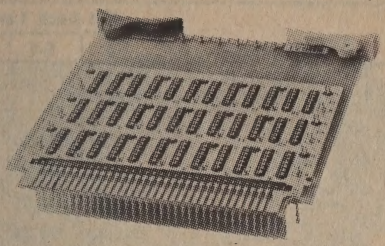


Augat Number	Description	Net Each, Lots of		
		1-4	5-9	10-24
698-CL10-1#	Data Link	$215.00	$193.00	$174.00
698-CL10-2*	Data Link	241.00	217.00	196.00
698-CL10-3*	Data Link	243.00	219.00	197.00
698-013EG2	Emitter Assembly	86.00	81.00	73.00
698-013EG3	Emitter Assembly	58.00	55.00	49.00
698-069DG1	Detector Assembly	32.00	30.00	27.00
698-021EG1	Driver Assembly	35.00	33.00	29.00
698-123DG1	Preamplifier Ass'y.	103.00	97.00	88.00
698-126EG1	Transmitter	122.00	115.00	103.00
698-127DG1	Receiver	136.00	128.00	116.00
698-134GXXXX§	Cable Assembly	19.00†	17.00†	16.00†
698-007P1	Ferrule Ring	.057	.057	.057
698-007P2	Bulkhead Ring	.063	.063	.063
698-024P2	Mounting Bracket	.08	.08	.08
8060-1G3	Socket	Prices on Request		

#Includes transmitter, receiver and 50 meter cable. *Includes transmitter, receiver and 150 meter cable. §Last four digits represent cable length in meters (specify). †Add $1.65 per meter of cable length to basic price.

AUGAT Integrated Circuit Panels

M SERIES BOARDS



PATTERN STYLE MINI RACK PANELS

1/16" thick board with 12, 18 or 24 patterns (.300" × .100" spacing) with connector pads committed. 72-contact edge connector.

Augat Number	Socket Terminals per Pattern	Patterns per Board	Voltage & Ground Layout
8136-MG9	14	12	7+14
8136-MG5	14	18	7+14
8136-MG1	14	24	7+14
8136-MG10	14+2 (V & G)	12	V & G Socket Terminals
8136-MG6		18	
8136-MG2		24	
8136-MG11	16	12	8+16
8136-MG7	16	18	8+16
8136-MG3	16	24	8+16
8136-MG12	16+2 (V & G)	12	V & G Socket Terminals
8136-MG8		18	
8136-MG4		24	

UNIVERSAL STYLE MINI RACK PANELS

1/16" thick board with 12 rows of 35 contacts (.300" × .100" spacing); connector pads committed. 72 I/Os. Wire wrap terminals.

Augat Number	Number of Rows	Socket Terminals per Row	Voltage & Ground Layout
8136-UMG1	12	35	V & G Socket Terminals

HIGH DENSITY SERIES

Augat Number	Number of Rows	Socket Terminals per Row	Voltage & Ground Connection
8136-MG15	8 on .300" × .100" spacing	36	V & G
8136-UMG3	10 on .300" × .100" spacing	36	Terminals

ACCESSORIES FOR M SERIES BOARDS

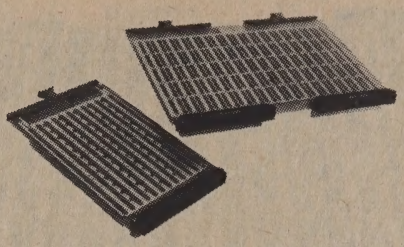
Augat No.	Description	Augat No.	Description
8136-MG13	Extender Card	8136-MG18	Discrete Component Card
8136-MG14	Blank Card	8136-MG40	Terminator Card

NOTE: Connector sold separately; **Part No. 14005-17P3,** 72 contact, 36 dual row.

M SERIES PRICING

Augat Number	Description	Net Each, Lots of 1-4	5-9	10-24
PATTERN STYLE MINI RACK PANELS				
8136-MG9	12 Patterns 14/7+14	$77.25	$67.50	$61.75
8136-MG5	18 Patterns 14/7+14	93.25	81.25	74.25
8136-MG1	24 Patterns —14/7+14	109.50	95.75	87.50
8136-MG10	12 Patterns 14+2	79.75	70.00	64.00
8136-MG6	18 Patterns 14+2	99.25	85.25	79.00
8136-MG2	24 Patterns —14+2	114.75	100.50	92.50
8136-MG11	12 Patterns 16/8+16	80.25	70.50	64.25
8136-MG7	18 Patterns 16/8+16	99.75	86.75	80.50
8136-MG3	24 Patterns —16/8+16	117.00	101.50	94.00
8136-MG12	12 Patterns 16+2	83.50	73.25	69.00
8136-MG8	18 Patterns 16+2	103.50	90.75	83.50
8136-MG4	24 Patterns —16+2	93.00	90.50	88.75
UNIVERSAL STYLE MINI RACK PANELS				
8136-UMG1	12 Rows of 35 Contacts	$99.00	$96.75	$95.00
8136-MG15	.300" × .200" Cont. Rowa	162.75	142.50	130.75
8136-UMG3	Univ. Hi. Dens. Phg. Pnl.	177.25	154.50	141.25
M SERIES ACCESSORIES				
8136-MG13	Ext. Card W/Connector	$46.00	$40.75	$38.00
8136-MG14	Blank Card	30.25	26.25	24.75
8136-MG18	Discrete Comp. Card	58.00	50.50	46.00
8136-MG40	Terminator Card	97.50	88.00	81.00

V SERIES BOARDS



PATTERN STYLE

1/16" thick board with 35 or 85 patterns (.300" × .100" spacing). 96-pin pin-and-socket type connector. Single-sided board (component and wire wrap on same side) also available.

Augat Number	Number of Connectors	Patterns per Board	Socket Terminals per Pattern	Voltage & Ground Layout
8136-VG41	One (96-Pin)	35 (Single)	14	7+14
8136-VG42			14+2 (V & G)	V & G Sleeves
8136-VG43			16	8+16
8136-VG44	Two (96-Pin)	85 (Double)	16+2 (V & G)	V & G Sleeves
8136-VG47			14	7+14
8136-VG48			14+2 (V & G)	V & G Sleeves
8136-VG49			16	8+16
8136-VG50			16+2 (V & G)	V & G Sleeves

UNIVERSAL STYLE

1/16" thick board with 12 or 28 rows of 49 contacts (.300" × .100" spacing) and 96-pin pin-and-socket type connector.

Augat Number	Number of Connectors	Number of Rows	Socket Terminals per Row	Voltage & Ground Layout
8136-UVG41	1	12*	49	V & G Sleeves
8136-UVG42	2	28†	49	V & G Sleeves

*Single board. †Double board.

NOTE: Connectors also sold separately; **Part No. 14005-96P3** (male); **14005-96R3** (female); 96-contact, 3 rows of 32.

ACCESSORY CARDS FOR V SERIES BOARDS

Augat Number	Description
8136-VG33	Single Size Extender Card (96-Pin)
8136-VG34	Double Size Extender Card (96-Pin)
8136-VG40	Single Size Terminator Card (96-Pin)

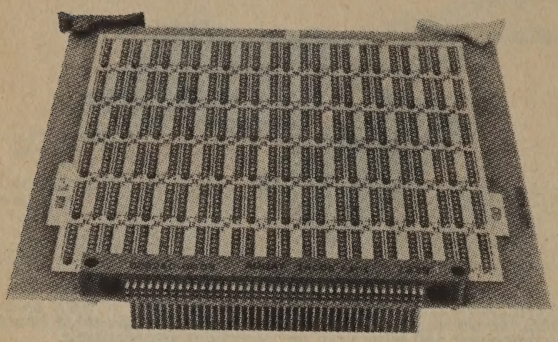
V SERIES PRICING

Augat Number	Description	Net Each, Lots of 1-4	5-9	10-24
PATTERN STYLE—35 PATTERNS				
8136-VG41	14 W/2	$154.25	$135.00	$123.00
8136-VG42	14+2	162.25	142.00	129.50
8136-VG43	16 W/2	165.75	144.75	131.50
8136-VG44	16+2	172.75	151.50	138.00
PATTERN STYLE—85 PATTERNS				
8136-VG47	14 W/2	$328.00	$286.75	$261.25
8136-VG48	14+2	344.00	301.50	273.75
8136-VG49	16 W/2	354.25	310.00	282.00
8136-VG50	16+2	372.25	326.25	297.00
UNIVERSAL STYLE				
8136-UVG41	Single Size	$178.50	$156.25	$142.25
8136-UVG42	Double Size	378.25	330.25	300.75
V SERIES ACCESSORIES				
8136-VG33	Single Size Card Ext.*	$165.00	$149.00	$138.25
8136-VG34	Double Size Card Ext.*	284.75	255.50	237.00
8136-VG40	Terminator Board	121.25	109.00	101.50

*Metric, 96-pin.

AUGAT Integrated Circuit Panels

"W" SERIES BOARDS



PATTERN STYLE

Choice of 1/8" or 1/16" thick board, 60 or 72 patterns (.300" × .100" spacing) with pin and socket type connector.

Augat Number 8136-	Patterns per Board	Board Thickness	Socket Terminals per Pattern	Voltage and Ground Layout
WG1	60	1/8"	14	7 & 14
WG2	60	1/8"	14+2 (V & G)	V & G Sleeves
WG201	72	1/8"	14	7 & 14
WG202	72	1/8"	14+2 (V & G)	V & G Sleeves
WG7	60	1/16"	14	7 & 14
WG8	60	1/16"	14+2 (V & G)	V & G Sleeves
WG207	72	1/16"	14	7 & 14
WG208	72	1/16"	14+2 (V & G)	V & G Sleeves
WG3	60	1/8"	16	8 & 16
WG4	60	1/8"	16+2 (V & G)	V & G Sleeves
WG203	72	1/8"	16	8 & 16
WG204	72	1/8"	16+2 (V & G)	V & G Sleeves
WG9	60	1/16"	16	8 & 16
WG10	60	1/16"	16+2 (V & G)	V & G Sleeves
WG209	72	1/16"	16	8 & 16
WG210	72	1/16"	16+2 (V & G)	V & G Sleeves

NOTE: 20+2 pattern style also available.

Augat Number 8136-	Description	Net Each, Lots of 1-4	5-9	10-24
	PATTERN STYLE PANELS 120-PIN MALE I/O CONNECTOR			
WG1	60 Patterns, 14/7+14, 1/8"	$236.50	$205.50	$188.25
WG7	60 Patterns, 14/7+14, 1/16"	229.25	200.00	185.00
WG2	60 Patterns, 14+2, 1/8"	250.50	218.25	200.25
WG8	60 Patterns, 14+2, 1/16"	241.00	209.75	192.50
WG3	60 Patterns, 16/8+16, 1/8"	255.50	224.75	205.25
WG9	60 Patterns, 16/8+16, 1/16"	247.00	215.25	198.00
WG4	60 Patterns, 16+2, 1/8"	268.50	235.25	215.25
WG10	60 Patterns, 16+2, 1/16"	261.00	227.75	208.25
WG201	72 Patterns, 14/7+14, 1/8"	265.50	231.00	212.00
WG207	72 Patterns, 14/7+14, 1/16"	255.25	223.75	205.00
WG202	72 Patterns, 14+2, 1/8"	282.00	246.25	226.00
WG208	72 Patterns, 14+2, 1/16"	271.50	238.00	217.50
WG203	72 Patterns, 16/8+16, 1/8"	289.75	275.25	231.75
WG209	72 Patterns, 16/8+16, 1/16"	279.75	244.25	224.00
WG204	72 Patterns, 16+2, 1/8"	306.75	267.75	245.25
WG210	72 Patterns, 16+2, 1/16"	296.25	255.25	237.25
	UNIVERSAL STYLE PANELS			
UWG1	20 Rows of 50 Cont., 1/8"	$302.75	$249.50	$228.75
UWG12	20 Rows of 58 Cont., 1/8"	318.00	278.00	254.75
UWG18	20 Rows of 58 Cont., 1/16"	307.00	268.25	246.00
	ACCESSORIES FOR "W" SERIES BOARDS			
WG53	Extender Card, 1/8"	$194.00	$174.25	$161.50
WG86	Extender Card, 1/16"	194.25	174.25	160.75
WG58	Blank Card, 1/8"	81.50	71.75	67.00
WG96	Discrete Comp. Card, 1/8"	71.75	65.00	60.00
WG113	Discrete Comp. Card, 1/16"	68.50	61.50	56.25

20 PIN PATTERN BOARDS

Augat Number 8136-	Description	Net Each, Lots of 1-4	5-9	10-24
	"M" SERIES BOARDS			
MG49	18 Patterns, 20+2	$ 97.25	$ 87.50	$ 81.25
	"P" SERIES BOARDS FOR 20-PIN DEVICES ON .300" CENTERS			
PG237-25	25 Patterns, 20+2*	$129.25	$112.75	$102.75
PG237-50	50 Patterns, 20+2*	257.75	225.25	205.50
PG237-75	75 Patterns, 20+2*	386.25	338.25	308.25
PG237-100	100 Patterns, 20+2*	516.50	451.50	411.25
PG237-125	125 Patterns, 20+2*	644.25	564.25	513.50
PG237-150	150 Patterns, 20+2*	773.25	677.00	616.50
PG239-25	25 Patterns, 20+2†	118.75	104.75	94.75
PG239-50	50 Patterns, 20+2†	238.75	208.75	189.75
PG239-75	75 Patterns, 20+2†	357.25	313.00	285.25
PG239-100	100 Patterns, 20+2†	476.00	416.75	379.75
PG239-125	125 Patterns, 20+2†	596.25	521.75	474.75
PG239-150	150 Patterns, 20+2†	715.00	626.50	569.75
PG240-25	25 Patterns, 20+2§	142.00	124.50	113.25
PG240-50	50 Patterns, 20+2§	261.00	227.75	208.00
PG240-75	75 Patterns, 20+2§	369.00	323.50	294.00
PG240-100	100 Patterns, 20+2§	481.25	421.50	383.50
PG240-125	125 Patterns, 20+2§	590.50	517.75	471.00
PG240-150	150 Patterns, 20+2§	697.50	611.00	555.25

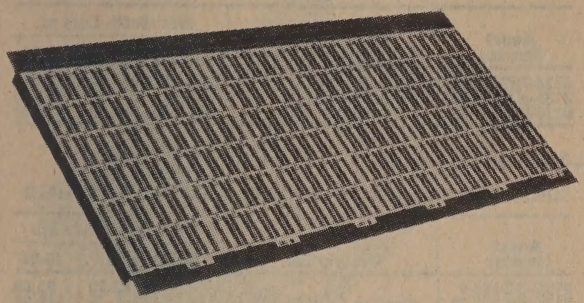
*2 sets of 40 feed-thru pin I/Os per group.

Augat Number 8136-	Description	Net Each, Lots of 1-4	5-9	10-24
	"P" SERIES BOARDS (CONT'D)			
PG241-25	25 Patterns, 20+2‡	151.75	132.50	120.00
PG241-50	50 Patterns, 20+2‡	269.25	235.75	214.50
PG241-75	75 Patterns, 20+2‡	385.25	337.75	307.00
PG241-100	100 Patterns, 20+2‡	499.50	438.25	398.50
PG241-125	125 Patterns, 20+2‡	615.25	539.75	490.50
PG241-150	150 Patterns, 20+2‡	803.75	704.50	641.00
	"R" SERIES BOARDS			
RG134	48 Patterns, 20+2, 1/8"	$296.75	$259.50	$236.25
RG135	48 Patterns, 20+2, 1/16"	277.75	243.25	221.25
	"W" SERIES BOARDS			
WG114	60 Patterns, 20+2, 1/8"	$323.50	$283.25	$257.50

†2 sets of 26 feed-thru pin I/Os per group. $46 pin DIL I/O.
‡Female Hi-Density I/O.

AUGAT Integrated Circuit Panels

"P" SERIES BOARDS—PATTERN STYLE



30-180 PATTERNS—.300" × .100" SPACING

Augat Number	Socket Terminals per Pattern	Voltage & Ground Layout	I/O Area (For Every 30-Pattern Section)
8136-PG1	14	7 & 14	Socket Terminals (1 Set; 2 Rows of 23) Total, 46
8136-PG18	14	7 & 14	Feed-Thru Pins (2 Sets; 2 Rows of 13) Total, 52
8136-PG3	14+2 (V & G)	V & G Sleeves	Socket Terminals (1 Set; 2 Rows of 23) Total, 46
8136-PG189	14+2 (V & G)	V & G Sleeves	Socket Terminals (3 Sets; 4 Rows of 7) Total, 84
8136-PG19	14+2 (V & G)	V & G Sleeves	Feed-Thru Pins (2 Sets; 2 Rows of 13) Total, 52
8136-PG5	16	8 & 16	Socket Terminals (1 Set; 2 Rows of 23) Total, 46
8136-PG190	16	8 & 16	Socket Terminals (3 Sets; 4 Rows of 7) Total, 84
8136-PG20	16	8 & 16	Feed-Thru Pins (2 Sets; 2 Rows of 13) Total, 52
8136-PG13	16+2 (V & G)	V & G Sleeves	Socket Terminals (1 Set; 2 Rows of 23) Total, 46
8136-PG191	16+2 (V & G)	V & G Sleeves	Socket Terminals (3 Sets; 4 Rows of 7) Total, 84
8136-PG21	16+2 (V & G)	V & G Sleeves	Feed-Thru Pins (2 Sets; 2 Rows of 13) Total, 52
8136-PG215	16+2 (V & G)	V & G Sleeves	Feed-Thru Pins (2 Sets; 2 Rows of 40) Total, 80
8136-PG232	16+2 (V & G)	V & G Socket Terminals	Feed-Thru Pins (2 Sets; 2 Rows of 40) Total, 80

20-120 PATTERNS—.400" × .100" SPACING

8136-PG208	22+2 (V & G)	V & G Sleeves	Socket Terminals (1 Set; 2 Rows of 23) Total, 46*
8136-PG231	22+2 (V & G)	V & G Sleeves	Socket Terminals (3 Sets; 4 Rows of 7) Total, 84*

12-72 PATTERNS—.600" × .100" SPACING

8136-PG142	24§	12 & 24	Socket Terminals (1 Set; 2 Rows of 23) Total, 46†

*I/O area (for every 20-pattern section). †I/O area (for every 24-pattern section). §20+2 pattern style also available.

Augat Number	Description	Net Each, Lots of 1-4	5-9	10-24
WIRE WRAP PANELS—46 FEMALE I/Os				
8136-PG1-30	Female I/O −14/7+14	$ 98.00	$ 86.00	$ 79.00
8136-PG1-60		192.00	168.50	153.75
8136-PG1-90		285.50	249.50	228.75
8136-PG1-120		378.75	332.00	303.75
8136-PG1-150		473.00	413.75	379.00
8136-PG1-180		566.50	496.00	454.00
8136-PG3-30	Female I/O −14+2	103.75	90.50	82.50
8136-PG3-60		203.50	177.75	162.75
8136-PG3-90		302.75	264.00	241.50
8136-PG3-120		401.75	351.25	322.75
8136-PG3-150		501.25	438.25	403.00
8136-PG3-180		600.50	525.00	480.75
8136-PG5-30	Female I/O −16/8+16	82.25	80.00	78.75
8136-PG5-60		160.00	156.00	153.25
8136-PG5-90		239.00	232.00	228.50
8136-PG5-120		319.50	311.00	305.75
8136-PG5-150		398.00	387.50	380.75
8136-PG5-180		475.75	463.25	455.00
46 FEMALE I/Os (CONT'D.)				
8136-PG13-30	Female I/O −16+2	$ 88.50	$ 86.00	$ 84.75
8136-PG13-60		172.25	167.50	164.50
8136-PG13-90		257.50	250.00	246.25
8136-PG13-120		341.00	332.25	326.25
8136-PG13-150		427.00	415.75	408.50
8136-PG13-180		509.50	496.25	487.50
WIRE WRAP PANELS WITH HI-DENSITY I/O PATTERNS				
8136-PG189-30	PG3 Hi-Density I/O	$107.00	$ 94.50	$ 91.25
8136-PG189-60		215.50	188.25	172.75
8136-PG189-90		323.25	282.75	257.60
8136-PG189-120		431.00	376.50	346.25
8136-PG189-150		579.75	508.25	463.00
8136-PG189-180		646.00	565.00	518.75
8136-PG190-30	PG5 Hi-Density I/O	86.75	84.50	82.75
8136-PG190-60		169.25	164.50	161.75
8136-PG190-90		252.25	246.00	241.50
8136-PG190-120		337.00	328.00	322.75
8136-PG190-150		420.25	409.25	402.00
8136-PG190-180		502.75	489.75	480.75
8136-PG191-30	PG13 Hi-Density I/O	92.75	90.25	88.50
8136-PG191-60		180.75	175.75	172.75
8136-PG191-90		270.00	268.00	258.00
8136-PG191-120		357.50	348.50	342.25
8136-PG191-150		435.75	435.25	427.25
8136-PG191-180		533.50	519.00	510.50
WIRE WRAP PANELS—52 MALE I/Os				
8136-PG18-30	Male I/O −14/7+14	$ 97.00	$ 84.00	$ 76.75
8136-PG18-60		191.25	165.50	151.50
8136-PG18-90		281.75	246.25	225.50
8136-PG18-120		373.00	326.25	299.25
8136-PG18-180		557.50	484.75	415.25
8136-PG19-30	Male I/O −14+2	110.00	95.00	85.75
8136-PG19-60		207.00	182.25	167.25
8136-PG19-90		306.50	267.00	246.00
8136-PG19-120		402.25	354.25	323.50
8136-PG19-150		501.00	438.50	402.25
8136-PG19-180		587.25	522.00	479.25
8136-PG20-30	Male I/O −16/8+16	80.00	78.25	76.75
8136-PG20-60		158.75	154.75	152.00
8136-PG20-90		237.00	230.75	226.75
8136-PG20-120		314.50	306.75	300.75
8136-PG20-150		391.75	381.75	375.00
8136-PG20-180		469.25	456.50	448.75
8136-PG21-30	Male I/O −16+2	86.50	84.00	82.50
8136-PG21-60		169.25	165.25	162.25
8136-PG21-90		253.00	246.25	241.75
8136-PG21-120		335.50	327.00	320.75
8136-PG21-150		419.75	408.75	401.75
8136-PG21-180		500.75	487.75	479.00
"P" SERIES BOARD WITH 80-PIN FEED-THRU I/O FIELD				
8136-PG215-30	Similar to 8136-PG21, Except With 80-Pin I/O Field Group	$ 92.00	$ 89.75	$ 88.25
8136-PG215-60		181.25	176.25	173.00
8136-PG215-90		270.25	263.25	258.25
8136-PG215-120		358.25	349.50	342.75
8136-PG215-150		448.50	436.75	429.00
8136-PG215-180		534.25	520.50	511.00
8136-PG232-30	Same as 8136-PG215, Except With Live V & G	126.50	111.00	100.50
8136-PG232-60		252.25	221.25	201.25
8136-PG232-90		378.75	332.25	302.50
8136-PG232-120		505.50	432.75	402.75
8136-PG232-150		632.50	553.50	503.50
8136-PG232-180		758.25	665.75	603.75
"P" SERIES BOARD FOR 22-PIN DEVICES ON .400" CENTERS				
8136-PG208-20	46-Pin Female I/O Field per Group	$118.00	$102.75	$ 93.75
8136-PG208-40		235.00	205.50	186.75
8136-PG208-60		351.25	308.50	280.75
8136-PG208-80		527.50	411.25	374.50
8136-PG208-100		587.75	514.75	468.50
8136-PG208-120		705.25	617.25	562.25
8136-PG231-20	84-Pin Hi-Density Female I/O Field per Group	122.25	106.75	97.75
8136-PG231-40		251.00	219.00	200.25
8136-PG231-60		377.50	330.00	301.50
8136-PG231-80		503.75	441.25	402.50
8136-PG231-100		630.75	552.00	503.50
8136-PG231-120		759.25	664.25	606.50

CONTINUED ON THE FOLLOWING PAGE

AUGAT Integrated Circuit Panels

"P" SERIES BOARDS (CONT'D.)

LSI WIRE WRAP PANELS WITH 24 PINS/PATTERNS 12 AND 24 TIED—FEMALE I/Os

Augat Number	Description	Net Each, Lots of 1-4	5-9	10-24
8136-PG142-12	12 Patterns	$ 77.00	$ 67.25	$ 62.25
8136-PG142-24	24 Patterns	147.75	128.25	118.00
8136-PG142-36	36 Patterns	218.75	190.50	173.50
8136-PG142-48	48 Patterns	$286.75	$250.50	$229.75
8136-PG142-60	60 Patterns	357.00	311.50	286.25
8136-PG142-72	72 Patterns	426.00	373.00	344.25

"U" SERIES BOARDS—UNIVERSAL STYLE

9-54 ROWS OF 50 CONTACTS—.300" × .100" SPACING

Augat Number	Voltage & Ground Layout	I/O Area (For Every 9-Row Section)
8136-UG1	V & G Sleeves	Socket Terminals (1 Set; 2 Rows of 23) Total, 46
8136-UG119	V & G Sleeves	Socket Terminals (3 Sets; 4 Rows of 7) Total, 84
8136-UG6	V & G Sleeves	Feed-Thru Pins (2 Sets; 2 Rows of 13) Total, 52
8136-UG155	V & G Sleeves	Feed-Thru Pins (2 Sets; 2 Rows of 40) Total, 80
8136-UG56	V & G Socket Terminals	Socket Terminals (1 Set; 2 Rows of 23) Total, 46
8136-UG61	V & G Socket Terminals	Feed-Thru Pins (2 Sets; 2 Rows of 13) Total, 52
8136-UG226	V & G Socket Terminals	Feed-Thru Pins (2 Sets; 2 Rows of 40) Total, 80

12-72 ROWS OF 55 CONTACTS ON .2-, .3-, .4-, .5-, .6- AND .9-INCH CENTERS

8136-UG174	V & G Sleeves	Socket Terminals (1 Set; 2 Rows of 23) Total, 46*
8136-UG175	V & G Sleeves	Socket Terminals (3 Sets; 4 Rows of 7) Total, 84*
8136-UG176	V & G Sleeves	Feed-Thru Pins (2 Sets; 2 Rows of 13) Total, 52*
8136-UG223	V & G Socket Terminals	Socket Terminals (1 Set; 2 Rows of 23) Total, 46*
8136-UG224	V & G Socket Terminals	Socket Terminals (3 Sets; 4 Rows of 7) Total, 84*
8136-UG225	V & G Socket Terminals	Feed-Thru Pins (2 Sets; 2 Rows of 13) Total, 52*

*I/O area (for every 12-row section).

UNIVERSAL PANELS—50 CONTACTS PER ROW

Augat Number	Description	Net Each, Lots of 1-4	5-9	10-24
8136-UG1-9	Female I/O, 9 Rows	$ 79.00	$ 76.75	$ 75.50
8136-UG1-18	Female I/O, 18 Rows	159.25	155.00	152.25
8136-UG1-27	Female I/O, 27 Rows	257.00	250.25	245.50
8136-UG1-36	Female I/O, 36 Rows	317.25	309.75	304.00
8136-UG1-45	Female I/O, 45 Rows	397.00	387.00	379.75
8136-UG1-54	Female I/O, 54 Rows	478.00	465.50	457.00
8136-UG56-9	UG1-9 With Live V & G	107.00	93.50	85.50
8136-UG56-18	UG1-18 With Live V & G	215.50	188.50	172.75
8136-UG56-27	UG1-27 With Live V & G	323.25	286.75	258.50
8136-UG56-36	UG1-36 With Live V & G	430.25	376.25	345.25
8136-UG56-45	UG1-45 With Live V & G	537.75	469.00	430.50
8136-UG56-54	UG1-54 With Live V & G	646.00	565.00	518.25
8136-UG6-9	Male I/O, 9 Rows	79.00	76.75	75.50
8136-UG6-18	Male I/O, 18 Rows	157.00	152.50	149.75
8136-UG6-27	Male I/O, 27 Rows	236.25	230.00	225.75
8136-UG6-36	Male I/O, 36 Rows	313.25	305.00	300.00
8136-UG6-45	Male I/O, 45 Rows	392.00	382.00	375.25
8136-UG6-54	Male I/O, 54 Rows	469.75	457.75	449.25
8136-UG61-9	UG6-9 With Live V & G	108.00	95.00	87.25
8136-UG61-18	UG6-18 With Live V & G	214.50	187.50	172.00
8136-UG61-27	UG6-27 With Live V & G	320.25	279.75	254.00
8136-UG61-36	UG6-6 With Live V & G	424.50	370.50	340.50
8136-UG61-45	UG6-45 With Live V & G	496.25	463.50	426.50
8136-UG61-54	UG6-54 With Live V & G	637.25	556.75	511.00

UNIVERSAL PANELS WITH 80-PIN FEED-THRU I/O FIELD

Augat Number	Description	Net Each, Lots of 1-4	5-9	10-24
8136-UG155-9	Similar to 8136-UG6, Except With 80-Pin I/O Field Per Group	$ 84.00	$ 82.00	$ 80.00
8136-UG155-18		166.25	161.75	159.25
8136-UG155-27		251.50	244.75	240.50
8136-UG155-36		333.75	324.75	318.75
8136-UG155-45		417.00	406.25	399.00
8136-UG155-54		501.00	487.50	478.75
8136-UG226-9	Same As 8136-UG155, Except With Live V & G	115.25	101.00	91.50
8136-UG226-18		230.50	201.75	183.75
8136-UG226-27		345.50	302.50	275.25
8136-UG226-36		460.25	402.75	366.50
8136-UG226-45		574.75	504.25	411.75
8136-UG226-54		690.00	604.50	550.00

UNIVERSAL PANELS—55 PINS/ROW .300", .400" AND .600" CENTERS

8136-UG174-12	Female I/O, 12 Rows	$136.50	$119.75	$109.25
8136-UG174-24	Female I/O, 24 Rows	273.25	239.50	218.25
8136-UG174-36	Female I/O, 36 Rows	409.75	359.00	327.25
8136-UG174.48	Female I/O, 48 Rows	546.75	479.00	436.25
8136-UG174-60	Female I/O, 60 Rows	683.25	598.75	533.50
8136-UG174-72	Female I/O, 72 Rows	819.75	718.25	653.50
8136-UG223-12	Same As 8136-UG174, Except With Live V & G	150.50	131.25	149.75
8136-UG223-24		301.50	263.75	240.25
8136-UG223-36		451.50	395.50	360.00
8136-UG223-48		602.75	527.25	480.00
8136-UG223-60		753.00	659.50	600.25
8136-UG223-72		903.00	791.00	720.00
8136-UG176-12	Male I/O, 12 Rows	139.00	121.50	110.25
8136-UG176-24	Male I/O, 24 Rows	277.25	242.25	220.75
8136-UG176-36	Male I/O, 36 Rows	415.75	363.75	353.25
8136-UG176-48	Male I/O, 48 Rows	554.75	485.75	442.00
8136-UG176-60	Male I/O, 60 Rows	692.75	606.50	552.75
8136-UG176-72	Male I/O, 72 Rows	831.75	728.75	662.75
8136-UG225-12	Same As 8136-UG176, Except With Live V & G	152.00	134.25	122.00
8136-UG225-24		306.50	268.75	244.25
8136-UG225-36		459.75	402.50	366.50
8136-UG225-48		613.25	536.75	488.50
8136-UG225-60		766.00	671.00	610.75
8136-UG225-72		919.50	804.75	732.75

UNIVERSAL PANELS WITH HIGH-DENSITY I/Os

8136-UG119-9	UG1 With Hi-density I/O	$ 83.75	$ 81.50	$ 80.00
8136-UG119-18	UG1 With Hi-Density I/O	169.25	165.25	162.25
8136-UG119-27	UG1 With Hi-Density I/O	253.75	247.25	242.75
8136-UG119-36	UG1 With Hi-Density I/O	337.50	329.25	323.25
8136-UG119-45	UG1 With Hi-Density I/O	421.75	410.75	403.50
8136-UG119-54	UG1 With Hi-Density I/O	507.00	493.75	484.75
8136-UG175-12	UG174 With Hi Density I/O	142.75	124.75	113.75
8136-UG175-24	UG174 With Hi Density I/O	286.25	250.50	228.00
8136-UG175-36	UG174 With Hi Density I/O	428.00	375.25	341.50
8136-UG175-48	UG174 With Hi Density I/O	571.25	500.25	455.00
8136-UG175-60	UG174 With Hi Density I/O	714.25	626.00	569.50
8136-UG175-72	UG174 With Hi Density I/O	856.75	750.25	682.50
8136-UG224-12	Same As 8136-UG176, Except With Live V & G	157.00	136.75	124.75
8136-UG224-24		313.50	274.25	250.25
8136-UG224-36		469.50	411.25	375.00
8136-UG224-48		626.75	548.65	499.25
8136-UG224-60		783.50	685.50	624.50
8136-UG224-72		940.50	822.50	749.50

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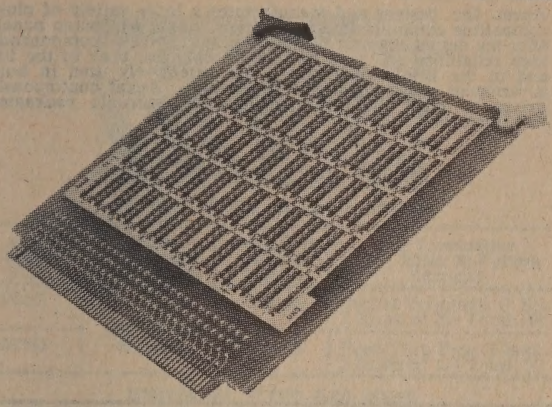
AUGAT Integrated Circuit Panels

"R" SERIES BOARDS



PATTERN STYLE

Choice of 1/8" or 1/16" thick board with 60 patterns (.300" × .100" spacing) with connector pads committed or non-committed.

CONNECTOR PADS (VCC AND GND) NON-COMMITTED

Augat Number	Board Thickness	Socket Terminals per Pattern	Voltage & Ground Layout
8136-RG1 8136-RG7	1/8" 1/16"	14	7 + 14
8136-RG2 8136-RG8	1/8" 1/16"	14 + 2 (V & G)	V & G Sleeves
8136-RG3 8136-RG9	1/8" 1/16"	16	8 + 16
8136-RG4 8136-RG10	1/8" 1/16"	16 + 2 (V & G)	V & G Sleeves

CONNECTOR PADS (VCC AND GND) COMMITTED

8136-RG119 8136-RG123	1/8" 1/16"	14	7 + 14
8136-RG120 8136-RG124	1/8" 1/16"	14 + 2 (V & G)	V & G Sleeves
8136-RG121 8136-RG125	1/8" 1/16"	16	8 + 16
8136-RG122 8136-RG126	1/8" 1/16"	16 + 2 (V & G)	V & G Sleeves

UNIVERSAL STYLE

Choice of 1/8" or 1/16" thick board with 20 rows of 50 contacts (.300" × .100" spacing) with connector pads committed or non-committed.

CONNECTOR PADS (VCC AND GND) NON-COMMITTED

Augat Number	Board Thickness	Number of Rows	Socket Terminals per Row	Voltage & Ground Layout
8136-URG1 8136-URG14	1/8" 1/16"	20	50	V & G Socket Terminals

NOTE: 20+2 pattern style also available.

WE CARRY MOST MAJOR BRANDS.

IF YOU CAN'T FIND WHAT YOU WANT,

CALL OR WRITE US FOR INFORMATION.

CONNECTOR PADS (VCC AND GND) COMMITTED

Augat Number	Board Thickness	Number of Rows	Socket Terminals per Row	Voltage & Ground Layout
8136-URG49 8136-URG48	1/8" 1/16"	20	50	V & G Sleeves

NOTE: Connector sold separately: Part No. 14005-1P1 (1/8"); Part No. 14005-19P1 (1/16"); 120 contact, dual row.

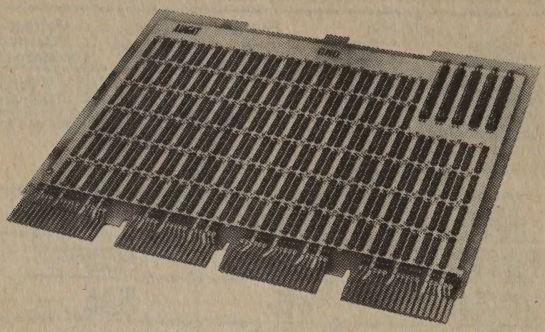
ACCESSORIES FOR "R" SERIES BOARDS

Augat Number	Card Thickness	Description
8136-138G1 8136-RG86	1/8" 1/16"	Extender Cards
8136-RG58 8136-RG85	1/8" 1/16"	Blank Cards
8136-RG74 8136-RG99	1/8" 1/16"	Discrete Component Cards
8136-RG40 8136-RG41	1/8" 1/16"	Terminator Cards

Augat Number	Description	Net Each, Lots of 1-4	5-9	10-24
PATTERN STYLE—CONNECTOR PADS NON-COMMITTED				
8136-RG1	60 Patterns, 14/7+14, 1/8"	$227.25	$198.75	$182.00
8136-RG7	60 Patterns, 14/7+14, 1/16"	217.25	190.00	173.75
8136-RG2	60 Patterns, 14+2, 1/8"	239.50	209.25	191.75
8136-RG8	60 Patterns, 14+2, 1/16"	232.25	201.00	184.50
8136-RG3	60 Patterns, 16/8+16, 1/8"	185.75	180.75	177.50
8136-RG9	60 Patterns, 16/8+16, 1/16"	237.00	207.00	188.75
8136-RG4	60 Patterns, 16+2, 1/8"	197.25	192.00	188.50
8136-RG10	60 Patterns, 16+2, 1/16"	250.50	218.75	201.25
PATTERN STYLE—CONNECTOR PADS COMMITTED				
8136-RG119	RG1 With I/O Committed	$227.00	$198.75	$182.00
8136-RG123	RG7 With I/O Committed	217.25	190.00	174.00
8136-RG120	RG2 With I/O Committed	239.50	209.25	191.75
8136-RG124	RG8 With I/O Committed	232.25	201.00	184.50
8136-RG121	RG3 With I/O Committed	244.25	214.25	196.50
8136-RG125	RG9 With I/O Committed	237.00	207.00	180.75
8136-RG122	RG4 With I/O Committed	258.50	226.25	208.00
8136-RG126	RG10 With I/O Committed	250.50	218.50	201.25
UNIVERSAL STYLE—CONNECTOR PADS NON-COMMITTED				
8136-URG1	20 Rows of 50 Cont., 1/8"	$209.75	$204.00	$201.00
8136-URG14	20 Rows of 50 Cont., 1/16"	265.25	232.25	212.50
UNIVERSAL STYLE—CONNECTOR PADS COMMITTED				
8136-URG48	URG14 With I//O Committed	$268.75	$235.25	$214.50
8136-URG49	URG1 With I//O Committed	283.00	247.25	222.75
ACCESSORIES FOR "R" SERIES BOARDS				
8136-138G1	Extender Card, 1/8"	$102.50	$ 92.25	$ 86.00
8136-RG86	Extender Card, 1/16"	125.75	112.75	103.75
8136-RG58	Blank Card, 1/8"	52.75	47.25	44.00
8136-RG85	Blank Card, 1/16"	47.25	42.50	39.25
8136-RG74	Discrete Comp. Card, 1/8"	85.25	77.50	71.75
8136-RG99	Discrete Comp. Card, 1/16"	82.75	73.75	67.75
8136-RG40	Terminator Card, 1/8"	158.50	138.50	126.25
8136-RG41	Terminator Card, 1/16"	150.00	131.25	119.25

AUGAT Integrated Circuit Panels

COMPUTER INTERFACE BOARDS



Augat, Inc. designs and manufactures a large variety of plug-compatible computer interface panels. Augat wire wrap panels offer the design engineer flexibility in his choice of components, high reliability and ease of revision changes, both in the lab and in the field. Augat panels are extensively used in both government and commercial applications. Augat continuously strives to meet the design engineer's electronic packaging requirements.

Augat Number	Compatible Computer	Description	Net Each, Lots of		
			1-4	5-9	10-24
8136-UG101 T/G	Camac	Universal, 38 rows of 64 contacts; plug compatible edge finger I/O.	$424.00	$397.50	$362.00
8136-LG613 T/G	Data General Nova	3 sections of 35 patterns, 16-pin terminals and 2 universal sections of 6 rows of 48 contacts. Plug compatible with D.G. Nova.	581.25	416.50	379.00
8136-LG614 T/G	Data General Nova	Same as LG613, except 6 sections of 35 patterns and 4 universal sections of 6 rows of 48 contacts.	782.50	684.00	622.50
8136-LG916 T/G	Data General Nova	Universal, 48 rows of 48 contacts (full board load).	818.25	715.75	651.25
8136-LG917 T/G	Data General Nova	Same as LG916, except half board load.	517.75	452.75	412.25
8136-LG923	Data General Nova	Same as LG916, except 3/4 board load.	610.25	526.50	479.25
8136-LG914	Data General Micro Nova	Universal, 22 rows of 83 contacts.	463.50	390.25	355.00
8136-LG411 T/G	Digital Equipment PDP8	110 patterns, 16 pin, quad.	375.50	327.50	300.50
8136-LG412 T/G	Digital Equipment PDP8	Universal, 32 rows of 60 contacts, quad.	378.75	329.50	302.00
8136-LG434	Digital Equipment PDP8	42 patterns, 16 pin, double high.	305.50	267.50	243.50
8136-LG498-33 T/G	Digital Equipment PDP11	Universal, 33 rows of 62 contacts, quad.	435.25	381.25	347.25
8136-LG498-49 T/G	Digital Equipment PDP11	Universal, 49 rows of 62 contacts, hex.	605.00	530.25	482.75
8136-LG576 T/G	Digital Equipment PDP11	110 patterns, 16 pin, quad.	368.75	319.75	294.75
8136-LG627-49 T/G	Digital Equipment PDP11	Universal, 42 rows of 62 contacts, hex.	653.00	570.25	516.25
8136-LG684 T/G	Digital Equipment PDP11	180 patterns, 20 pin, hex.	872.25	763.00	694.75
8136-LG683 T/G	Digital Equipment PDP11	120 patterns, 20 pin, quad.	570.00	499.00	453.75
8136-LG919	Digital Equipment LSI 11/2	Universal, 30 rows of 48 contacts, V & G committed.	311.50	281.25	232.50
8136-UG260	Hewlett Packard	HP1000,21MX.	421.00	368.50	335.75
8136-LG913	IBM Series 1	Universal, 23 rows of 69 contacts.	463.75	406.50	369.25
8136-UG159 T/G	Intel SBC 80/10	Universal, 36 rows of 50 contacts, 1-40 and 2-50 pin headers.	402.25	352.50	320.50
8136-LG912	Intel SBC 80/10	Same as UG159, except 1-13 and 2-25 finger edge connectors.	576.75	504.50	460.00
8136-LG918 T/G	Intel SBC 80/10	Same as UG159, except dual 50 finger edge connector.	423.75	370.75	350.25
8136-UG146	Motorola M6800	Universal, 30 rows of 44 contacts.	386.25	338.75	308.25
8136-SCH42	Motorola M6800	64 patterns, 16 pin.	304.25	279.75	255.00
8136-ECL75	Motorola M6800	64 patterns, 16 pin with SIP locations	473.75	412.75	378.50
8136-LG915	Pro-Log Std. 7000 Bus	Universal, 12 rows of 55 contacts.	210.50	184.25	168.00
8136-LG756	S-100 Hobby Bus	Universal, 14 rows of 80 contacts with voltage regulator position.	318.00	278.00	253.50
8136-LG908	Texas Instruments TM990/513	Universal, 34 rows of 54 contacts.	489.25	437.25	390.25
8136-LG923	Varian V71	Universal, 24 rows of 100 contacts.	610.25	526.50	479.25
8136-LG936	Zilog	60 patterns, 16 pin; universal section, 2 rows of 56 contacts, 6/10 spacing.	267.00	233.25	213.00
8136-LG937	Zilog	Universal, 22 rows of 55 contacts.	247.75	216.75	197.50

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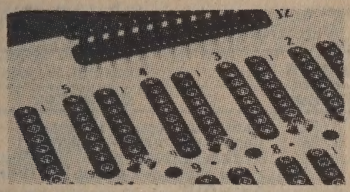
SCHOTTKY BOARDS—3 PLANES



PATTERN STYLE—30-180 PATTERNS

Augat Number 8136-	Socket Terminals per Pattern	Voltage & Ground Layout	I/O Termination (For Every 30-Pattern Section)
SCH1	16 .300" × 100" Spacing	8 & 16	Socket Terminals (1 Set; 2 Rows of 23) Total, 46
SCH5		8 & 16	Feed-Thru Pins (2 Sets; 2 Rows of 13) Total, 52

UNIVERSAL STYLE—9-54 ROWS

Augat Number 8136-	Socket Terminals per Row	Voltage & Ground Layout	I/O Termination (For Every 9-Row Section)
SCH4	50	V & G Socket Terminals	Feed-Thru Pins (2 Sets; 2 Rows of 13) Total, 52 Feed-Thru Pins
SCH19	100		(2 Groups; 2 Sets; 2 Rows of 13) Total, 104

"R" SERIES PATTERN STYLE BOARDS
60 PATTERNS STANDARD

Augat Number 8136-	Socket Terminals per Pattern	Voltage & Ground Layout	I/O Termination
SCH3	16	8 & 16	Edge Connector

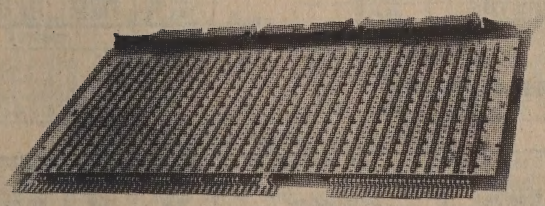
"R" SERIES UNIVERSAL STYLE BOARDS
20 ROWS STANDARD

Augat Number 8136-	Socket Terminals per Row	Voltage & Ground Layout	I/O Termination
SCH14	50	V & G Sockets Terminals	Edge Connector

"R" SERIES UNIVERSAL STYLE BOARDS (CONT'D.)

Augat Number	Description	Net Each, Lots of 1-4	5-9	10-24
PATTERN STYLE BOARDS				
8136-SCH1-30	30 Patterns	$128.50	$111.75	$103.00
8136-SCH1-60	60 Patterns	245.25	215.00	197.00
8136-SCH1-90	90 Patterns	368.25	321.50	294.75
8136-SCH1-120	120 Patterns	483.50	441.25	388.50
8136-SCH1-150	150 Patterns	605.00	529.00	485.50
8136-SCH1-180	180 Patterns	728.25	636.25	585.00
8136-SCH5-30	SCH Equiv. to 8136-PG5-30	123.50	108.50	99.00
8136-SCH5-60	SCH Equiv. to 8136-PG5-60	247.25	217.75	198.50
8136-SCH5-90	SCH Equiv. to 8136-PG5-90	425.50	322.50	297.25
8136-SCH5-120	SCH Equiv. to 8136-PG5-120	493.50	431.00	429.75
8136-SCH5-150	SCH Equiv. to 8136-PG5-150	613.00	535.25	492.25
8136-SCH5-180	SCH Equiv. to 8136-PG5-180	741.00	646.25	593.75
UNIVERSAL STYLE BOARDS				
8136-SCH4-9	SCH Equiv. to 8136-UG6-9	$132.00	$115.25	$106.25
8136-SCH4-18	SCH Equiv. to 8136-UG6-18	263.00	230.50	212.00
8136-SCH4-27	SCH Equiv. to 8136-UG6-27	378.25	345.25	318.25
8136-SCH4-36	SCH Equiv. to 8136-UG6-36	528.75	459.75	423.50
8136-SCH4-45	SCH Equiv. to 8136-UG6-45	660.50	576.75	529.75
8136-SCH4-54	SCH Equiv. to 8136-UG6-54	792.00	691.25	635.50
8136-SCH19-9	9 Rows	294.75	258.00	234.50
8136-SCH19-18	18 Rows	588.75	515.50	470.00
8136-SCH19-27	27 Rows	883.75	773.75	704.50
8136-SCH19-36	36 Rows	1178.25	1032.25	939.00
8136-SCH19-45	45 Rows	1473.25	1302.25	1174.00
8136-SCH19-54	54 Rows	1669.75	1462.50	1331.75
"R" SERIES PATTERN STYLE BOARDS				
8136-SCH3	SCH Equiv. to 8136-RG3	$323.75	$282.50	$260.00
"R" SERIES UNIVERSAL STYLE BOARDS				
8136-SCH14	SCH Equiv. to 8136-URG1	$347.50	$302.75	$278.25

MICROPROCESSOR BOARDS



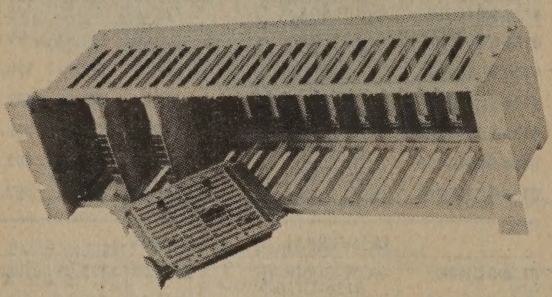
Augat Number	Description
8136-UG159	Compatible with Intel SBC 80/10 Computer
8136-UG146	Compatible with Motorola M680 Exorciser Computer
8136-SCH42	Compatible with Motorola M680 Exorciser Computer
8136-ECL75	Compatible with Motorola M680 Exorciser Computer

Augat Number	Description	Net Each, Lots of 1-4	5-9	10-24
8136-UG159-2	Intel Microprocessor	$509.75	$446.75	$405.25
8136-UG146	Motorola Exorciser	386.25	338.75	308.25
8136-SCH42	Up to 64 Patterns	304.25	297.75	255.00
8136-ECL75	Translator/SIP; Up to 64 Patterns, ECL/SIP	473.75	412.75	378.50

OUR STOCKS ARE FULLY UP TO DATE WITH ALL THE LATEST PRODUCTS.
ASK ABOUT NEW OR UNLISTED ITEMS.

AUGAT P C Card Racks

RACK ASSEMBLIES FOR RELAY RACK MOUNTING—CLASS 205



"R" SERIES—EDGE CONNECTOR TYPE Vcc AND GND NON-COMMITTED

Augat Number	Accepts Board Thickness	Description
8160-EG10	1/8"	Back panel only—13 pos.
8160-EG21	1/16"	Back panel only—13 pos.
8170-RG1	1/8"	Rack with back panel for 19-in. rack mtg.
8170-RG14	1/16"	Rack with back panel for 19-in. rack mtg.
8170-RG3	1/8"	Rack only
8170-RG16	1/16"	Rack only

"R" SERIES—EDGE CONNECTOR TYPE Vcc AND GND COMMITTED

Augat Number	Accepts Board Thickness	Description
8160-EG54	1/8"	Back panel only—13 pos.
8160-EG55	1/16"	Back panel only—13 pos.
8170-RG67	1/8"	Rack with back panel for 19-in. rack mtg.
8170-RG68	1/16"	Rack with back panel for 19-in. rack mtg.
8170-RG3	1/8"	Rack only
8170-RG16	1/16"	Rack only

"V" SERIES METRIC—PIN AND SOCKET CONNECTOR TYPE

Augat Number	Accepts Board Size	Description
8160-EG56	Single	Back panel only—96-pin
8170-VG3	Double	Rack with back panel for 19-in. rack mtg.
8170-VG6	Double	Rack with back panel for 19-in. rack mtg.
8170-VG1	Single	Rack only
8170-VG4	Double	Rack only

"M" SERIES—EDGE CONNECTOR TYPE I/O, Vcc AND GND COMMITTED

Augat Number	Accepts Board Thickness	Description
8160-EG20	1/16"	Back panel only—13 pos.
8170-MG1	1/16"	Rack with back panel for 19-in. rack mtg.
8170-MG2	1/16"	Rack only

"W" SERIES—EDGE CONNECTOR TYPE Vcc AND GND NON-COMMITTED

Augat Number	Accepts Board Thickness	Description
8160-WG1	1/8"	Back panel only—13 pos.
8160-WG3	1/16"	Back panel only—13 pos.
8170-RG7	1/8"	Rack with back panel for 19-in. rack mtg.
8170-RG19	1/16"	Rack with back panel for 19-in. rack mtg.
8170-RG3	1/8"	Rack only
8170-RG16	1/16"	Rack only

Augat Number	Description	Net Each, Lots of 1-4	5-9	10-24
8160-EG10	Back panel	$445.75	$387.50	$354.50
8160-EG20	Back panel	202.75	173.25	158.00
8160-EG21	Back panel	445.75	387.50	354.50
8160-EG54	Back panel	445.75	387.50	354.50
8160-EG55	Back panel	445.75	387.50	354.50
8160-EG56	Back panel	389.25	337.00	309.00
8160-WG1	Back panel	589.50	513.75	468.75
8160-WG3	Back panel	589.50	513.75	468.75
8170-MG1	Rack w/back panel	290.50	258.50	241.00
8170-RG1	Rack w/back panel	498.25	443.75	414.75
8170-RG7	Rack w/back panel	620.25	551.50	514.50
8170-RG14	Rack w/back panel	498.75	443.75	414.75
8170-RG19	Rack w/back panel	620.25	551.50	514.50
8170-RG67	Rack w/back panel	499.50	444.75	414.00
8170-RG68	Rack w/back panel	499.50	444.75	414.00
8170-VG3	Rack w/back panel	483.50	430.25	401.75
8170-VG6	Rack w/back panel	857.00	762.75	711.50
8170-MG2	Rack	100.75	90.75	85.00
8170-RG3	Rack	86.75	77.50	71.75
8170-RG16	Rack	86.75	77.50	71.75
8170-VG1	Rack	122.25	109.00	101.75
8170-VG4	Rack	154.75	138.25	128.50

DRAWER ASSEMBLIES—CLASS 200

Designed for 19-inch relay rack mounting.

Augat Number	Description
8170-DG1	Full drawer assembly with fan-cutout rear plate and perforated front plate. Accepts four 180-pattern or 54-row universal style boards.
8170-DG2	Full drawer assembly with blank front and rear plates. Accepts four 180-pattern or 54-row universal style boards.
8170-DG4	Half drawer assembly with fan-cutout rear plate and perforated front plate. Accepts two 180-pattern or 54-row universal style boards.
8170-DG5	Half drawer assembly with blank front and rear plates. Accepts two 180-pattern or 54-row universal style boards.
8170-DG15	Full drawer assembly with perforated front plate and rear back plane (feed-thru I/O), allows cabling from boards. Accepts two 360-pattern style boards.
8170-DG16	Full drawer assembly with perforated front plate and rear back plane (feed-thru I/O), allows cabling from boards. Accepts three 360-pattern style boards.

NOTE: Board frames ordered separately; see listing below.

Augat Number	Description	Net Each, Lots of 1-4	5-9	10-24
8170-DG1	Full drawer assembly	$115.25	$109.00	$104.25
8170-DG2	Full drawer assembly	104.25	99.25	94.75
8170-DG4	Half drawer assembly	96.25	88.75	84.25
8170-DG5	Half drawer assembly	88.00	84.25	79.75
8170-DG15	Full drawer assembly	387.25	344.50	321.75
8170-DG16	Full drawer assembly	465.50	415.00	387.00

BOARD FRAMES

Frames are hinged at both ends with spring latch, permitting accessability to either component or wire wrap side of board. Frame may be removed by depressing both ends of spring latch. Mounts full board or a combination of board styles.

Augat Number 8170-	Accepts Board Size Max. Width (mm/in.)	Max. Length (mm/in.)	Net Each, Lots of 1-4	5-9	10-24
14G1	175.26/6.900	411.48/16.200	$40.00	$35.75	$33.25
14G2	190.50/7.500	411.48/16.200	40.00	35.75	33.25
81G1	389.13/15.320	406.91/16.200	77.50	69.50	64.75

PRICES LISTED ARE FOR GUIDANCE ONLY

AUGAT Integrated Circuit Sockets

PC TERMINAL SOCKETS

Gold contact plating and gold or tin sleeve plating. Two-piece, tapered-entry, socket terminals with four-leaf, machined, closed-entry inner contact and machined outer sleeve. Closed-end construction eliminates any solder or flux wicking problems. Insulator is thermoplastic polyester, U.L. rated 94V-0.

Augat Number	Row Centers	No. of Contacts	Net Each, Lots of 1-99	100-499	500-999	1000-4999
GOLD PLATED SLEEVE						
508-AG10D	.3"	8	$1.20	$1.02	$0.89	$0.75
514-AG10D	.3"	14	1.77	1.52	1.32	1.12
516-AG10D	.3"	16	1.98	1.70	1.47	1.24
518-AG10D	.3"	18	2.49	2.13	1.85	1.56
520-AG10D	.3"	20	2.85	2.45	2.12	1.79
522-AG10D	.4"	22	2.52	2.35	2.18	1.85
524-AG65D	.4"	24	3.55	3.05	2.64	2.23
524-AG10D	.6"	24	3.41	2.93	2.54	2.15
528-AG10D	.6"	28	3.80	3.26	2.82	2.39
532-AG10D	.6"	32	4.39	3.77	3.26	2.76
536-AG10D	.6"	36	4.74	4.07	3.52	2.98
540-AG10D	.6"	40	5.20	4.46	3.86	3.27
TIN PLATED SLEEVE						
508-AG11D	.3"	8	$0.92	$0.79	$0.69	$0.58
514-AG11D	.3"	14	1.28	1.10	.95	.81
516-AG11D	.3"	16	1.40	1.20	1.04	.88
518-AG11D	.3"	18	1.77	1.52	1.31	1.11
520-AG11D	.3"	20	2.01	1.73	1.50	1.27
522-AG11D	.3"	22	2.43	2.09	1.81	1.53
524-AG67D	.4"	24	3.45	2.96	2.56	2.17
524-AG11D	.6"	24	2.43	2.09	1.81	1.53
528-AG11D	.6"	28	2.64	2.27	1.96	1.66
532-AG11D	.6"	32	3.10	2.66	2.30	1.95
536-AG11D	.6"	36	3.41	2.93	2.54	2.15
540-AG11D	.6"	40	3.73	3.20	2.77	2.34

MICROPROCESSOR AND PROM CARRIERS

Two-piece, machined contact socket terminals. Inner contact is beryllium copper, gold over nickel plated. Outer sleeve is phosphor bronze, gold over nickel plated. Designed to protect fragile leads of expensive microprocessors and PROMs. Mating of carrier to IC forms one unit, facilitating mounting onto panels. Meets MIL requirements for shock and vibration. Closed end construction ends solder or flux wicking problems. Low profile. Type 524 is the PROM carrier; Type 540 is the microprocessor carrier.

Augat Number	Contacts	Net Each, Lots of 1-99	100-499	500-999	1000-4999
524-AG70D	24	$4.10	$3.51	$3.04	$2.57
540-AG70D	40	6.35	5.45	4.72	3.99

LSI SOCKETS

Two-piece, machined socket terminals. Inner contact is beryllium copper, gold over nickel plated; outer sleeve is phosphor bronze, gold over nickel plated, dual-in-line and quad-in-line types available. Insulator is epoxy glass.

Augat Number	No. of Pins	Row Centers	Net Each, Lots of 1-99	100-499	500-999	1000-4999
232-AG1A	32 DIL	.9"	$6.27	$5.37	$4.65	$3.94
248-AG1A	48 DIL	.6"	8.77	7.52	6.51	5.51
248-AG2A	48 QIL	.9"	8.77	7.52	6.51	5.51
264-AG1A	64 DIL	.9"	11.45	9.81	8.50	7.19

LED DIGITAL DISPLAY SOCKETS

Two-piece machined socket terminals. Inner contact is beryllium copper, gold over nickel plated; outer sleeve is brass, tin plated. Board is glass epoxy with tin plated copper circuitry. Terminals are phosphor bronze, solder coated. Permits gang mounting on 0.4" centers or greater.

Augat Number	Contacts	Net Each, Lots of 1-99	100-499	500-999	1000-4999
514-AG21D	14	$5.46	$4.68	$4.06	$3.43
516-AG21D	16	5.85	5.01	4.34	3.67

WIRE WRAP SOCKETS

Contacts are copper alloy 725 with gold over nickel plating in the contact area only. Operating Temperature: −55° C to +125° C. Insulator: Thermoplastic polyester U.L rated 94V-0.

Augat Number	No. of Contacts	Wrap Levels	Net Each, Lots of 1-99	100-499	500-999	1000-4999
314-AG35F	14	3	$1.30	$1.11	$0.96	$0.81
314-AG36F	14	2	1.30	1.11	.96	.81
316-AG35F	16	3	1.49	1.28	1.11	.94
316-AG36F	16	2	1.49	1.28	1.11	.94

LOW PROFILE IC SOCKETS

Two terminal styles available: A mounts in any hole .025" diameter by 0.63" deep; B mounts in any hole .035" diameter by 0.89" deep. IC seating plane is only .163" above board. Sizes 308 through 318 are DIP; 322 through 340 are LSI.

Augat Number	Style	Contacts	Net Each, Lots of 1-99	100-499	500-999	1000-4999
308-AG40D	A	8	$0.79	$0.68	$0.59	$0.50
314-AG40D	A	14	1.24	1.07	.92	.78
316-AG40D	A	16	1.42	1.22	1.06	.90
318-AG40D	A	18	1.60	1.37	1.19	1.00
322-AG40D	A	22	1.96	1.68	1.46	1.23
324-AG40D	A	24	2.14	1.83	1.59	1.34
328-AG40D	A	28	2.50	2.15	1.86	1.57
340-AG40D	A	40	3.55	3.05	2.64	2.23
308-AG38D	B	8	.79	.68	.59	.50
314-AG38D	B	14	1.24	1.07	.92	.78
316-AG38D	B	16	1.42	1.22	1.06	.90
318-AG38D	B	18	1.60	1.37	1.19	1.00
322-AG38D	B	22	1.96	1.68	1.46	1.23
324-AG38D	B	24	2.14	1.83	1.59	1.34
328-AG38D	B	28	2.50	2.15	1.86	1.57
340-AG38D	B	40	3.55	3.05	2.64	2.23

GANGED IC SOCKETS

RA = right angle mounting; H = horizontal mounting; PC = printed circuit board mounting; WW = wire wrapping type; and SP = solder pocket. U.L rated 94V-0 socket, vinyl extrusion. Gold over nickel plated inner contact.

Augat Number	No. of Contacts	Desc.	Net Each, Lots of 1-99	100-499	500-999	1000-4999
508-AG8D	8	RA/PC	$2.14	$1.83	$1.59	$1.35
508-AG4F	8	H/WW	1.28	1.10	.95	.81
508-AG4A	8	H/SP	1.38	1.19	1.03	.87
514-AG7D	14	RA/PC	2.90	2.48	2.15	1.82
514-AG11D	14	H/PC	1.28	1.10	.95	.81
514-AG11F	14	H/WW	1.58	1.35	1.17	.99
516-AG7D	16	RA/PC	3.33	2.85	2.47	2.09
516-AG11D	16	H/PC	1.40	1.20	1.04	.88
516-AG11F	16	H/WW	1.75	1.50	1.30	1.10

SINGLE-IN-LINE SOCKET STRIPS

Sockets accept any IC lead and component leads .015"-.022" in diameter. Inner contact is gold plated.

Augat Number	No. of Contacts	Sleeve Plating	Net Each, Lots of 1-99	100-499	500-999	1000-4999
510-AG90D	10	Gold	$1.15	$0.99	$0.86	$0.72
510-AG91D	10	Tin	.88	.76	.66	.55

SERIES 200 LOW COST IC SOCKETS

Sockets feature side wipe action designed to meet MIL-S-83734

Augat Number	No. of Contacts	Row Centers	Net Each, Lots of 1-99	100-499	500-999	1000-4999
COPPER ALLOY—TIN PLATE						
208-AG29D	8	.3"	$0.153	$0.143	$0.133	$0.112
214-AG29D	14	.3"	.176	.164	.152	.129
216-AG29D	16	.3"	.203	.189	.176	.149
218-AG29D	18	.3"	.227	.211	.196	.166
220-AG29D	20	.3"	.254	.237	.220	.186
222-AG29D	22	.4"	.285	.266	.247	.209
224-AG29D	24	.6"	.305	.284	.264	.223
228-AG29D	28	.6"	.36	.336	.312	.264
240-AG29D	40	.6"	.507	.473	.439	.372
BERYLLIUM COPPER—TIN PLATE						
208-AG39D	8	.3"	$0.24	$0.224	$0.208	$0.176
214-AG39D	14	.3"	.299	.279	.259	.219
216-AG39D	16	.3"	.327	.305	.283	.24
218-AG39D	18	.3"	.377	.351	.326	.276
220-AG39D	20	.3"	.414	.386	.359	.304
222-AG39D	22	.4"	.456	.426	.395	.334
224-AG39D	24	.6"	.501	.468	.434	.367
228-AG39D	28	.6"	.585	.546	.507	.429
240-AG39D	40	.6"	.839	.783	.727	.615
NICKEL-SILVER ALLOY—GOLD PLATE						
208-AG49D	8	.3"	$0.302	$0.281	$0.261	$0.221
214-AG49D	14	.3"	.351	.328	.304	.257
216-AG49D	16	.3"	.401	.374	.347	.294
218-AG49D	18	.3"	.452	.421	.391	.331
220-AG49D	20	.3"	.501	.468	.434	.367
222-AG49D	22	.4"	.551	.514	.477	.404
224-AG49D	24	.6"	.60	.56	.52	.44
228-AG49D	28	.6"	.71	.662	.615	.520
240-AG49D	40	.6"	.999	.932	.866	.733

RIBBON CABLE PLUG ASSEMBLIES

Plugs (14- or 16-pin) and cable (flat ribbon or twisted pair) assemblies. Type numbers ending in -1 are single-ended; type numbers ending in -2 are double-ended.

Augat Number	No. of Pins	Cable Lgth/Type§	Net Each, Lots of 1-24	25-99	100-499	500-999
7P14-2T12-1	14	12"/tp	$10.75	$9.21	$7.98	$6.75
7P16-2T12-1	16	12"/tp	10.66	9.14	7.92	6.70
7P14-2T24-1	14	24"/tp	11.32	9.71	8.41	7.12
7P16-2T24-1	16	24"/tp	11.48	9.84	8.53	7.22
7P14-2T12-2	14	12"/tp	20.48	17.55	15.21	12.87
7P16-2T12-2	16	12"/tp	20.81	17.84	15.46	13.08
7P14-2T24-2	14	24"/tp	21.07	18.06	15.65	13.24
7P16-2T24-2	16	24"/tp	21.37	18.32	15.87	13.43
7P14-3T12-1	14	12"/f	4.83	4.14	3.59	3.04
7P16-3T12-1	16	12"/f	5.88	5.04	4.37	3.70
7P14-3T24-1	14	24"/f	5.64	4.83	4.19	3.54
7P16-3T24-1	16	24"/f	6.86	5.88	5.10	4.31
7P14-3T12-2	14	12"/f	8.54	7.32	6.34	5.37
7P16-3T12-2	16	12"/f	10.41	8.93	7.74	6.55
7P14-3T24-2	14	24"/f	9.28	7.95	6.89	5.83
7P16-3T24-2	16	24"/f	11.41	9.78	8.48	7.17

§tp = twisted pair; f = flat ribbon.

PROGRAMMING JUMPER PLUGS

Jumper pin assembly spans .3" (7.62 mm) centers to connect opposing contacts in IC patterns. Insulator (available separately) in 1 or 9 units is thermoplastic polyester, U.L. rated 94V-0. Pins are phosphor bronze, gold over nickel plated.

Augat Number	No. of Units	Net Each, Lots of 1-99	100-499	500-999	1000-4999
8136-475G1	1	$0.43	$0.37	$0.32	$0.27
8136-475G2	2	.50	.43	.37	.31
8136-475G3	3	.56	.48	.42	.35
8136-475G4	4	.60	.51	.45	.38
8136-475G7	7	.93	.80	.69	.58
8136-475G8	8	1.00	.86	.74	.63
8136-475G9	9	1.07	.92	.79	.67
8136-477P1‡	1‡	.065	.056	.048	.041

‡Insulator.

HIGH DENSITY IC SOCKETS

Provides greater I/O density with visual polarization. 28 contacts. Insulator is thermoplastic polyester, U.L. rated 94V-O. Terminals are brass, gold over nickel plated. Contacts are beryllium copper, gold over nickel plated.

Augat Number	Sleeve Plating	Net Each, Lots of 1-99	100-499	500-999	1000-4999
WIRE WRAP TYPE					
528-AG24F*	Gold	$5.29	$4.53	$3.93	$3.32
528-AG25F*	Tin	4.24	3.63	3.15	2.66
528-AG26F†	Gold	5.29	4.53	3.93	3.32
528-AG27F†	Tin	5.92	5.07	4.39	3.72
PRINTED CIRCUIT TYPE					
528-AG28D	Gold	$3.66	$3.14	$2.72	$2.30
528-AG29D	Tin	2.93	2.51	2.18	1.84

*Three-level type. †Two-level type.

800 SERIES IC SOCKET

A high quality, high reliability machined contact socket. Low profile and X/Y grid stackable. Open design for improved cooling of the IC. Gold plated inner contacts and tin or gold plated outer sleeve. Terminals are PC tail type.

Augat Number	No. of Contacts	Sleeve Plating	Net Each, Lots of 1-99	100-499	500-999	1000-4999
808-AG10D	8	Gold	$1.20	$1.02	$0.89	$0.75
808-AG11D	8	Tin	.92	.79	.69	.58
814-AG10D	14	Gold	1.77	1.52	1.31	1.11
814-AG11D	14	Tin	1.28	1.10	.95	.81
816-AG10D	16	Gold	1.98	1.70	1.47	1.24
816-AG11D	16	Tin	1.40	1.20	1.04	.88
818-AG10D	18	Gold	2.49	2.13	1.85	1.56
818-AG11D	18	Tin	1.77	1.52	1.31	1.11
820-AG10D	20	Gold	2.85	2.45	2.12	1.79
820-AG11D	20	Tin	2.01	1.73	1.50	1.27
822-AG10D	22	Gold	2.94	2.52	2.18	1.85
822-AG11D	22	Tin	2.19	1.88	1.63	1.38
824-AG10D	24	Gold	3.41	2.93	2.54	2.15
824-AG11D	24	Tin	2.43	2.09	1.81	1.53
828-AG10D	28	Gold	3.80	3.26	2.82	2.39
828-AG11D	28	Tin	2.77	2.37	2.05	1.74
840-AG10D	40	Gold	5.20	4.46	3.86	3.27
840-AG11D	40	Tin	3.73	3.20	2.77	2.34

HIGH DENSITY PLUGS

28-pin plug assembly is compatible with IC socket panels or can be used for bulkhead mounting. Single and double ended plug assemblies as listed in 12" and 24" cable lengths. Gold plated pins.

Augat Number	Desc.	Net Each, Lots of 1-99	100-499	500-999	1000-4999
PLUG ASSEMBLIES					
9P28-2S12-1	12"/sgl.	$19.23	$16.49	$14.29	$12.09
9P28-2S24-2	24"/dbl.	34.83	29.85	25.87	21.89
PLUG COMPONENTS					
8136-742P2	Hood	$1.05	$0.90	$0.78	$0.66
9P28-2G1	Base w/pins	4.78	4.10	3.55	3.00
8136-741P2	Base only	.12	.11	.09	.08
8136-32P6	Pin only	.16	.14	.12	.10

INTERFACING PLUG ASSEMBLIES

Plug pins are gold plated bronze. Insulator is thermoplastic polyester, U.L. rated 94V-0. Cable is AWG 26 stranded copper, Teflon insulated, 12" long. Available as an assembly of plug and cable or as plug only. Type numbers ending in -1 are single-ended; numbers ending in -2 are double-ended. Contacts are crimp type or solder pocket type.

Augat Number	No. of Pins or Contacts	Pin Diam.	Net Each, Lots of 1-99	100-499	500-999	1000-4999
1P14-3T12-1	14	.018"	$8.45	$7.25	$6.28	$5.31
1P14-3T12-2	14	.018"	15.65	13.41	11.62	9.83
1P14-4T12-1	14	.023"	8.44	7.23	6.27	5.30
1P14-4T12-2	14	.023"	15.65	13.41	11.62	9.83
1P14-1†	14	....	2.63	2.25	1.95	1.65
1P14-3	14	....	2.14	1.83	1.59	1.34
1P16-3T12-1	16	.018"	9.91	8.49	7.36	6.23
1P16-3T12-2	16	.018"	17.85	15.30	13.26	11.22
1P16-4T12-1	16	.023"	9.91	8.49	7.36	6.23
1P16-4T12-2	16	.023"	17.85	15.30	13.26	11.22
1P16-1†	16	....	3.06	2.63	2.28	1.93
1P16-3	16	....	2.68	2.30	1.99	1.68

†Solder pocket type; all others are crimp type.

SOCKET TERMINAL CARRIER ASSEMBLIES

Aluminum carrier provides patterns of lead sockets for easy group insertion into PC boards. Remove carrier after wave soldering and discard. Contacts and sleeves are gold plated.

706-AG1D	6	.3"	$0.819	$0.702	$0.608	$0.515
708-AG1D	8	.3"	1.03	.884	.766	.648
714-AG1D	14	.3"	1.63	1.40	1.21	1.03
716-AG1D	16	.3"	1.82	1.56	1.35	1.14
718-AG1D	18	.3"	2.01	1.73	1.50	1.27
720-AG1D	20	.3"	2.28	1.95	1.69	1.43
722-AG1D	22	.4"	2.49	2.13	1.85	1.56
724-AG1D	24	.4"	2.75	2.36	2.04	1.73
724-AG3D	24	.4"	2.75	2.36	2.04	1.73
728-AG3D	28	.6"	3.13	2.69	2.33	1.97
732-AG3D	32	.6"	3.50	3.00	2.60	2.20
736-AG3D	36	.6"	3.94	3.38	2.93	2.48
740-AG3D	40	.6"	4.45	3.81	3.30	2.79

TOOL ACCESSORIES

Augat No. 8136-23G4 Socket Terminal Replacement Kit—Two-level wrap, gold/gold.
Net Each, Lots of 1-99 ..... $15.17; 100-499 ..... $13.01

Augat No. 8136-23G1 Socket Terminal Replacement Kit—Three-level wrap, gold/gold.
Net Each, Lots of 1-99 ..... $13.81; 100-499 ..... $11.84

Augat No. T8136-6 Circuit Pad Removal Tool—
Net Each, Lots of 1-99 ..... $54.60; 100-499 ..... $46.80

Augat No. T114-1 DIP Extractor Tool—Net Each $0.88

Augat No. T18136-14/16 DIP Insertion Tool—Accepts 14- and 16-lead ICs on 0.3" centers. Net Each $18.12

Augat No. T18136-8 DIP Insertion Tool—Accepts 24- and 28-lead ICs on 0.6" centers. Net Each $19.96

Augat No. T18136-32/40 DIP Insertion Tool—Accepts 32- and 40-lead ICs on 0.6" centers. Net Each $31.56

Augat No. TW8136-14/20 DIP Extractor Tool—Accepts ICs up to 20 leads on 0.3" centers. Net Each $21.78

Augat No. TW8136-24/28 DIP Extractor Tool—Accepts ICs with 24-40 leads on 0.6" centers. Net Each $23.48

Augat No. T2P1416-1 Hand Assembly Tool for Male 2P Plugs—Net Each $146.15

Augat No. T2P/4P-1 Bench Press for Male 2P Plugs—Net Each $358.60

Augat No. T4P2050-1 Hand Assembly Tool for Female 2P Plugs Net Each $243.10

Augat No. T2P/4P-1 Bench Press for Female 2P Plugs—Net Each $358.60

Augat No. T4P2050-2 Base Plate for Bench Press—Net Each $33.00

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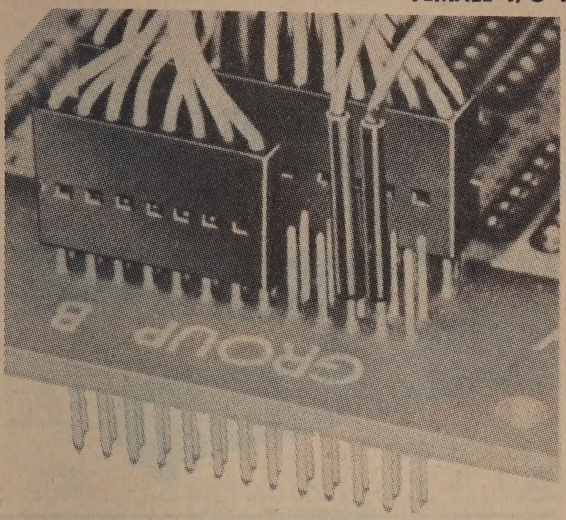
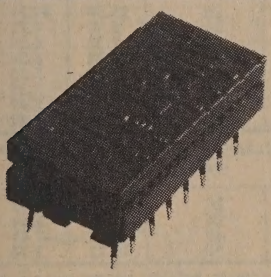
FEMALE I/O PLUG ASSEMBLIES



Female I/O plugs, insulators, separate contacts, contact assemblies with 12- and 24-inch wire (single- and double-ended) and 2-contact jumper assemblies with 12-, 24- and 36-inch wire. **12** in Augat No. indicates 12"; **24** indicates 24"; **36** indicates 36". Suffix **-2** indicates double ended; all others, single ended.

Augat Number	Description	Net Each, Lots of 1-99	100-499	500-999	1000-4999
FEMALE I/O PLUGS					
6P8-1T12-1	8-contact assy.	$4.08	$3.50	$3.03	$2.56
6P8-1T12-2	8-contact assy.	7.05	6.05	5.24	4.43
6P26-1T12-1	26-contact assy.	12.71	10.89	9.44	7.99
6P26-1T12-2	26-contact assy.	21.49	18.42	15.96	13.51
INSULATORS					
14008-5P1	8-contact insul.	$0.97	$0.83	$0.72	$0.61
14008-5P2	26-contact insul.	2.61	2.24	1.94	1.64
CONTACT ASSEMBLIES					
14008-6G1-12	12-contact assy.	$0.51	$0.44	$0.38	$0.32
14008-6G1-24	24-contact assy.	.53	.45	.39	.33
14008-6G1-12-2	12-contact assy.	.91	.78	.67	.57
14008-6G1-24-2	24-contact assy.	.95	.81	.71	.60
SEPARATE CONTACTS					
14008-6P1	For I/O plugs	$0.19	$0.16	$0.14	$0.12
JUMPER ASSEMBLIES					
6P1-1T12-2	12" jumper assy.	$1.22	$1.05	$0.91	$0.77
6P1-1T24-2	24" jumper assy.	1.24	1.07	.92	.78
6P1-1T36-2	36" jumper assy.	1.28	1.10	.95	.80

FLAT CABLE PLUG ASSEMBLIES

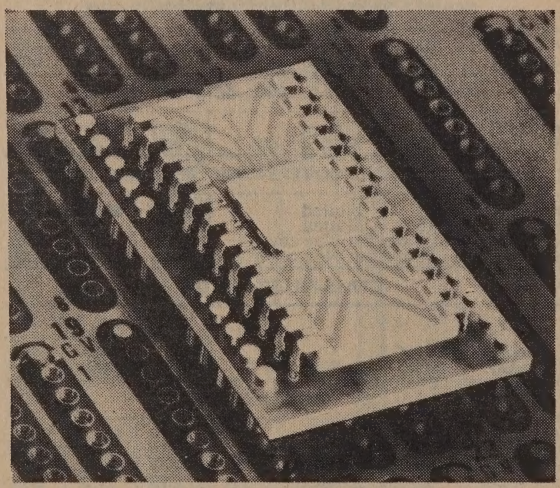


Plug and cable assemblies available in single ended (Suffix **-1**) or double ended (Suffix **-2**), male and female versions. All cables 12" long unless otherwise indicated. Plugs and strain reliefs available separately.

Augat Number	Contacts	Description	Net Each, Lots of 1-24	25-99	100-499
FEMALE					
4P20-1R12-1	20	Single ended	$5.55	$4.76	$4.12
4P20-1R12-2	20	Double ended	9.87	8.46	7.33
4P20-1	20	Plug only	3.78	3.24	2.81
4P20-2P1	20	Strain relief	.49	.42	.36
4P26-1R12-1	26	Single ended	6.84	5.87	5.08
4P26-1R12-2	26	Double ended	12.25	10.50	9.10
4P26-1	26	Plug only	4.88	4.19	3.63
4P26-2P1	26	Strain relief	.49	.42	.36
4P40-1R12-1	40	Single ended	9.99	8.57	7.42
4P40-1R12-2	40	Double ended	18.11	15.53	13.46
4P40-1	40	Plug only	7.53	6.45	5.59
4P40-2P1	40	Strain relief	.54	.47	.40
4P50-1R12-1	50	Single ended	12.20	10.46	9.06
4P50-1R12-2	50	Double ended	22.24	19.07	16.52
4P50-1	50	Plug only	9.38	8.04	6.97
4P50-2P1	50	Strain relief	.54	.47	.40
MALE					
2P14-1R12-1	14	Single ended, 12"	$3.97	$3.41	$2.95
2P14-1R24-1	14	Single ended, 24"	4.39	3.77	3.26
2P14-1R12-2	14	Double ended, 12"	6.00	5.15	4.46
2P14-1R24-2	14	Double ended, 24"	6.49	5.66	4.82
2P14-1	14	Plug only	2.07	1.77	1.53
2P16-1R12-1	16	Single ended, 12"	4.03	3.45	2.99
2P16-1R24-1	16	Single ended, 24"	4.50	3.86	3.34
2P16-1R12-2	16	Double ended, 12"	6.72	5.76	4.99
2P16-1R24-2	16	Double ended, 24"	7.21	6.18	5.36
2P16-1	16	Plug only	2.36	2.03	1.76

LSI ADAPTER PLUGS

Plugs adapt LSI packages to 14- and 16-pin IC pattern or universal style boards. 20- through 40-lead LSI devices on .300", .400" or .600" spacing. 1/16" thick glass epoxy board.

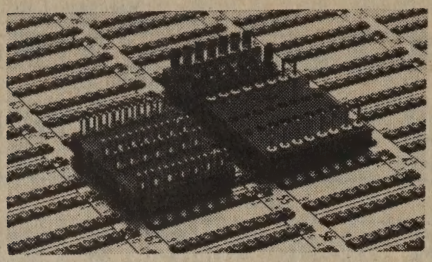


Augat Number	Style	Max. Number of Leads	Net Each, Lots of 1-99	100-499	500-999	1000-4999
620-HG16	Pattern	20*	$6.11	$5.70	$5.29	$4.48
622-HG16	Pattern	22†	6.30	5.88	5.46	4.62
622-HG17	Universal	22†	5.84	5.45	5.06	4.28
624-HG17	Universal	24†	6.27	5.85	5.43	4.60
624-HG18	Pattern	24†	7.55	7.04	6.54	5.53
624-HG16	Pattern	24§	7.55	7.04	6.54	5.53
628-HG16	Pattern	28§	8.66	8.08	7.50	6.35
640-HG16	Pattern	40§	11.99	11.19	10.39	8.79

*.300" spacing. †.400" spacing. §.600" spacing.

AUGAT Plugs And Headers

ADAPTER PLUG ASSEMBLIES



Used to mount discrete components on pattern and universal style boards. Available with 14, 16, 28 or 32 pins (.300" row spacing) and 14 or 16 pins (.600" or .800" row spacing). Slotted, round or solder-pocket pin styles available. Insulating material either UL rated 94V-0 thermoplastic polyester or glass-filled nylon.

UL RATED 94V-0 THERMOPLASTIC POLYESTER

Augat Number	No. of Pins	Pin Style	Net Each, Lots of 1-99	100-499	500-999
.300" BETWEEN ROWS					
614-AG1	14	Round	$2.64	$2.46	$2.29
614-BG1	14	Solder pocket	2.70	2.52	2.34
614-CG1	14	Slotted	2.70	2.52	2.34
616-AG1	16	Round	2.93	2.73	2.54
616-BG1	16	Solder pocket	2.99	2.79	2.59
616-CG1	16	Slotted	2.99	2.79	2.59
.800" BETWEEN ROWS					
614-CG2	14	Slotted	$2.91	$2.72	$2.52
616-CG2	16	Slotted	3.21	3.00	2.78
DOUBLE PATTERN—.300" BETWEEN ROWS					
628-CG1	28	Slotted	$4.95	$4.62	$4.29
632-CG1	32	Slotted	5.64	5.26	4.89
UNIVERSAL STYLE—.600" BETWEEN ROWS					
614-CG3	14	Slotted	$2.99	$2.79	$2.59
616-CG3	16	Slotted	3.21	3.00	2.78
FLAT PLUGS AND COVERS—.300" BETWEEN ROWS					
614-DG5	14	Slotted	$0.99	$0.93	$0.86
616-DG5	16	Slotted	1.02	.95	.89
614-2P1		14-pin flat plug cover	.25	.24	.22
616-2P1		16-pin flat plug cover	.45	.42	.39

GLASS-FILLED NYLON

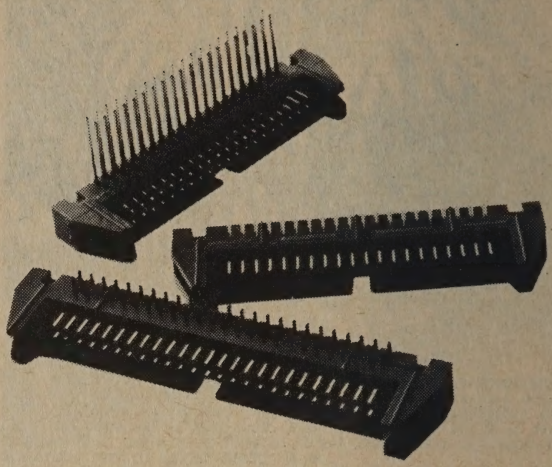
Augat Number	No. of Pins	Pin Style	Net Each, Lots of 1-99	100-499	500-999
.300" BETWEEN ROWS					
614-AG16	14	Round	$2.64	$2.46	$2.29
614-BG16	14	Solder pocket	2.70	2.52	2.34
614-CG16	14	Slotted	2.70	2.52	2.34
616-AG16	16	Round	2.93	2.73	2.54
616-BG16	16	Solder pocket	2.99	2.79	2.59
616-CG16	16	Slotted	2.99	2.79	2.59

CROSSOVER HEADERS

Mates with standard .025" contact ribbon cable connectors. Thermoplastic latches provided for polarity and retention of connector in header.

Number Augat	No. of Pins	Net Each, Lots of 1-24	25-99	100-499	500-999
110-20003-201	20	$12.08	$10.35	$8.97	$7.59
110-26003-201	26	12.95	11.10	9.62	8.14
110-34003-201	34	13.44	11.52	9.98	8.48
110-40003-201	40	13.72	11.76	10.19	8.62
110-50003-201	50	14.28	12.24	10.61	8.98

HEADER ASSEMBLIES

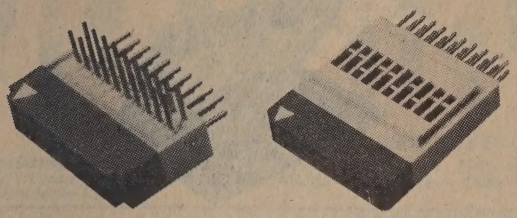


Augat Number	Pins	Net Each, Lots of 1-24	25-99	100-499	500-999
STRAIGHT BRONZE WIRE WRAP PINS NYLON INSULATION					
5P26-1	26	$5.50	$4.71	$4.08	$3.45
5P26-10*	26	5.50	4.71	4.08	3.45
5P34-1	34	7.28	6.24	5.41	4.58
5P34-10*	34	7.28	6.24	5.41	4.58
5P40-1	40	8.58	7.35	6.37	5.39
5P40-10*	40	8.58	7.35	6.37	5.39
5P26-3†	26	9.91	8.49	7.36	6.23
5P26-11*†	26	9.91	8.49	7.36	6.23
RIGHT-ANGLE BRASS WIRE WRAP PINS 94V-0 INSULATION					
110-20001-602	20	$5.08	$4.35	$3.77	$3.19
110-26001-602	26	6.46	5.54	4.80	4.06
110-40001-602	40	8.73	7.49	6.49	5.49
110-50001-602	50	10.22	8.76	7.59	6.42
STRAIGHT BRASS WIRE WRAP PINS 94V-0 INSULATION					
110-20001-601	20	$5.08	$4.35	$3.77	$3.19
110-26001-601	26	6.46	5.54	4.80	4.06
110-40001-601	40	8.73	7.49	6.49	5.49
110-50001-601	50	10.22	8.76	7.59	6.42
RIGHT-ANGLE BRASS P.C. PINS 94V-0 INSULATION					
110-20001-102	20	$2.70	$2.31	$2.00	$1.69
110-26001-102	26	3.29	2.82	2.44	2.07
110-40001-102	40	4.92	4.22	3.65	3.09
110-50001-102	50	5.85	5.01	4.34	3.67
STRAIGHT BRASS P.C. PINS 94V-0 INSULATION					
110-20001-101	20	$2.70	$2.31	$2.00	$1.69
110-26001-101	26	3.29	2.82	2.44	2.07
110-40001-101	40	4.92	4.22	3.65	3.09
110-50001-101	50	5.85	5.01	4.34	3.67

*Shorter pins. †Double row.

AUGAT Sockets And Terminals

INTRA-CONNECTOR AND INTRA-SWITCH

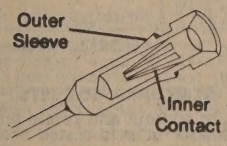


INTRA-CONNECTOR INTRA-SWITCH

Nickel silver alloy 770 contacts. Glass-filled polyester insulator. Mates with standard dual-row female flat cable plugs and header assemblies.

Augat Number	Contacts	Net Each, Lots of 1-24	25-99	100-499	500-999
INTRA-CONNECTOR					
110-20006-301	20	$7.49	$6.42	$5.56	$4.71
110-26006-301	26	8.61	7.38	6.40	5.41
110-34006-301	34	10.12	8.67	7.51	6.36
110-40006-301	40	11.20	9.60	8.32	7.04
110-50006-301	50	13.14	11.27	9.76	8.26
INTRA-SWITCH					
110-20005-301	20	$14.91	$12.78	$11.08	$ 9.37
110-26005-301	26	17.15	14.70	12.74	10.78
110-34005-301	34	20.07	17.21	14.91	12.62
110-40005-301	40	22.31	19.13	16.58	14.03
110-50005-301	50	26.04	22.32	19.34	16.37

SOCKET AND PLUG TERMINALS



Socket Terminals: Outer sleeve, gold over nickel-plated brass, unless otherwise indicated; inner contact, gold over nickel-plated beryllium copper. Plug terminals: Gold over nickel-plated brass or phosphor bronze.

Augat Number	Length	Contacts	Net Each, Lots of 1-99	100-499	500-999	1000-4999
SOCKET TERMINALS						
LSG-1FG1-1	.703	Copper	$0.311	$0.266	$0.231	$0.195
LSG-1FG1-14*	.703	Copper	.235	.202	.175	.148
LSG-1AG2-1	.290	Copper	.257	.22	.191	.161
LSG-1AG2-14*	.290	Copper	.174	.149	.129	.109

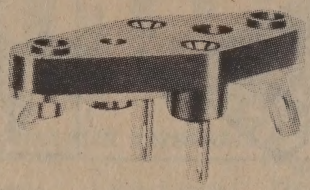
*Tin over copper plated brass outer sleeve.

SG SERIES SELECTIVE GROUNDING FLAT CABLE IDC

Connector assembly and header system for termination of alternating twisted and flat pair ribbon cable; a connector for any new or retrofit design application. Selective grounding of one or several contacts, in any position, provides complete system grounding flexibility for high speed signal packaging designs. Replaces conventional dual cable assembly and header system with a single system; effectively doubles I/O density; permits maximum utilization of PC board space, and substantially reduces total applied cost. Eliminates need to solder to commoning paddle boards; maximizes PC board and wire routing area; totally eliminates labor intensive soldering operations. Permits polarizing and variable keying; provides absolute mis-wiring protection; allows for 16 different custom keying options.

Complete information and pricing on request.

MISCELLANEOUS COMPONENT SOCKETS



8058

8060

8059-2G5

8059-4G4

8059-2G7

8059-2G1

MINIATURE TRANSISTOR SOCKETS

Available with 3 or 4 contacts. Three termination styles: turret, solder pocket (S.P.) or printed circuit (P.C.). Two pin circle diameters: .200" (Prefix 8058) or .100" (Prefix 8060).

POWER TRANSISTOR SOCKETS

Sockets for TO-3 outline with 1 or 2 solder lugs. Available with electro-tin (E.T.) plated or gold-nickel (G.N.) plated contacts with black phenolic insulator or silver plated contacts with diallyl phthalate insulator.

TRANSISTOR AND IC SOCKETS

Available with 3, 4, 8 or 10 contacts with red, blue, green, orange or yellow insulator. Gold plated contacts and sleves.

MINIATURE TRANSISTOR SOCKETS

Augat Number	Termination Style	No. of Contacts	Net Each, Lots of 1-99	100-499	500-999	1000-4999
8058-45G1	Turret	3	$1.35	$1.16	$1.00	$0.85
8058-45G2	Turret	4	1.66	1.43	1.24	1.05
8058-1G25	Turret	3	1.35	1.16	1.00	.85
8058-1G26	Turret	4	1.63	1.40	1.21	1.02
8058-1G29	S.P.	3	1.35	1.16	1.00	.85
8058-1G30	S.P.	4	1.63	1.40	1.21	1.02
8058-1G23	P.C.	3	1.35	1.16	1.00	.85
8058-1G24	P.C.	4	1.63	1.40	1.21	1.02
8060-1G5	S.P.	3	1.11	1.04	.96	.81
8060-1G6	S.P.	4	1.38	1.29	1.20	1.01
8060-1G9	Turret	3	1.11	1.04	.96	.81
8060-1G10	Turret	4	1.38	1.29	1.20	1.01
8060-1G11	P.C.	3	1.11	1.04	.96	.81
8060-1G12	P.C.	4	1.38	1.29	1.20	1.01
8060-1G7	P.C.	3	1.11	1.04	.96	.81
8060-1G8	P.C.	4	1.44	1.34	1.25	1.06
8060-1G3	P.C.	3	1.11	1.04	.96	.81
8060-1G4	P.C.	4	1.44	1.34	1.25	1.06

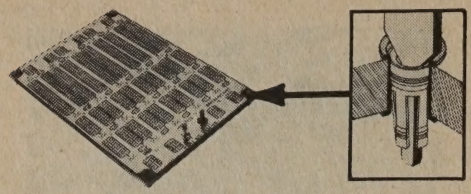
POWER TRANSISTOR SOCKETS

Augat Number	Contact Plating	No. of Contacts	Net Each, Lots of 1-99	100-499	500-999	1000-4999
8080-1G1	E.T.	2 lugs	$0.65	$0.60	$0.56	$0.47
8080-1G2	Silver	2 lugs	.93	.87	.81	.68
8080-1G3	E.T.	1 lug	.65	.60	.56	.47
8080-1G4	Silver	1 lug	.93	.87	.81	.68
8080-1G7	G.N.	2 lugs	.84	.78	.73	.62

TRANSISTOR AND IC SOCKETS

Augat Number	Insulator Color	No. of Contacts	Net Each, Lots of 1-99	100-499	500-999	1000 4999
8059-2G1	Red	3	$0.77	$0.66	$0.57	$0.48
8059-4G4	Blue	4	.98	.84	.73	.62
8059-2G3	Blue	4	.98	.84	.73	.62
8059-2G5	Green	8	1.66	1.43	1.24	1.05
8059-2G7	Orange	8	1.66	1.43	1.24	1.05
8059-2G9	Yellow	10	2.05	1.76	1.52	1.29

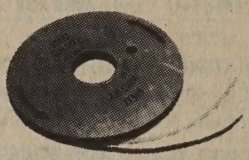
HOLTITE® PRINTED WIRING CONTACTS



Holtite socket contacts press-fit into plated-thru holes in PC board. Lowest socket profile possible. Solderless, gas-tight insertion. 30,000 contact installations per hour. Maximum heat dissipation. Gold over nickel plated beryllium contacts available in small, large and modified large.

Augat Number	Size	Net Each, Lots of 1-99	100-499	500-999	1000-4999
8134-HC-5P2	Small	$0.109	$0.08	$0.058	$0.044
8134-HC-6P2	Large	1.47	1.08	.786	.59
8134-HC-8P2	Mod. Large	1.47	1.08	.786	.59

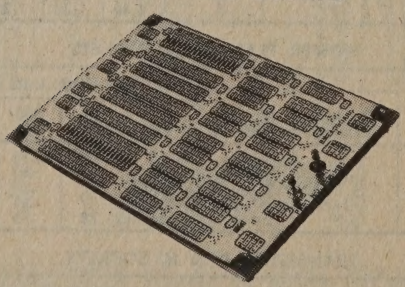
HOLTITE® CONTACT SOCKET STRIPS



Gold-plated contacts, packaged 5,000 per reel. All standard DIP socket patterns, mounted on disposable mylar carrier.

Augat Number	Cont. per Pattern	Net per Reel, Lots of 1-4	5-9	10-24	25-49
.300" ROW SPACING					
322-HCS-5P2-300	Univ.	$221.13	$189.54	$164.27	$139.00
322-HCS-5P2-308	8	221.13	189.54	164.27	139.00
322-HCS-5P2-314	14	221.13	189.54	164.27	139.00
322-HCS-5P2-316	16	221.13	189.54	164.27	139.00
322-HCS-5P2-318	18	221.13	189.54	164.27	139.00
322-HCS-5P2-320	20	221.13	189.54	164.27	139.00
.400" ROW SPACING					
322-HCS-5P2-400	Univ.	$221.13	$189.54	$164.27	$139.00
322-HCS-5P2-422	22	221.13	189.54	164.27	139.00
322-HCS-5P2-424	24	221.13	189.54	164.27	139.00
.600" ROW SPACING					
322-HCS-5P2-600	Univ.	$221.13	$189.54	$164.27	$139.00
322-HCS-5P2-624	24	221.13	189.54	164.27	139.00
322-HCS-5P2-628	28	221.13	189.54	164.27	139.00
322-HCS-5P2-632	32	221.13	189.54	164.27	139.00
322-HCS-5P2-636	36	221.13	189.54	164.27	139.00
322-HCS-5P2-640	40	221.13	189.54	164.27	139.00

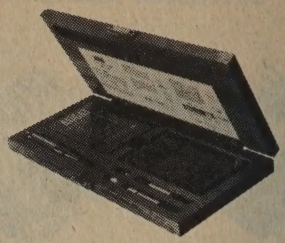
HOLTITE® BREADBOARD



Forty 16-pin patterns. Wire included. Voltage and ground planes or decoupling capacitor connections provided by 80 contact positions. Board size, 9" long × 6 1/2" wide × 1/8" thick.

Augat Number	Description	Net Each, Lots of 1-4	5-9	10-24
8136-HB1-40	Breadboard	$175.86	$150.74	$130.64

HOLTITE® PROTOTYPING KIT



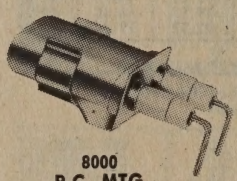
Kit includes two cards (one with 1008 small contacts, one with 196 large contacts), one combination loading tool and no-go gauge for small contacts and one for large contacts, two seating tools (one for small contacts, one for large) and spring-loaded seating tool handle. All contacts gold plated.
Augat No. 398-HK-001 Prototyping Kit—Net Each **$107.61**

HOLTITE® CONTACT SOLDER MASK

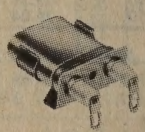
Used to protect Holtite contacts during wave soldering process. Two types available: a water-soluble solution for use with rosin or organic acid fluxes and a chemically-soluble solution for use with all types of fluxes.

Augat Number	Description	Net Each, Lots of 1-4	5-9	10-24
322-HSM-WS1	1 pint, water soluble	$9.19	$7.88	$6.83
322-HSM-WS1-2	1/2 pint, water soluble	7.30	6.26	5.42
322-HSM-CS1	1 pint, chemically soluble	9.19	7.88	6.83
322-HSM-CS1-2	1/2 pint, chemically soluble	7.30	6.26	5.42

CRYSTAL SOCKET ASSEMBLIES



8000
P.C. MTG.



8004
HORIZ. MTG.

8004
P.C. MTG.

STANDARD SOCKETS

P.C. mounting with or without anti-rotate tabs. Copper holding clips. Gold-plated copper or gold-plated bronze contacts.

SUBMINIATURE SOCKETS

Horizontal or printed circuit mounting, with or without anti-rotate tabs. Gold-plated contacts with teflon insulator and copper holding clip or cadmium-plated contacts with nylon insulator and steel holding clip. Type Suffix -5 indicates MIL STD 2425.

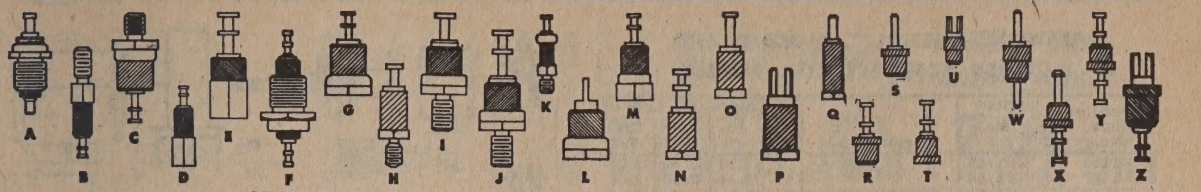
Augat Number	Anti-Rotate Tab	Net Each, Lots of 1-99	100-499	500-999	1000-4999
STANDARD CRYSTAL SOCKETS—P.C. MTG.					
8000-DG1*	Yes	$2.78	$2.59	$2.41	$2.04
8000-DG2-5*	No	2.90	2.70	2.51	2.12
8000-DG3**	Yes	2.28	2.13	1.98	1.67
8000-DG4**	No	2.28	2.13	1.98	1.67
SUBMINIATURE CRYSTAL SOCKETS—HORIZ. MTG.					
8004-1G16	Yes	$2.16	$2.02	$1.87	$1.58
8004-1G17	No	2.16	2.02	1.87	1.58
8004-1G23-5	No	2.90	2.70	2.51	2.12
8004-1G1	Yes	1.40	1.30	1.21	1.02
8004-1G5	Yes	1.02	.87	.75	.64
8004-1G2	No	1.63	1.40	1.21	1.02
8004-1G21-5	No	1.47	1.37	1.27	1.08
8004-1G6	No	1.02	.87	.75	.64
SUBMINIATURE CRYSTAL SOCKETS—P.C. MTG.					
8004-1G3	Yes	$1.63	$1.40	$1.21	$1.02
8004-1G7	Yes	1.02	.87	.75	.64
8004-1G4	No	1.63	1.40	1.21	1.02
8004-1G8	No	1.02	.87	.75	.64

*Gold-plated copper contacts. **Gold-plated bronze contacts. Gold-plated contacts with teflon insulator and copper holding clip. Cadmium plated contacts with nylon insulator and steel holding clip.

CAMBRIDGE THERMIONIC CORPORATION

CAMBION®

INSULATED TERMINALS — PANEL, CHASSIS HARDWARE



STUD-TAPPED AND RIVET-MOUNTING INSULATED TERMINALS

Insulating Material: Teflon for Nos. 1502 thru 1511, 1945 and 1947; phenolic for 1581 and 1795; diallyl for 4810 thru 4895; all others ceramic.

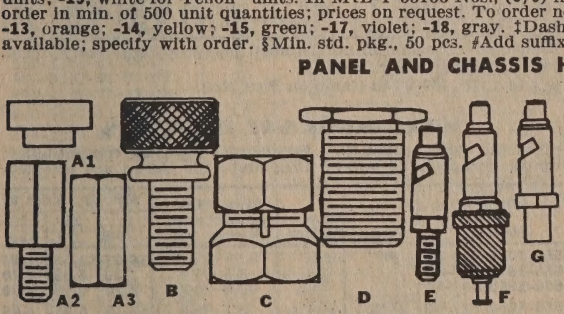
Cambion Number*	MIL-T-55155 Number	Fig.	Net Each, Lots of§ 10-99	100-499	500-999	1000-2499
570-1502-01-05-19	FT20XA01	A	$1.33	$1.02	$0.94	$0.84
570-1503-01-05-19†	SE09(0/9)E01	B	.86	.66	.61	.54
570-1504-01-05-19†	SE09(0/9)E02	B	.86	.66	.61	.54
570-1510-01-05-19†	SE10(0/9)D01	D	.86	.66	.61	.54
570-1511-01-05-19†	SE10(0/9)D02	E	.86	.66	.61	.54
570-1581-01-01-00	.....	C	.86	.66	.61	.54
570-1581-03-01-00	.....	C	.86	.66	.61	.54
570-1581-05-01-00	.....	C	.86	.66	.61	.54
570-1795-01-01-00	.....	F	1.46	1.12	1.04	.92
570-1942-01/02-05‡#	SE21X03/05	C	.92	.71	.65	.58
570-1942-01/02-01‡#	.....	C	.92	.71	.65	.58
570-1945-01-05-19	.....	C	1.23	.95	.87	.77
570-1945-02-05-19	.....	C	1.23	.95	.87	.77
570-1947-01-05-19	.....	G	1.33	1.02	.94	.84
570-1947-02-05-19	.....	G	1.33	1.02	.94	.84
570-1980-01-01-00	.....	I	.88	.68	.62	.55
570-1980-05-01-00	.....	I	.88	.68	.62	.55
570-1983-05-01-00	.....	I	.88	.68	.62	.55
570-1990-01-01-00	.....	F	1.79	1.38	1.27	1.13
570-1990-01-05-00	FT01XA01	F	1.78	1.37	1.26	1.12
570-1992-05-01-00	.....	I	.88	.68	.62	.55
570-1994-01-01-00	.....	J	.88	.68	.62	.55
570-1994-02-01-00	.....	J	.88	.68	.62	.55
570-1995-01-01-00	.....	I	.88	.68	.62	.55
570-2012-01-05-00	FT01XA02	F	3.15	2.43	2.24	1.98
570-2012-01-01-00	.....	F	3.15	2.43	2.24	1.98
570-2045-01/02-05‡#	SE21XE01/2	C	.92	.71	.65	.58
570-2045-01/02-01‡#	.....	C	.92	.71	.65	.58
570-2255-01/03-05‡#	SE22XE01/3	K	.92	.71	.65	.58
570-2255-01/03-03‡#	.....	K	1.16	.89	.82	.73
570-2384-02-01-00	.....	L	1.33	1.02	.94	.84
570-2432-01/02-01‡#	.....	L	1.13	.87	.80	.71
570-3648-01/02-01‡#	.....	M	.92	.71	.65	.58
570-3650-01/02-01‡#	.....	M	.92	.71	.65	.58
572-4810-01-05-16	.....	B	.68	.52	.48	.43
572-4814-01-05-16†	SE20(0/9)D01	N	.77	.59	.55	.49
572-4815-01-05-16	.....	N	.77	.59	.55	.49
572-4820-01-05-16†	SE20(0/9)D02	N	.87	.67	.62	.55
572-4826-01-05-16	.....	N	$0.77	$0.59	$0.55	$0.49
572-4827-01-05-16	.....	N	.77	.59	.55	.49
572-4838-01-05-16†	SE19(0/9)E01	O	.77	.59	.55	.49
572-4862-01-05-16	.....	P	.86	.66	.61	.54
572-4863-01-05-16	.....	P	.86	.66	.61	.54
572-4870-01-05-16	.....	H	.63	.49	.45	.40
572-4872-01-05-16	.....	O	.68	.52	.48	.43
572-4878-01-05-16	.....	O	.68	.52	.48	.43
572-4884-01-05-16	.....	Q	.68	.52	.48	.43
572-4894-01-05-16†	SE18(0/9)E01	H	.63	.49	.45	.40
572-4895-01-05-16†	SE18(0/9)E02	H	.68	.52	.48	.43

TEFLON• PRESS-MOUNT INSULATED TERMINALS

Cambion Number* 571-	MIL-T-55155 Number	Fig.	Net Each, Lots of§ 10-99	100-499	500-999	1000-2499
4015-01-05-19	.....	R	$0.22	$0.21	$0.19	$0.17
4025-01/04-05-19‡	.....	R	.42	.40	.37	.33
4026-01/04-05-19‡	.....	R	.46	.43	.40	.36
4027-01/04-05-19‡	.....	R	.46	.43	.40	.36
4029-01-05-19†	SE08(0/9)B01	S	.38	.36	.33	.30
4033-01/04-05-19‡	.....	T	.46	.43	.40	.36
4034-01/04-05-19‡	.....	T	.46	.43	.40	.36
4051-01-05-19†	SE07(0/9)B01	R	.46	.43	.40	.36
4078-01-05-19	.....	R	.48	.46	.42	.38
4115-01-05-19	.....	R	.58	.55	.51	.45
4132-01-05-19	.....	U	.89	.85	.78	.70
4140-01-05-19†	SE07(0/9)B02	R	.38	.36	.33	.30
4152-01-05-19†	FT05(0/9)B01	S	.48	.46	.42	.38
4176-01-05-19†	FT03(0/9)B02	W	.46	.43	.40	.36
4182-01/03-05-19‡	.....	X	.46	.43	.40	.36
4185-01-05-19†	FT04(0/9)B01	X	.46	.43	.40	.36
4188-01-05-19†	FT03(0/9)B01	W	.38	.36	.33	.30
4193-01-05-19†	FT05(0/9)B03	S	.38	.36	.33	.30
4197-01-05-19†	FT04(0/9)B02	X	.46	.43	.40	.36
4263-01-05-19	.....	Y	.74	.70	.65	.58
4267-01-05-19	.....	Z	.89	.85	.78	.70
4281-01-05-19†	FT03(0/9)B03	W	.46	.43	.40	.36
4410-01-03-19	.....	W	.57	.54	.50	.44

*Suffix **-05** indicates electro-solder plating; **-01**, silver plating; **-03**, gold plating. †Suffix indicates standard color; **-16**, blue for diallyl units; **-19**, white for Teflon• units. In MIL-T-55155 Nos., **(0/9)** indicates range of colors available. Colors other than standard made to order in min. of 500 unit quantities; prices on request. To order nonstandard colors, replace suffix **-16** or **-19** with: **-11**, brown; **-12**, red; **-13**, orange; **-14**, yellow; **-15**, green; **-17**, violet; **-18**, gray. ‡Dash numbers **-01/05** (e.g., 570-1942-**01**-05) indicate varying stud lengths available; specify with order. §Min. std. pkg., 50 pcs. #Add suffix **-00** to Cambion Part No. •Reg. DuPont T.M.

PANEL AND CHASSIS HARDWARE COMPONENTS



MOUNTING STANDOFFS AND SPACERS (FIG. A)

Brass and aluminum swage mount (Fig. A1) or stud mount (Fig. A2) standoffs and spacers (Fig. A3). **1246/7408 Series**—Round; 6/32 tapped standoff section. **1247/7404 and 1249/7406 Series**—Round, thru hole. **1299/7422 Series**—Stud mount; hex, 6/32. **1300/7409 Series**—Round, 4/40 tapped standoff section. **2188/7410 Series**—Round; 2/56 tapped standoff section. **3923/7407 Series**—Round; 8/32 tapped standoff section. **3925/7411 Series**—Round; 8/32 tapped standoff section. **3927/7412 Series**—Hex; 4/40 tapped standoff section. **3928/7413 Series**—Hex; 6/32 tapped standoff section. **3934/7416 Series**—Spacer; hex; 4/40 tapped. **3935/7417 Series**—Spacer; hex; 6/32 tapped. This is a partial listing of more popular sizes. On all items, **for sizes not listed,** order by part no. and **specify above board height and/or board thickness desired.**

Cambion Part No. 350-§§ Brass	Alum.	Above Board Height, Inches	For Board Thickness, Inches	Net Each, Lots of# 10-99	100-499	500-999
1246-09*	7408-09*	.125	1/16	$0.37	$0.28	$0.26
1246-10*	7408-10*	.188	1/16	.37	.28	.26
1246-11*	7408-11*	.250	1/16	.37	.28	.26
1246-13*	7408-13*	.500	1/16	.37	.28	.26
1246-15*	7408-15*	.750	1/16	.37	.28	.26
1246-17*	7408-17*	.125	3/32	.37	.28	.26
1246-19*	7408-19*	.250	3/32	.37	.28	.26
1247-09*	7404-09*	.125	1/16	.37	.28	.26
1247-10*	7404-10*	.188	1/16	.37	.28	.26
1247-11*	7404-11*	.250	1/16	.37	.28	.26
1249-09*	7406-09*	.125	1/16	.37	.28	.26
1249-10*	7406-10*	.188	1/16	.37	.28	.26
1249-11*	7406-11*	.250	1/16	.37	.28	.26
1299-01	7422-01	.375	6/32 stud	.32	.25	.23
1299-02	7422-02	.500	mount	.32	.25	.23
1300-09*	7409-09*	.125	1/16	.37	.28	.26
1300-10*	7409-10*	.188	1/16	.37	.28	.26
1300-11*	7409-11*	.250	1/16	.37	.28	.26
1300-12*	7409-12*	.375	1/16	.37	.28	.26
1300-13*	7409-13*	.500	1/16	.37	.28	.26
1300-17*	7409-17*	.125	1/32	.37	.28	.26
2188-01*	7410-01*	.125	1/32	.37	.28	.26
2188-09*	7410-09*	.125	1/16	.37	.28	.26
3923-09*	7407-09*	.125	1/16	.55	.42	.39
3923-11*	7407-11*	.250	1/16	.55	.42	.39
3925-09†	7411-09†	.125	1/16	.32	.25	.23
3925-11†	7411-11†	.250	1/16	.32	.25	.23
3927-09†	7412-09†	.125	1/16	.32	.25	.23
3927-11†	7412-11†	.250	1/16	.32	.25	.23
3928-09†	7413-09†	.125	1/16	.37	.28	.26
3928-11†	7413-11†	.250	1/16	.37	.28	.26
3934-04	7416-04	.312	Spacer;	.37	.28	.26
3934-05	7416-05	.375	hex; 4-40	.37	.28	.26
3934-06	7416-06	.438	tapped	.37	.28	.26
3935-08	7417-08	.625	Spacer;	.37	.28	.26
3935-10	7417-10	.875	hex; 6-32	.37	.28	.26
3535-11	7417-11	1.000	tapped	.37	.28	.26

*These swage-type standoffs available for board thicknesses of 1/32", 1/16", 3/32", 1/8", 3/16" and 1/4" and above board heights of .125", .188", .250", .375", .500", .625", .750" and 1.000". †These swage-type standoffs supplied in same above board heights, but only for 1/16", 3/32" and 1/8" thick boards. #Minimum standard package is 100 pieces. §§Add **-00-00** to Cambion Part No.

CERAMIC, PHENOLIC, MOLDED AND SHIELDED ASSEMBLY COIL FORMS

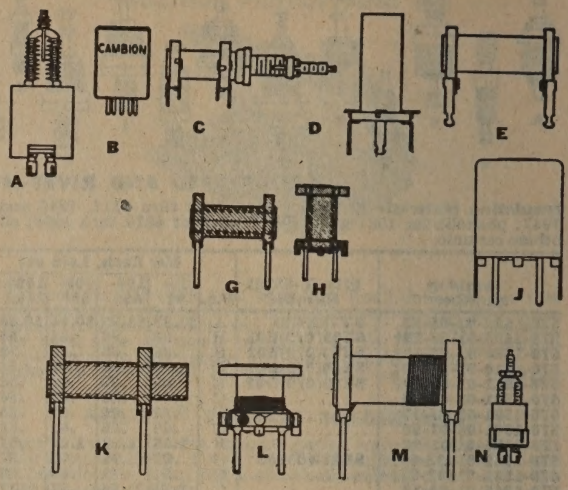
Cambion Part No.	Suffix* No. 1	Suffix* No. 2	Description	Fig.	Net Each, Lots of 10-99	100-499	500-999
533-1165	†	-01/05		A	$3.80	$3.50	$3.10
533-1187	†	-03/04		B	3.00	2.80	2.49
530-1531‡	•	-04/05		C	1.86	1.59	1.39
530-1535‡	•	-01		C	2.30	1.97	1.73
530-1535‡	•	-02/03		C	2.06	1.76	1.54
530-1535‡	•	-04/05		C	1.76	1.51	1.32
530-1536	•	-01		C	2.23	1.92	1.68
530-1536	•	-02/03		C	2.00	1.71	1.50
530-1536	•	-04/05		C	.98	.84	.74
530-2175†	•	-01/02	Ceramic, PC	D	1.02	.87	.76
530-2175‡	•	-03/05		D	2.00	1.71	1.50
530-2270‡	•	-00		E	2.26	1.94	1.69
530-2271‡	•	-00		E	2.77	2.38	2.08
534-3602‡	•	-00	Molded polypro	G	2.81	2.41	2.11
534-3603‡	•	-00		G	2.81	2.41	2.11
534-3609‡	§§	-00	Horiz. PC, polyester	J	2.81	2.41	2.11
534-3613‡	•	-00	3602; no top flange	H	2.77	2.38	2.08
534-3614‡	•	-00	3613, but .48" h.	H	2.81	2.41	2.11
534-3618‡	•	-00	3613 w/solid pins	H	2.77	2.38	2.08
534-3619‡	•	-00	3614 w/solid pins	H	2.81	2.41	2.11
534-3623‡	•	-00	Molded polypro	G	2.77	2.38	2.08
534-3624‡	•	-00		G	2.81	2.41	2.11
534-3706‡	•	-00	3618, but polyester	H	2.02	1.73	1.51
534-3707‡	•	-00	3619, but polyester	H	2.05	1.76	1.54
534-3731	•	-00	Molded diallyl, horiz. PC (Replaces 3104)	G	2.44	2.10	1.83
534-3744‡	§§	-00	3609 w/.34" wdg.	J	2.81	2.41	2.11
534-4460	•	-00	3624; 5 pins	G	2.90	2.48	2.17
534-4461	•	-00	3614; 5 pins	H	2.90	2.48	2.17

*ORDERING INFORMATION

Cambion part numbers must contain full 13 digits; necessary for electronic data processing. Order by Part No., 7 digits, followed by 3 suffixes of 2 digits each: Suffix no. 1 for frequency range, suffix no. 2 for terminal and collar or terminal board type. Since suffix no. 3 does not apply to these items, use **-00** for that suffix. e.g., 530-1531-03-02-**00** for 1531 form with 20-50 MHz slug and with 2 collars with 2 terminals each. Consult chart for desired suffixes.

SUFFIX NO. 1 Dash No.	Slug Color	Freq. Range, MHz	SUFFIX NO. 2 Dash No.	Terminal-Collar Locations	Type Term. Bd. (Shielded Forms)
-01	Yellow	.2–1.5	-01	2 ring terminals	2 term. bd.
-02	Red	1–20	-02	2 collars—2 term. ea.	3 term. bd.
-03	Green	20–50	-03	2 collars—1 term. ea.	4 term. bd.
-04	White	50–200	-04	1 top collar—2 term.	5 term. bd.
-05	Black	100 up	-05	1 bot. collar—2 term.	6 term. bd.
-06	Purple	2–50			
-07	Blue	40–300			
-08	Orange	.1–4.5			
-09	Gray	4.5–15.0			

†Dash Nos. **-01** thru **-04**, **-06** and **-07** only. ♯Dash Nos. **-01** thru **-04** and **-06** thru **-09** only. •Dash Nos. **-01** thru **-07** only. ‡Available without slug; specify by using **-00** for **Suffix No. 1.**
§§Dash Nos. **-01** thru **-09** only.



CAMBION supplies both variable and fixed inductance coils, wound on ceramic or molded forms, or supplied in electromagnetic and electrostatic shielded housings. This listing comprises the more popular items. Ask for complete catalog or for further information if you do not see what you want listed. Variable inductance ranges are supplied in standard EIA 10% overlapping incrementals, within overall ranges shown. Order by part and dash number or specify inductance range wanted if you do not know correct dash number.

STANDARD COILS

Cambion Part Number§§	Fig.	Inductance Range, μH Min.	Max.	Net Each, Lots of 1-9	10-99	100-499
558-1505-01/-04*	N	.55	8.3	$10.30	$7.75	$6.90
558-1505-05/-06*	N	7.8	33.0	11.00	8.25	7.35
558-1505-07/-10*	N	30.0	1000.0	10.00	7.50	6.70
558-1507-01/-07*	N	.11	8.1	10.00	7.50	6.70
558-3387-01/-34*	J	1.27	39.5♯	8.60	6.45	5.75
558-3387-35/-37*	J	47.0♯	120.0♯	10.20	7.65	6.85
556-7105-01/-25†	L	.090	2.97	4.95	3.70	3.30
556-7105-26/-36‡	L	2.97	31.5	5.30	4.00	3.55
556-7105-37/-58‡	L	31.4	254.0	5.50	4.15	3.70
556-7105-59/-73‡	L	254.0	1050.0	5.65	4.25	3.80
558-7107-01/-25*	J	.090	11.0	5.30	4.00	3.55
558-7107-26/-49*	J	12.0	1100.0	6.20	4.65	4.15
556-7120-01/-61§	M	.095	11000.0	7.25	5.45	4.85

*Shielded. †Ceramic form. ‡Molded polypropylene/diallyl form. ♯mH. §Molded diallyl form.
§§Add suffix **-00-00** to Cambion Part No.

MICRO-MINIATURE INDUCTORS

Fixed and variable inductors designed for substrate compatibility. Epoxy encapsulated except 1072 and 1199 Series are shielded.

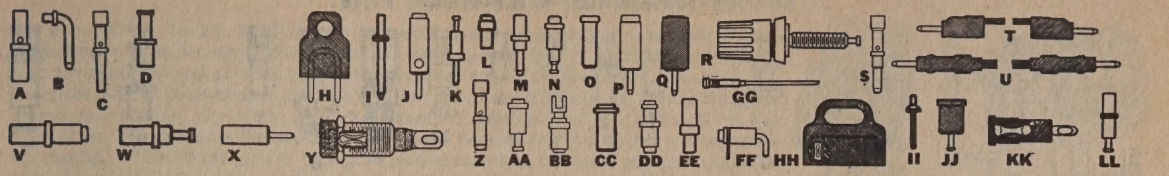
Cambion Part Number	Illus.	Size, Inches	Min.-Max. Inductance Range, μH	Net Ea., Lots of 1-9	10-99	100-499
556-1050-01/-05		.080 dia. x .188	0.06–3.9 / 3.5–95.0 / 90.0–20000.0	$6.05 / 7.00 / 8.20	$4.55 / 5.25 / 6.15	$4.05 / 4.70 / 5.50
556-1050-06/-08						
556-1050-09/-10						
556-1052-01/-08		.100 x .160 x .125*	0.1–95.0 / 90.0–2000.0	11.40 / 12.60	8.55 / 9.45	7.65 / 8.45
556-1052-09/-10						
555-1053-01/-32		.090 x .160 x .125*	0.1–1000.0 / fixed	10.70 / 11.20 / 11.40	8.05 / 8.40 / 8.55	7.15 / 7.50 / 7.65
555-1053-33/-44						
555-1053-45/-49						
555-1054-01/-24		.075 dia. x .170	0.10–3300.0 / fixed	6.00 / 6.95 / 7.30 / 8.10	4.50 / 5.20 / 5.50 / 6.10	4.00 / 4.65 / 4.90 / 5.45
555-1054-25/-37						
555-1054-38/-48						
555-1054-49/-55						
555-1072-01/-12		.125 x .155 x .125	0.1–10,000.0 / fixed	11.90 / 12.70 / 13.60	8.95 / 9.55 / 10.20	7.95 / 8.50 / 9.10
555-1072-13/-44						
555-1072-45/-61						

*1052-7/-10 and 1053-38/-49 size .125" x .160" x .125".
§§Add **-00-00** to Cambion Part No.

CAMBRIDGE THERMIONIC CORPORATION

CAMBION®

MINIATURE PLUG AND JACK CONNECTORS



CAMBION'S wide variety of sizes and shapes of miniature plugs and jacks makes possible tight, space-saving connections; offers reliable "pluggability" for individual components or assemblies and provides unique PC board design possibilities with patching to or from boards. Positive grip, with low contact resistance after many repeated insertions and extractions. Insulated or noninsulated types—units for swaging, dip-soldering, press mount or threaded stud mounting. **To Order:** Use Cambion Type No. (1521); add Dash No. from "Recommended Board Thickness" column to indicate board thickness or patch cord length, as the case may be. Final suffix shown indicates finish; **03,** Gold; **04,** Electro-Tin; **05,** Electro-solder; **08,** Bright Alloy plating.

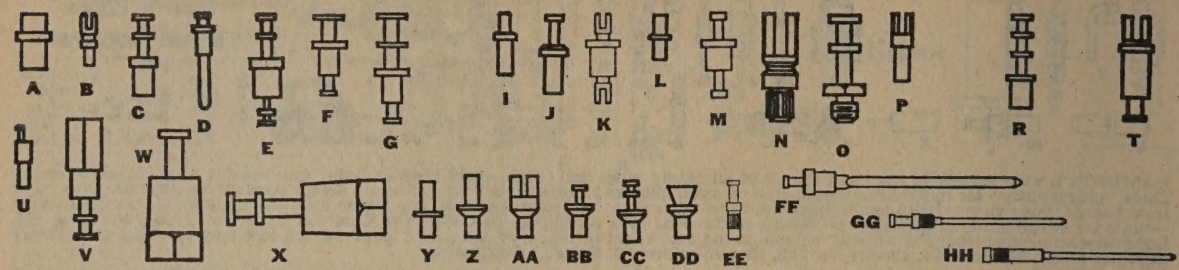
Cambion Type Number	Fig.	Pin Dia.	Description	Recommended Board Thickness per Dash Number					Net Each, Lots of		
				1/32	1/16	3/32	1/8	3/16	10-99	100-499	500-999*
450-0016-01-03-00	A	.062	Jack for patch cord use; MS-3190 crimp barrel, size 16						$ 1.05	$ 0.81	$ 0.75
460-1521-01/03-03-00	B	.040	Pin-plug	-1	-2	-3	.....	.....	227.00♦	212.00‡	186.00Ɪ
465-1781-01-03-00	C	.061	Taper pin	.....	.....	.....	.....	.....	256.00♦	239.00‡	209.00Ɪ
465-2186-01/06-04-00	D	.061	Taper pin	-1	-2	-3	-4	-5•	133.00♦	125.00‡	109.00Ɪ
461-2871-01-03-†	H	.040	Shorting plug; pins on .200″ centers						.38	.29	.27
461-2871-02-03-†	H	.040	Shorting plug; pins on .250″ centers						.38	.29	.27
460-2970-01/03-03-00	I	.040	Pin	-1	-2	-3	.....	.....	99.30♦	92.90‡	81.30Ɪ
460-2971-01/03-03-00	I	.040	Pin	-1	-2	-3	.....	.....	83.20♦	77.80‡	68.00Ɪ
450-3078-01-03-00	J	.025	Plug-jack	-1	-2	-3	-4	.....	.79	.61	.56
460-3202-01/03-03-00	K	.025	Pin	-1	-2	-3	.....	.....	101.00♦	94.30‡	82.50Ɪ
460-3220-01/04-05-00	I	.045	Pin	-1	-2	-3	-4	.....	51.70♦	48.30‡	42.30Ɪ
450-3230-01-03-00	L	.025	Jack for .031″ to .062″ boards						.41	.32	.29
460-3231-01/03-03-00	I	.025	Pin	-1	-2	-3	.....	.....	147.00♦	138.00‡	120.00Ɪ
460-3232-01/03-03-00	I	.040	Pin	-1	-2	-3	.....	.....	117.00♦	109.00‡	95.80Ɪ
460-3233-01/03-03-00	I	.040	Pin	-1	-2	-3	.....	.....	97.80♦	91.40‡	80.00Ɪ
450-3263-01/04-03-00	M	.025	Plug-jack	-1	-2	-3	-4	.....	1.08	.83	.77
450-3266-01/04-03-00	N	.016/.020	Jack-term.	-1	-2	-3	-4	.....	.95	.73	.67
450-3268-01-03-00	O	.016/.020	Jack for .031″ to .156″ boards						.41	.32	.29
450-3278-01-03-00	P	.040/.080	Plug-jack adapter						.61	.47	.43
450-3279-01-03-10	Q	.040/.080	Insulated 3278						1.05	.81	.75
450-3284-01-03-*	R	.040	Insulated binding post with insulated jack						1.29	.99	.92
450-3285-01-03-*	R	.080	Insulated binding post with insulated jack						1.61	1.24	1.14
450-3286-01-03-00	CC	.040	Jack same as 3388, but with thru-hole						.37	.28	.26
450-3293-01-03-00	L	.025	Jack same as 3230, but with thru-hole						.37	.28	.26
460-3299-01/03-03-00	S	.080	Crimp-barrel plug; pin lgth.: -1 (.200″) -2 (3⁄16″) -3 (1⁄2″)						296.00♦	277.00‡	243.00Ɪ
445-3300-01/03-03-†	T	.040	Patch cord	-1 (2″)	-2 (4″)	-3 (6″)	.....	.....	2.39	2.04	1.79
445-3300-04/05-03-†	T	.040	Patch cord	.....	.....	.....	-4 (8″)	-5 (12″)	2.49	2.14	1.87
450-3301-01-03-10	T	.040	Patch cord—"Piggy-back assembly"						1.05	.81	.75
445-3306-02/03-03-†	U	.040	Patch cord	.....	-2 (4″)	-3 (6″)	.....	.....	1.50	1.28	1.12
445-3306-04/05-03-†	U	.040	Patch cord	.....	.....	.....	-4 (8″)	-5 (12″)	1.71	1.47	1.29
460-3308-01-03-00	O	.040	Pin—I. D. for wire						256.00♦	240.00‡	210.00Ɪ
450-3309-01/04-03-00	V	.025/.040	Jack-jack	.....	-1	-2	-3	-4	1.28	.99	.91
450-3310-01/05-03-00	M	.040	Plug-jack	-1	-2	-3	-4	-5	1.08	.83	.77
450-3320-01/05-03-00	W	.040	Jack-term.	-1	-2	-3	-4	-5	.95	.73	.67
450-3324-01/05-03-00	W	.062	Jack-term.	-1	-2	-3	-4	-5	.95	.73	.67
450-3327-01-03-00	X	.025	Plug-jack adapter—.025 pin/.040 jack dia.						.61	.47	.43
450-3358-01-03-*	Y	.080	Nylon-insulated jack (MS16108-1C thru -11C)						1.25	.96	.89
450-3359-01-03-19	Y	.080	Teflon®-insulated jack (MS16108-12C)						.96	.74	.68
450-3367-01-03-00	Z	.040	Jack for patch cord usage						.90	.69	.64
460-3368-01-03-00	S	.062	Pin-crimp barrel plug for patch cord use						276.00♦	258.00‡	226.00Ɪ
450-3375-02/05-03-00	AA	.025	Rivet-type jack-ter.	.....		-2	-3	▪	.95	.73	.67
450-3378-01-03-10	Z	.040	Jack for patch cord usage with 3367 jack						1.08	.83	.77
450-3379-02/05-03-00	BB	.040	Jack-term.	.....	-2	-3	-4	-5	1.38	1.06	.98
450-3381-01-03-*	Y	.080	Nylon-insulated jack (MS16108-1A thru 11A)						1.25	.96	.89
450-3382-01-03-19	Y	.080	Teflon-insulated jack (MS16108-12A)						1.05	.81	.75
450-3388-01-03-00	CC	.040	Jack for .031″ to .156″ boards						.41	.32	.29
445-3389-02/03-03-†	T	.025	Patch cord	.....	-2 (4″)	-3 (6″)	.....	.....	2.39	2.04	1.79
445-3389-04-03-†	T	.025	Patch cord	.....	.....	.....	-4 (8″)	.....	2.49	2.14	1.87
450-3390-01-03-10	S	.025	Plug-jack patch cord assembly with 3078 plug-jack						.86	.66	.61
445-3391-02/05-03-†	T	.080	Patch cord	.....	-2 (4″)	-3 (6″)	.....	.....	4.80	4.10	3.60
450-3392-01/04-03-00	DD	.040	Jack-jack	.....	-1	-2	-3	-4	1.38	1.06	.98
460-3393-01/04-03-00	I	.025	Pin	-1	-2	-3	-4	.....	90.10♦	84.20‡	73.70Ɪ
450-3394-01/04-03-00	EE	.025	Jack	-1	-2	-3	-4	.....	.78	.60	.55
450-3398-01-03-00	CC	.080	Jack for .031″ to .250″ boards						.90	.69	.64
450-3422-01-03-00	FF	.040	Side mount jack for boards to .078″ max.						1.10	.85	.78
450-3703-01-03-00	CC	.025	Jack for .031″ to .094″ boards						.37	.28	.26
450-3704-01-03-00	CC	.040	Jack for .031″ to .156″ boards						.37	.28	.26
445-3705-01/03-03-††	T	.040	Molded patch cord	-1 (2″)	-2 (4″)	-3 (6″)	.....	.....	2.60	2.23	1.95
445-3705-04/05-03-††	T	.040	Molded patch cord	.....	.....	.....	-4 (8″)	-5 (12″)	2.81	2.41	2.11
450-3750-01-03-00	O	.022 flat	Jack for .031″ to .188″ boards						.37	.28	.26
461-3771-01-03-†	H	.040	Shorting plug; pins on .400″ centers						.51	.39	.36
461-3771-02-03-†	H	.040	Shorting plug; pins on .500″ centers						.51	.39	.36
450-3772-01/02-03-00	O	.016/.020	Jack for .031″ to .188″ boards; -2 has thru-hole						.37	.28	.26
450-3844-01-03-00	GG	.018 flat	Jack/Wire Wrap term. for .062″ to .188″ boards						.84	.65	.60
450-3888-01-03-00	FF	.080	Side mount jack for .125″ max. board thickness						1.95	1.50	1.38
460-3889-01-03-00	II	.025	Pin for 1⁄32″ board thickness						114.00♦	107.00‡	93.20Ɪ
450-4352-01-03-§	JJ	.040	Teflon-insulated jack for .031″ to .094″ boards						.90	.69	.64
450-4353-01-03-§	JJ	.040	Teflon-insulated jack for .031″ to .094″ boards						.90	.69	.64
450-4354-01-03-§	KK	.080	Teflon-insulated jack for .031″ to .125″ boards						1.17	.90	.83
450-4355-01-03-§	KK	.080	Teflon insulated jack for .031″ to .125″ boards						.66	.51	.47
450-7004-01-03-00	O	.030	Jack for .031″ to .188″ boards						.41	.32	.29
450-7005-01/05-03-00	LL	.030	Jack	-1	-2	-3	-4	-5	.95	.73	.67

*Available with black (suffix **10**) or red (suffix **12**) insulation. †Available with black (suffix **10**), red (suffix **12**) or blue (suffix **16**) wire insulation. §Available with black (suffix **10**), red (suffix **12**) or white (suffix **19**) insulation. ♦Reg. DuPont TM. •Use **-6** for 1⁄4″ bd. thickness. ▪Order **-4** for 5⁄32″ bd. thickness, **-5** for 7⁄32″ bd. thickness. ◆Reg. Gardner-Denver TM. ♦Per 1000, lots of 1000-4999. ‡Per 1000, lots of 5000-9999. ɪPer 1000, lots of 10,000-24,999. ††Available in all colors, suffix 10 through 19.

***Larger Quantity Prices on Request. SEND FOR CAMBION CATALOG FOR DATA ON ALL PRODUCTS.**

CURRENT PRICES WILL APPLY ON ALL LINES

SOLDER TERMINALS, WIRE-WRAP† PINS



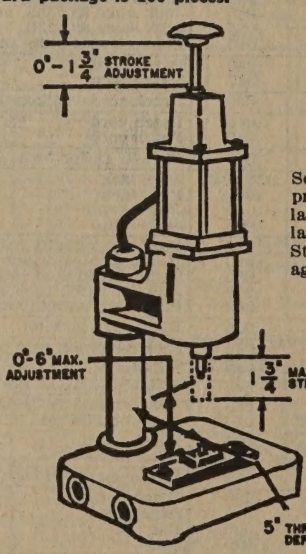
CAMBION offers a full line of all styles and sizes of standard solder terminals: Single and double turret, slotted, castellated, forked and others. The most popular types are listed. Prices shown are for the following standard platings: Plating code suffix **01-**, silver; **-04**, electro-tin; **-05**, electro-solder. Other platings available; prices on request. Order by Cambion Part No. with correct dash number for desired board thickness, followed by plating code suffix and **-00.**

Dash No. Suffix	Board Thickness	Dash No. Suffix	Board Thickness	Dash No. Suffix	Board Thickness
-01	1/32"	-03	3/32"	-05	3/16"
-02	1/16"	-04	1/8"		

Cambion Part No.§§	Plating Code Suffix	Fig.	Mtg. Dia., In.	Description	Net/1000, Lots 1000-4999	5000-9999
465-1015-02/04	-04	A	.053	Taper recep.	$101.00	$ 94.30
140-1018-01/02	-01	B	.047	Thru hole	71.60	67.00
140-1019-01/03	-01	B	.047	Thru hole	79.30	74.20
140-1025-02	-01	B	.112	Slotted	249.00	233.00
160-1026-01/04	-01	C	.090	Turret	56.70	53.10
120-1031-02	-01	D	.072	Turret	106.00	99.40
120-1032-01/02	-01	D	.062	Turret	66.10	61.80
160-1035-02/03	-01	E	.125	Feed thru	96.30	90.00
160-1041-02/03	-01	F	.090	Turret	80.90	75.60
160-1042-02/03	-01	G	.090	Turret	104.00	97.20
160-1043-02/04	-01	E	.090	Turret	104.00	97.20
120-1132-02/03	-04	I	.060	Pin	149.00	139.00
160-1245-02/03	-01	J	.112	Turret	163.00	153.00
140-1384-01/04	-05	K	.116	Dbl. slot ends thru-hole	129.00	121.00
160-1457-01/04	-01	J	.078	Turret	50.20	46.90
180-1459-02	-05	L	.039	PC eyelet	48.30	45.10
180-1460-02	-05	L	.046	thru hole	48.30	45.10
180-1461-02	-05	L	.050		48.30	45.10
180-1462-02	-05	L	.059		48.30	45.10
160-1463-01/02	-01	M	.116	Domed Turret	69.40	64.90
160-1464-02/04	-05	M	.116	Tur. MIL-T-55155, SE13-XC04, 5, 6	52.40	49.00
160-1548-01/05	-01	C	.112	Turret	70.70	66.10
160-1558-01/05	-01	C	.090	Turret	51.40	48.10
140-1578-02/04	-01	N	.150	Knurled	138.00	129.00
160-1579-02/04	-01	G	.202	Feed thru	150.00	140.00
160-1582-02	-01	O	4-40	Round base	148.00	138.00
160-1597-01/05	-01	C	.090	Turret	56.70	53.10
160-1604-02	-01	J	.062	Turret	60.30	56.40
160-1724-01/04	-01	C	.112	Turret	79.30	74.20
140-1783-04	-01	N	.135	Knurled	217.00	203.00
140-1784-02/04	-01	N	.112	Knurled	123.00	115.00
140-1785-01/04	-01	P	.062	Forked	68.20	63.80
160-1797-01/04	-01	J	.110	Turret	76.60	71.60
160-1798-02	-01	C	.135	Turret	112.00	105.00
140-1941-02	-01	P	.071	Thru hole	69.60	65.10
140-1969-01/05	-01	P	.112	Thru hole	101.00	94.30
160-2000-01/04	-01	G	.090	Feed thru	75.80	70.90
160-2004-01/04	-01	E	.090	Feed thru	74.60	69.80
160-2027-01/04	-01	J	.071	Thru hole	67.50	63.10
160-2034-01/04	-01	C	.090	Turret	79.30	74.20
160-2040-01/04	-01	E	.072	Turret	80.90	75.60
160-2041-01/03	-01	J	.072	Turret	51.40	48.10
160-2042-01/02	-01	F	.072	Turret	55.60	52.00
160-2043-01/04	-01	C	.072	Turret	53.00	49.50
160-2044-01/04	-01	G	.072	Turret	58.40	54.60
160-2051-01/02	-01	O	4-40	Hex base	166.00	155.00
160-2080-01/04	-01	R	.090	Turret	70.60	66.00
160-2084-02/04	-01	R	.112	Turret	134.00	125.00
160-2085-01/04	-01	J	.047	Turret	44.00	41.20
140-2086-02/03	-01	T	.122	Thru hole	132.00	123.00
140-2089-01/04	-01	B	.047	Thru hole	86.20	80.60
160-2100-01/03	-01	J	.062	Thru hole	67.50	63.10
160-2141-02/04	-01	F	.116	Thru hole	138.00	129.00
140-2154-01	-01	U	.047	Half turret	142.00	133.00
465-2186-02/04	-04	J	.053	Taper recep.	133.00	125.00
140-2187-01/02	-05	B	.032	Slotted	56.10	52.40
170-2345-03	-01	V	.125	Term.-spacer	213.00	199.00
160-2380-01	-05	W	4-40	Tapped mt.	221.00	207.00
160-2381-01	-05	X	4-40	Tapped mt.	219.00	204.00

Cambion Part No.§§	Plating Code Suffix	Fig.	Mtg. Dia., In.	Description	Net/1000, Lots 1000-4999	5000-9999
180-2750-02/04	-05	Y	.060	PC pin	$ 49.30	$ 46.10
180-2751-02/04	-05	Z	.060	PC pin	49.30	46.10
180-2752-02/04	-05	AA	.060	PC thru hole	73.00	68.30
180-2753-02/03	-05	BB	.060	PC turret	49.30	46.10
180-2754-01/04	-05	CC	.060	PC turret	49.30	46.10
180-2755-02/03	-05	DD	.060	PC thru hole	49.30	46.10
180-2926-02	-05	AA	.060	PC flared	122.00	114.00
160-3653-01/03	-01	C	.062	Turret	55.70	52.10
155-3748-02	-04	FF	.090	.045 sq. swage mt.†	175.00	163.00
155-3848-01	-03*	GG	.056	.025 sq.	274.00	256.00
155-3848-01	-04	GG	.056	feed-thru†	150.00	140.00
155-3854-01	-03*	HH	.058	.025 sq.	283.00	264.00
155-3854-01	-04	HH	.058	press mt.†	156.00	146.00
155-3866-01	-03*	GG	.058		256.00	240.00
180-7336-01/04	-05	BB	.060	PC flared; red	49.00	45.90
180-7337-01/04	-05	CC	.060	lead brass/	50.30	47.00
180-7338-01/04	-05	AA	.060	ASTMB-140	80.10	74.90

*Gold plating. †Wire-Wrap (Reg. Gardner-Denver TM). ‡Knurled mt. Additional quantities available on request. **Minimum standard package is 100 pieces.**



TYPE 3804-7 SOLENOID SWAGER WITH SWEEPGUARD AND FOOT SWITCH

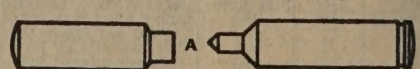
Semi-automatic staker designed primarily for requirements too large for hand swaging, yet not large enough to require a Hopper Staker machine. A variable voltage autotransformer of at least 5 ampere size, 50–60 Hz, 115 volts AC, required but not furnished or included in price. Size, 25" H. (approximate) x 10" square base.

Cambion Part No. 435-3804-07-00-00 Solenoid Swager with Sweepguard and Foot Switch Net Each **$1200.00**

HAND SWAGER

Designed for quick, uniform swaging of solder terminals on terminal boards. Adjustable to a wide range of terminal board thicknesses. Swaging in place as far as 1 1/8" from board edge. Less tooling.

Cambion Part No. 435-3303-01-00-00— 5" throat. Net Each..... **$167.00**



SWAGING TOOLS

Cambion Part No. 435-64XX-01/05-00-00— Anvil (Fig. A). Net Each..... **$15.90**

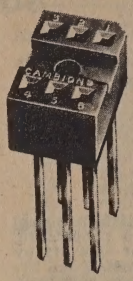
Cambion Part No. 435-66XX-01/04-00-00— Punch (Fig. B). Net Each..... **$15.90**

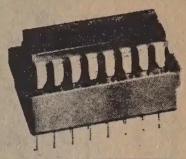
Cambion Part No. 435-6098-01/06, 08-00-00— Adapter for converting to hand set use. Net Each..... **$15.90**

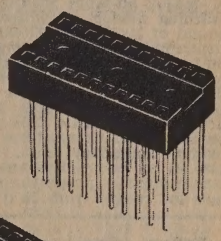
SEND FOR COMPLETE CAMBION CATALOG FOR FULL DATA ON ALL CAMBION PRODUCTS

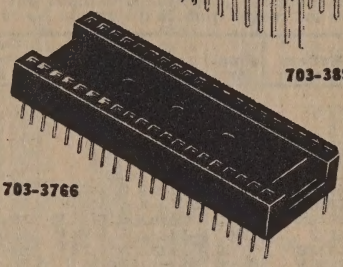
DUAL IN-LINE IC SOCKETS

For 6, 8, 14, 16, 18, 22, 24, 36 and 40 pin dual in-line integrated circuits with either Wire-Wrap* or solder-tab terminations. One-piece molded diallyl insulators withstand high temperatures and provide excellent mechanical stability (Nos. -3777 and -3778 are one-piece molded glass-filled nylon with anti-moisture bosses). Phosphor bronze contacts accept flat or round pins up to .024" dia. Standard terminal plating is **-03** gold for all Wire-Wrap; **-04** electrotin for all solder tab sockets. Sockets can be supplied with electrotin plating or Wire-Wrap pins or with gold plating on solder tab pins; prices on request. May be permanently mounted individually (rivet or screw) or press-mounted in PC boards or panels for production of breadboarding. Metric dimensional sockets for standard 14 and 16 pin DIPs are also available. *Reg. Gardner-Denver Co. TM.



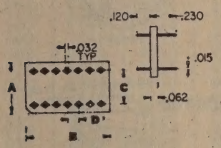






Cambion Part No.	No. Contacts	Terminals	Inches: Overall Length	Inches: Term. Grid	Net Each, Lots of: 10-99	100-499	500-999	1000-2499
703-3771-01-04-16	6	Solder tab	.334	.100 x	$0.36	$0.32	$0.29	$0.26
703-3881-01-03-16	6	Wire-Wrap	.334	.300	.40	.35	.32	.29
703-3772-01-04-16	8	Solder tab	.434		.49	.43	.39	.36
703-3882-01-03-16	8	Wire-Wrap	.434		.52	.46	.42	.38
703-3777-01-04-12	14	Solder tab	.780		.86	.76	.68	.63
703-3788-01-04-16	14	Solder tab	.784		.86	.76	.68	.63
703-3897-01-03-16	14	Wire-Wrap	.784		.92	.82	.73	.67
703-3778-01-04-12	16	Solder tab	.834		.97	.86	.78	.71
703-3789-01-04-16	16	Solder tab	.884		.97	.86	.78	.71
703-3898-01-03-16	16	Wire-Wrap	.884		1.05	.94	.84	.77
703-3787-01-04-16	18	Solder tab	.934		1.09	.97	.87	.80
703-3895-01-03-16	18	Wire-Wrap	.934		1.18	1.05	.94	.86
703-3785-01-04-16	22	Solder tab	1.180	.100 x	1.34	1.19	1.07	.98
703-3892-01-03-16	22	Wire-Wrap	1.180	.400	1.45	1.29	1.16	1.06
703-3790-01-04-16	24	Solder tab	1.280	.100 x	1.47	1.30	1.17	1.08
703-3896-01-03-16	24	Wire-Wrap	1.280	.600	1.58	1.40	1.26	1.16
703-3783-01-04-16	28	Solder tab	1.480		1.70	1.51	1.36	1.25
703-3890-01-03-16	28	Wire-Wrap	1.480		1.84	1.63	1.47	1.35
703-3791-01-04-16	36	Solder tab	1.880		2.20	1.95	1.76	1.61
703-3893-01-03-16	36	Wire-Wrap	1.880		2.36	2.10	1.89	1.73
703-3766-01-04-16	40	Solder tab	2.080		2.43	2.16	1.94	1.78
703-3885-01-03-16	40	Wire-Wrap	2.080		2.63	2.34	2.10	1.93

COMPONENT SOCKET ADAPTERS



Component adapters plug into standard 14, 16, 24 or 36 pin dual in-line sockets as well as CAMBION's Integrated Socket strip. Larger width sizes for wider components straddle two sockets or socket strips. Terminal pairs are on .100" or .200" grid centers for varying component sizes; slotted for ease of parts mounting. Terminal is phosphor bronze, spring tempered per QQ-B-750 Comp. A. Finish is hard gold plate. Board material, .062" type GEE glass epoxy per MIL-P-18177.

Cambion Part Number 702-	Dimensions, Inches: Board A	Board B	Terminal Centers C	Terminal Centers D	*	Net Each, Lots of: 10-99	100-499	500-999
3723-01-03-00	.450	.750	.300	.200	8	$1.51	$1.05	$0.96
3724-01-03-00	.950	.750	.800	.200	8	1.51	1.05	.96
3725-01-03-00	.450	.750	.300	.100	14	2.19	1.53	1.39
3726-01-03-00	.950	.750	.800	.100	14	2.19	1.53	1.39
3728-01-03-00	.450	.850	.300	.100	16	2.67	1.86	1.70
3730-01-03-00	.950	.850	.800	.100	16	2.67	1.86	1.70
3732-01-03-00	.750	1.235	.600	.200	12	1.95	1.36	1.24
3734-01-03-00	.750	1.835	.600	.200	18	3.10	2.18	1.98

*No. of terminals.

LOGIC FUNCTION CARDS

CAMBION offers a complete line of logic function cards, all of which may be used with above standard, 4½" h., "714" and "715" series Wire-Wrap cards. Write for complete information on logic function cards.

WRITE FOR FREE CAMBION CATALOG

FOR COMPLETE LISTING OF ALL

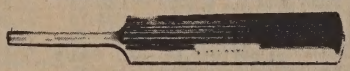
CAMBION PRODUCTS

PRECUT AND STRIPPED WIRE KIT

For wire-wrapping. Solid copper 30 AWG white insulated Kynar* wire, silver plated, ends stripped to tolerance. Kit contains 13 pkgs. of varied lengths from 1" thru 9". Per pkg.: 1" thru 4.5", 100 pcs.; 5" thru 9", 50 pcs. Also available 1.0" thru 25.0" lengths in black, red and white insulation on request.
*Reg. Pennsalt Chemicals Corp. TM.

Cambion Part No. 718-1010-01-01-19—Net per Kit.... **$32.70**

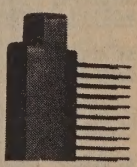
HAND WIRE WRAP TOOL



For wrapping solid copper 30 AWG wire. Low cost alternative to power equipment suitable for use in field repairs and by hobbyists and experimenters. Molded glass filled nylon. Size, 3.225" x .480" dia.

Cambion Part No. 435-1816-01-00-16—Net Each..... **$4.00**

70 PIN CARD CONNECTOR



Cambion Part No.§§	Terminals	Net Each, Lots of: 1-9	10-24	25-49
706-7029-01	Solder lug	$9.05	$8.50	$8.15
706-7015-01*	Wire-Wrap	8.95	8.40	8.05

*For use with CAMBION Power Planes. §§Add suffix **-00-00** to Cambion Part No.

IC INSERTION-EXTRACTION TOOL

Handy tool properly positions integrated circuits for insertion or extraction by securely gripping the IC between the leads and under the body. Practically any IC with 14 or 16 leads aligned on 0.300" centers can easily be inserted or extracted regardless of tight packaging and without damage to the fragile IC leads. Basic material of insertion-extraction tool is plastic.

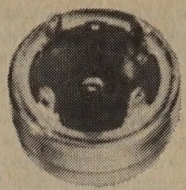
Cambion Part No. 706-3739-01-00-00
Net Each, 1-4..... **$1.76**; 5-9..... **$1.58**
Net Each, 10-24..... **1.46**

.159 LOW PROFILE IC SOCKETS WITH KAPTON® SEALS

Cambion No.	No. Pins	Net Each, Lots of: 10-99	100-499	500-999	1000-2499
703-5308-01-04-12	8	$0.37	$0.30	$0.25	$0.19
703-5314-01-04-12	14	.65	.53	.44	.34
703-5316-01-04-12	16	.71	.58	.48	.37
703-5318-01-04-12	18	.81	.66	.54	.42
703-5322-01-04-12	22	.99	.81	.66	.51
703-5324-01-04-12	24	1.08	.89	.72	.56
703-5328-01-04-12	28	1.26	1.03	.84	.66
703-5340-01-04-12	40	1.80	1.48	1.21	.94
703-5364-01-04-12	64	4.90	4.00	3.30	2.55

®Reg. TM Dupont.

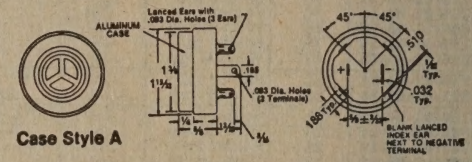
SONALERT® ELECTRONIC SIGNALS



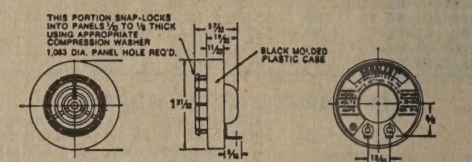
A major advance in the audible signal warning devices. Produces a penetrating sound of 1900, 2900, 3500 or 4500 Hz by utilizing the piezoelectric principle. All circuitry is solid state for maximum efficiency, lowest current requirement and high reliability. Silicon transistor oscillator drives piezoelectric transducer to produce the desired output tone. The physical characteristics of the transducer determines the output frequency; and, this cannot be altered by external means. Output intensity is directly proportional to input voltage and ranges from 55 dB at min. to 95 dB at max. C. Draws only 28 mA max. (less than an indicator lamp), there are no mechanical points to arc and require maintenance, and there is no RF field generated. The Sonalert will operate in ambient temperatures from −30° C to +65° C; and, because of its solid state design, it is reliable, with a life expectancy of 10,000 hours. Used in computer systems in which stray RF could cause false readouts; in portable mine detectors in which ruggedness, minimum current and maximum reliability are prime considerations; also in aerospace projects requiring maximum efficiency and reliability. Sonalert is also used in volatile atmospheres where high density gas vapor could cause explosion. All have special silicon transistors and nylon case. Screw can be removed and solder or arkless quick-connect connections can be made. Max. panel thk. ¼". No detailed MIL spec but widely used in military and aerospace applications; ask for Bulletin 4-10-03 for additional details. For a 48-page booklet on Sonalert uses, request Mallory Form 9-406.

Mallory Number	Freq. Hz*	Operating Power#	Sound Intensity dB	Case Style	Net Each
CONTINUOUS TONE—DC ONLY					
SC1.5	3500	4 mA @ 1.5 V	60 @ 1.5 V	A	$ 6.33
SC6	3500	12 mA @ 6.0 V	70 @ 6.0 V	A	6.33
SC12	3500	14 mA @ 12 V	70 @ 12 V	A	6.33
SC18	3500	16 mA @ 18 V	70 @ 18 V	A	6.33
SC24	3500	16 mA @ 24 V	70 @ 24 V	A	6.33
SNP428	2900	2-14 mA @ 4-28 V	64-78	B	6.33
SNP428F	2900	.5-3 mA @ 4-28 V	55-70	B	6.33
SC616N	2900	4-16 mA @ 6-16 V	80-95	C	9.39
SC628	2900	3-14 mA @ 6-28 V	68-80	C	7.47
SC628D	1900	3-14 mA @ 6-28 V	60-75	C	8.12
SC628E	1900	3-8 mA @ 6-28 V	55-68	C	8.12
SC628F	2900	.5-3 mA @ 6-28 V	55-70	C	7.47
SC628H	4500	3-14 mA @ 6-28 V	68-80	C	8.12
SC628L	2900	3-14 mA @ 6-28 V	68-80	C-3	7.47
SC648	2900	3-14 mA @ 10-48 V	68-80	C	7.47
SC648D	1900	3-14 mA @ 10-48 V	60-75	C	8.12
SC648H	4500	3-14 mA @ 10-48 V	68-80	C	8.12
FAST PULSE—DC ONLY					
SC616NP	2900	4-16 mA @ 6-16 V	80-95	C	$10.74
SC616P	2900	1-4 mA @ 6-16 V	68-78	C-1	10.74
SC616P-1	2900	1-4 mA @ 6-16 V	68-78	C-2	10.74
SC628P§	2900	3-14 mA @ 6-28 V	68-80	D	12.14
SC628DP	1900	3-14 mA @ 6-28 V	60-75	D	12.14
SC628FP§	2900	3-14 mA @ 6-28 V	55-70	D	12.14
SC628HP	4500	3-14 mA @ 6-28 V	68-80	D	13.93
SLOW PULSE—DC ONLY					
SC616NJ	2900	4-16 mA @ 6-16 V	80-95	C	$10.74
SC616J	2900	1-4 mA @ 6-16 V	68-78	C-1	10.74
SC616J-1	2900	1-4 mA @ 6-16 V	68-78	C-2	10.74
SC628J§	2900	3-14 mA @ 6-28 V	68-80	D	12.14
SC628DJ	1900	3-14 mA @ 6-28 V	60-75	D	12.14
SC628EJ	1900	3-8 mA @ 6-28 V	55-68	D	12.14
SC628FJ§	2900	3-14 mA @ 6-28 V	55-70	D	12.14
SC628HJ	4500	3-14 mA @ 6-28 V	68-80	D	13.93
FAST WARBLE—DC ONLY					
SC628W	2900	3-16 mA @ 6-28 V	68-80	D-1	$12.14
SC628FW	2900	3-14 mA @ 6-28 V	55-70	D-1	12.14
SLOW WARBLE—DC ONLY					
SC628JW	2900	3-16 mA @ 6-28 V	68-80	D-1	$12.14
SC628FJW	2900	3-14 mA @ 6-28 V	55-70	D-1	12.14
REPEATING CHIME—DC ONLY					
SC616CP	2900	3-8 mA @ 6-16 V	68-80	D	$13.14
CONTINUOUS TONE—AC/DC					
SC628A	2900	4-16 mA @ 6-28 V	68-80	D	$10.74
SC110	2900	4-16 mA @ 30-120 V	68-80	D	10.74
SC110D	1900	4-16 mA @ 30-120 V	60-75	D	12.14
SC110E	1900	3-14 mA @ 30-120 V	55-65	D	12.14
SC110F	2900	1-4 mA @ 30-120 V	55-70	D	10.74
SC110H	4500	4-16 mA @ 30-120 V	68-80	D	13.93
SC110N	2900	8-28 mA @ 30-120 V	80-95	D	13.93
SC250	2900	4-16 mA @ 60-250 V	68-80	D	10.74
FAST PULSE—AC/DC					
SC628AP	2900	4-16 mA @ 6-28 V	68-80	E	$16.02
SC110P§	2900	4-16 mA @ 30-120 V	68-80	E	16.02
SC110DP	1900	4-16 mA @ 30-120 V	60-75	E	16.02
SC110EP	1900	3-14 mA @ 30-120 V	55-68	E	16.02
SC110FP§	2900	4-16 mA @ 30-120 V	55-70	E	16.02
SC110HP	4500	4-16 mA @ 30-120 V	68-80	E	16.02
SC110NP	2900	8-28 mA @ 30-120 V	80-95	E	16.02
SLOW PULSE‡—AC/DC					
SC628AJ	2900	4-16 mA @ 6-28 V	68-80	E	$16.02
SC110J§	2900	4-16 mA @ 30-120 V	68-80	E	16.02
SC110DJ	1900	4-16 mA @ 30-120 V	60-75	E	16.02
SC110EJ	1900	3-14 mA @ 30-120 V	55-68	E	16.02
SC110FJ§	2900	4-16 mA @ 30-120 V	55-70	E	16.02
SC110HJ	4500	4-16 mA @ 30-120 V	68-80	E	16.02
SC110NJ	2900	8-28 mA @ 30-120 V	80-95	E	16.02

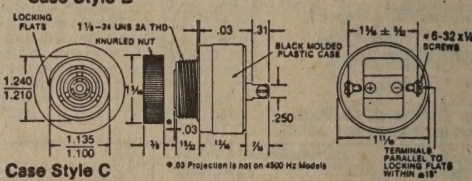
*Tolerance, ±500 Hz. #Ranges given are minimum and maximum. †Fast pulse models turn on and off at 2 to 9 Hz depending upon voltage at 50% duty cycle. ‡Slow pulse models turn on and off at 0.5 to 2 Hz depending upon voltage at 50% duty cycle. §Also available as a short pulse model; ask for details.


ALUMINUM CASE
Lanced Ears with .093 Dia. Holes (3 Ears)
.093 Dia. Holes (3 Terminals)
BLANK LANCED INDEX EAR NEXT TO NEGATIVE TERMINAL

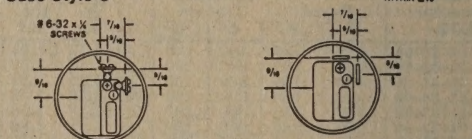
Case Style A


THIS PORTION SNAP-LOCKS INTO PANELS 1/32 TO 1/8 THICK USING APPROPRIATE COMPRESSION WASHER
1.083 DIA. PANEL HOLE REQ'D.
BLACK MOLDED PLASTIC CASE

Case Style B

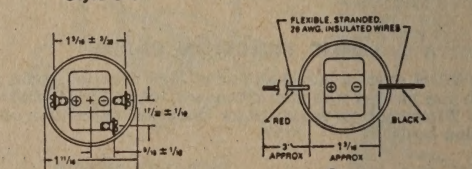

LOCKING FLATS
1 1/8-24 UNS 2A THD
KNURLED NUT
BLACK MOLDED PLASTIC CASE
6-32 x 1/8 SCREWS
TERMINALS PARALLEL TO LOCKING FLATS WITHIN ±15°
.03 Projection is not on 4500 Hz Models

Case Style C



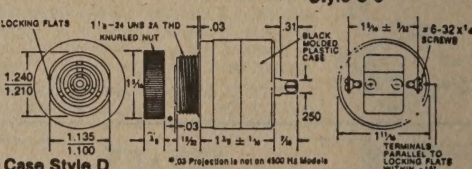
Case Style C-1

Case Style C-2

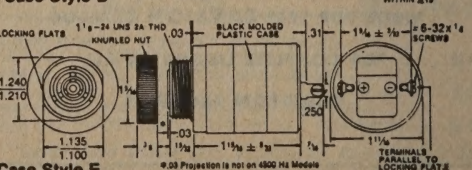


Case Style D-1

Case Style C-3


LOCKING FLATS
1 1/8-24 UNS 2A THD
KNURLED NUT
BLACK MOLDED PLASTIC CASE
6-32 x 1/4 SCREWS
TERMINALS PARALLEL TO LOCKING FLATS WITHIN ±15°
.03 Projection is not on 4500 Hz Models

Case Style D


LOCKING FLATS
1 1/8-24 UNS 2A THD
KNURLED NUT
BLACK MOLDED PLASTIC CASE
6-32 x 1/4 SCREWS
TERMINALS PARALLEL TO LOCKING FLATS WITHIN ±15°
.03 Projection is not on 4500 Hz Models

Case Style E

H. H. Smith Spacers

3/16" ROUND BRASS—CLEAR HOLE

Length, Ins.	H. H. Smith No. For #2 Screw	For #4 Screw	Net per C
.125	9000	9015	$ 6.29
.187	9001	9016	6.84
.250	9002	9017	7.74
.312	9003	9018	11.34
.375	9004	9019	12.07
.437	9005	9020	12.94
.500	9006	9021	13.50
.562	9007	9022	15.38
.625	9008	9023	16.09
.687	9009	9024	20.14
.750	9010	9025	20.38
.812	9011	9026	21.57
.875	9012	9027	23.43
.937	9013	9028	24.15
1.000	9014	9029	25.59

3/16" HEX BRASS—CLEAR HOLE

.125	9100	9115	$ 7.09
.187	9101	9116	7.51
.250	9102	9117	8.28
.312	9103	9118	9.83
.375	9104	9119	10.16
.437	9105	9120	10.49
.500	9106	9121	10.82
.562	9107	9122	11.39
.625	9108	9123	12.60
.687	9109	9124	15.69
.750	9110	9125	16.02
.812	9111	9126	17.36
.875	9112	9127	19.35
.937	9113	9128	21.02
1.000	9114	9129	22.12

1/4" ROUND BRASS—CLEAR HOLE

Length, Ins.	H. H. Smith No. For #4 Screw	For #6 Screw	For #8 Screw	Net per C
.125	8700	8701	8702	$ 6.29
.187	8703	8704	8705	6.84
.250	2340	2100	2105	7.74
.312	8706	8707	8708	8.72
.375	2341	2101	2106	9.28
.437	8709	8710	8711	10.16
.500	2342	2102	2107	10.38
.562	8712	8713	8714	11.83
.625	8715	8716	8717	12.37
.687	8718	8719	8720	15.49
.750	2343	2103	2108	16.02
.812	8721	8722	8723	16.59
.875	8724	8725	8726	18.02
.937	8727	8728	8729	18.57
1.000	2344	2104	2109	20.57

1/4" HEX BRASS—CLEAR HOLE

.125	8790	8791	8792	$ 7.07
.187	8793	8794	8795	7.51
.250	2380	2300	2305	8.28
.312	8796	8797	8798	9.83
.375	2381	2301	2306	10.16
.437	8799	8800	8801	10.49
.500	2382	2302	2307	10.82
.562	8802	8803	8804	11.93
.625	8805	8806	8807	12.60
.687	8808	8809	8810	15.69
.750	2383	2303	2308	16.02
.812	8811	8812	8813	17.36
.875	8814	8815	8816	19.35
.937	8817	8818	8819	21.02
1.000	2384	2304	2309	22.12

3/8" ROUND BRASS—CLEAR HOLE

.125	8730	8731	8732	$11.27
.187	8733	8734	8735	13.15
.250	2345	2110	2115	13.81
.312	8736	8737	8738	14.81
.375	2346	2111	2116	17.58
.437	8739	8740	8741	18.68
.500	2347	2112	2117	19.14
.562	8742	8743	8744	24.10
.625	8745	8746	8747	22.89
.687	8748	8749	8750	25.77
.750	2348	2113	2118	22.79
.812	8751	8752	8753	26.66
.875	8754	8755	8756	30.31
.937	8757	8758	8759	31.19
1.000	2349	2114	2119	32.42

3/8" HEX BRASS—CLEAR HOLE

.125	8850	8851	8852	$11.71
.187	8853	8854	8855	13.15
.250	2385	2310	2315	14.14
.312	8856	8857	8858	16.36
.375	2386	2311	2316	17.91
.437	8859	8860	8861	21.89
.500	2387	2312	2317	22.67
.562	8862	8863	8864	23.77
.625	8865	8866	8867	26.21
.687	8868	8869	8870	26.66
.750	2388	2313	2318	27.76
.812	8871	8872	8873	29.21
.875	8874	8875	8876	32.63
.937	8877	8878	8879	33.08
1.000	2389	2314	2319	36.06

3/16" ROUND BRASS—TAPPED HOLE

Length, Ins.	H. H. Smith No. 2-56 Thd.	4-40 Thd.	Net per C
.125	9030	9045	$ 8.17
.187	9031	9046	8.50
.250	9032	9047	8.54
.312	9033	9048	9.39
.375	9034	9049	10.49
.437	9035	9050	11.17
.500	9036	9051	13.71
.562*	9037	9052	14.59
.625*	9038	9053	15.15
.687*	9039	9054	19.67
.750*	9040	9055	19.91
.812*	9041	9056	20.01
.875*	9042	9057	21.13
.937*	9043	9058	21.56
1.000*	9044	9059	23.24

3/16" HEX BRASS—TAPPED HOLE

.125	9130	9145	$ 8.28
.187	9131	9146	8.84
.250	9132	9147	9.61
.312	9133	9148	10.38
.375	9134	9149	11.71
.437	9135	9150	12.60
.500	9136	9151	13.71
.562*	9137	9152	16.02
.625*	9138	9153	19.14
.687*	9139	9154	20.24
.750*	9140	9155	21.35
.812*	9141	9156	22.12
.875*	9142	9157	22.45
.937*	9143	9158	23.56
1.000*	9144	9159	25.21

*Thread is tapped in 3/8" from each end, not continuous through.

1/4" ROUND BRASS—TAPPED HOLE

Length, Ins.	H. H. Smith No. 4-40 Thd.	6-32 Thd.	8-32 Thd.	Net per C
.125	8760	8761	8762	$ 8.17
.187	8763	8764	8765	8.50
.250	2370	2120	2125	8.84
.312	8766	8767	8768	9.36
.375	2371	2121	2126	10.49
.437	8769	8770	8771	11.17
.500	2372	2122	2127	13.71
.562	8772	8773	8774	14.59
.625	8775	8776	8777	15.15
.687	8778	8779	8780	19.67
.750	2373	2123	2128	19.91
.812	8781	8782	8783	20.01
.875	8784	8785	8786	21.13
.937	8787	8788	8789	21.56
1.000	2374	2124	2129	23.24

1/4" HEX BRASS—TAPPED HOLE

.125	8820	8821	8822	$ 8.28
.187	8823	8824	8825	8.84
.250	2330	2320	2325	9.61
.312	8826	8827	8828	10.38
.375	2331	2321	2326	11.71
.437	8829	8830	8831	12.60
.500	2332	2322	2327	13.71
.562	8832	8833	8834	16.02
.625	8835	8836	8837	19.14
.687	8838	8839	8840	20.24
.750	2333	2323	2328	21.35
.812	8841	8842	8843	22.12
.875	8844	8845	8846	22.45
.937	8847	8848	8849	23.56
1.000	2334	2324	2329	25.21

1/4" ROUND ALUMINUM—CLEAR HOLE

Length, Ins.	H. H. Smith No. For #4 Screw	For #6 Screw	For #8 Screw	Net per C
.125	8480	8500	8520	$ 5.51
.187	9200	9207	9214	6.05
.250	8481	8501	8521	6.61
.312	9201	9208	9215	7.15
.375	8482	8502	8522	7.71
.437	9202	9209	9216	8.26
.500	8483	8503	8523	8.81
.562	9203	9210	9217	9.36
.625	8484	8504	8524	9.91
.687	9204	9211	9218	10.46
.750	8485	8505	8525	11.02
.812	9205	9212	9219	11.56
.875	8486	8506	8526	12.12
.937	9206	9213	9220	12.66
1.000	8487	8507	8527	13.22
1.250	8488	8508	8528	16.53
1.500	8489	8509	8529	17.63
1.750	8490	8510	8530	18.73
2.000	8491	8511	8531	19.83

1/4" HEX ALUMINUM—CLEAR HOLE

.125	8560	8580	8600	$6.61
.187	9256	9263	9270	7.15
.250	8561	8581	8601	7.71
.312	9257	9264	9271	8.26

1/4" HEX ALUMINUM—CLEAR HOLE

Length, Ins.	H. H. Smith No. For #4 Screw	For #6 Screw	For #8 Screw	Net per C
.375	8562	8582	8602	$ 8.81
.437	9258	9265	9272	9.36
.500	8563	8583	8603	9.91
.562	9259	9266	9273	10.46
.625	8564	8584	8604	11.02
.687	9260	9267	9274	11.56
.750	8565	8585	8605	12.12
.812	9261	9268	9275	12.66
.875	8566	8586	8606	13.22
.937	9262	9269	9276	13.77
1.000	8567	8587	8607	14.32

1/4" ROUND ALUMINUM—TAPPED HOLE

Length, Ins.	H. H. Smith No. 4-40 Thd.	6-32 Thd.	8-32 Thd.	Net per C
.125	8320	8340	8360	$ 6.61
.187	9228	9235	9242	7.15
.250	8321	8341	8361	7.71
.312	9229	9236	9243	8.26
.375	8322	8342	8362	8.81
.437	9230	9237	9244	9.36
.500	8323	8343	8363	9.91
.562	9231	9238	9245	10.46
.625	8324	8344	8364	11.02
.687	9232	9239	9246	11.56
.750	8325	8345	8365	12.12
.812	9233	9240	9247	12.66
.875	8326	8346	8366	13.22
.937	9234	9241	9248	13.77
1.000	8327	8347	8367	15.42
1.250	8328	8348	8368	17.63
1.500	8329	8349	8369	18.73
1.750	8330	8350	8370	19.83
2.000	8331	8351	8371	20.93

1/4" HEX ALUMINUM—TAPPED HOLE

.125	8400	8420	8440	$ 7.71
.187	9284	9291	9298	8.26
.250	8401	8421	8441	8.81
.312	9285	9292	9299	9.36
.375	8402	8422	8442	9.91
.437	9286	9293	9300	10.46
.500	8403	8423	8443	11.02
.562	9287	9294	9301	11.56
.625	8404	8424	8444	12.12
.687	9288	9295	9302	12.66
.750	8405	8425	8445	13.22
.812	9289	9296	9303	13.77
.875	8406	8426	8446	14.32
.937	9290	9297	9304	14.87
1.000	8407	8427	8447	15.42

1/4" HEX STAINLESS STEEL—TAPPED HOLE

Length, Ins.	H. H. Smith No. 4-40 Thd.	6-32 Thd.	Net per C
.125	9060	9080	$32.08
.187	9061	9081	33.19
.250	9062	9082	34.30
.312	9063	9083	35.40
.375	9064	9084	36.51
.437	9065	9085	42.05
.500	9066	9086	47.58
.562*	9067	9087	50.89
.625*	9068	9088	54.22
.687*	9069	9089	57.54
.750*	9070	9090	59.75
.812*	9071	9091	60.86
.875*	9072	9092	61.97
.937*	9073	9093	63.07
1.000*	9074	9094	64.17

*Thread is tapped in 3/8" from each end, not continuous through.

3/16" O.D. ROUND NYLON—CLEAR HOLE

Molded nylon, Type 66, MIL Spec. 20693A.

Length, Ins.	H. H. Smith No. For #2 Screw	For #4 Screw	Net per C
.125	9160	9180	$ 3.37
.187	9161	9181	3.87
.250	9162	9182	4.39
.312	9163	9183	5.00
.375	9164	9184	5.62
.437	9165	9185	6.14
.500	9166	9186	6.65
.562	9167	9187	7.17
.625	9168	9188	7.67
.687	9169	9189	8.19
.750	9170	9190	8.70
.812	9171	9191	9.00
.875	9172	9192	9.51
.937	9173	9193	9.92
1.000	9174	9194	10.24

SPACER LISTING CONTINUED ON NEXT PAGE

SPACERS (CONTINUED)

1/4" O.D. ROUND NYLON—CLEAR HOLE

Length, Ins.	H. H. Smith No. For #4 Screw	For #6 Screw	For #8 Screw	Net per C
.125	4000	4001	4002	$ 3.71
.187	4003	4004	4005	3.97
.250	4006	4007	4008	4.39
.312	4009	4010	4011	5.00
.375	4012	4013	4014	5.62
.437	4015	4016	4017	6.14
.500	4018	4019	4020	6.65
.562	4021	4022	4023	7.17
.625	4024	4025	4026	7.67
.687	4027	4028	4029	8.19
.750	4030	4031	4032	8.70
.812	4033	4034	4035	9.00
.875	4036	4037	4038	9.57
.937	4039	4040	4041	9.92
1.000	4042	4043	4044	10.24

1/4" O.D. ROUND NYLON—TAPPED HOLE

Length, Ins.	H. H. Smith No. 4-40 Thd.	6-32 Thd.	8-32 Thd.	Net per C
1/4	4050	4051	4052	$14.53
3/8	4053	4054	4055	16.58
1/2	4056	4057	4058	18.43
3/4*	4059	4060	4061	19.34
1*	4062	4063	4064	22.11

1/4" O.D. ROUND PHENOLIC—TAPPED HOLE

Natural color PBE Grade MIL-P-79A.

.250	8660	8661	8662	$11.26
.312	8663	8664	8665	12.29
.375	8666	8667	8668	13.31
.437	8669	8670	8671	14.34
.500	8672	8673	8674	15.36
.562	8675	8676	8677	16.38
.625	8678	8679	8680	17.41
.687	8681	8682	8683	18.43
.750*	8684	8685	8686	19.46
.812*	8687	8688	8689	20.48
.875*	8690	8691	8692	21.51
.937*	8693	8694	8695	22.53
1.000*	8696	8697	8698	23.55

*Thread is tapped in 3/8" from each end, not continuous through.

1/4" O.D. ROUND PLASTIC—CLEAR HOLE

Polyvinyl dichloride (PVDC) in gray finish. Self-extinguishing and temperature resistant.

Length, Ins.	H. H. Smith No. For #4 Screw	For #6 Screw	For #8 Screw	Net per C
1/4	4154	4155	4156	$5.50
3/8	4157	4158	4159	5.91
1/2	4160	4161	4162	6.12
5/8	4163	4164	4165	6.42
3/4	4166	4167	4168	6.74
1	4169	4170	4171	7.36

HEX PLASTIC CLEAR HOLE

Length, Ins.	H. H. Smith No. O.D. 3/16" For #4 Screw*	O.D. 1/4" For #6 Screw*	O.D. 3/8" For #8 Screw*	Net per C
3/8	4178	.....	.....	$ 4.69
1/2	4179	4180	.....	6.42
5/8	4181	4182	4183	8.87
3/4	4184	4185	4186	9.89
7/8	4187	4188	4189	10.81
1	4190	4191	4192	11.73

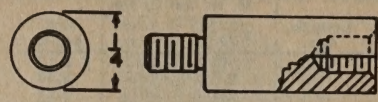
*Self-tapping screw.

FIBRE SPACERS CLEAR HOLE

Made of fibre per MIL-F-1148A, Grade CH.

Length, Ins.	H. H. Smith No. For #4 Screw	For #6 Screw	For #8 Screw	Net per C
.125	8880	8881	8882	$ 7.14
.187	8883	8884	8885	8.00
.250	2335	2130	2140	9.43
.312	8886	8887	8888	10.91
.375	2336	2131	2141	11.62
.437	8889	8890	8891	12.34
.500	2337	2132	2142	13.52
.562	8892	8893	8894	14.64
.625	8895	8896	8897	15.77
.687	8898	8899	8900	16.90
.750	2338	2133	2143	18.02
.812	8901	8902	8903	19.71
.875	8904	8905	8906	20.83
.937	8907	8908	8909	22.53
1.000	2339	2134	2144	23.66

MALE/FEMALE THREADED SPACERS



1/4" O.D. ROUND

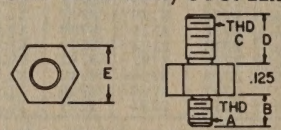
Length, Ins.	H. H. Smith No. 4-40 Thd.•	6-32 Thd.■	8-32 Thd.▲	Net per C
.250	8200	8232	8264	$25.21
.375	8201	8233	8265	25.65
.500	8202	8234	8266	26.21
.625	8203	8235	8267	26.77
.750	8204	8236	8268	27.32
.875	8205	8237	8269	27.87
1.000	8206	8238	8270	28.65
1.125	8207	8239	8271	29.21
1.250	8208	8240	8272	30.53
1.375	8209	8241	8273	32.42
1.500	8210	8242	8274	33.52
1.625	8211	8243	8275	34.30
1.750	8212	8244	8276	34.96
2.000	8213	8245	8277	35.84
2.500	8214	8246	8278	37.50
3.000	8215	8247	8279	40.71

1/4" O.D. HEX

.250	8216	8248	8280	$25.21
.375	8217	8249	8281	25.65
.500	8218	8250	8282	26.21
.625	8219	8251	8283	26.77
.750	8220	8252	8284	27.32
.875	8221	8253	8285	27.87
1.000	8222	8254	8286	28.65
1.125	8223	8255	8287	29.21
1.250	8224	8256	8288	30.53
1.375	8225	8257	8289	32.42
1.500	8226	8258	8290	33.52
1.625	8227	8259	8291	34.30
1.750	8228	8260	8292	34.96
2.000	8229	8261	8293	35.84
2.500	8230	8262	8294	37.50
3.000	8231	8263	8295	40.71

•Male thread, 3/16"; female thread, 1/4" d.
■Male thread, 1/4"0 female thread, 3/8" d.
▲Male thread, 3/8"; female thread, 7/16" d.

MALE ADAPTERS/COUPLERS



Convert female threaded spacers to male-female or splice spacers together for added length. Adds 1/8" to length of spacer.

1/4" HEX BODY

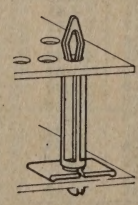
H.H.S. No.	Dimensions, Inches Thd. A	Lth. B	Thd. C	Lth. D	Net per C
8300	4-40	3/16	4-40	3/16	$23.56
8301	4-40	3/16	6-32	1/4	26.10
8302	6-32	1/4	6-32	1/4	27.10
8303	6-32	1/4	8-32	3/8	27.65
8304	8-32	3/8	8-32	3/8	28.77
8305	8-32	3/8	10-32	3/8	29.87

5/16" HEX BODY

8306	8-32	3/8	10-32	3/8	$32.19
8307	10-32	3/8	10-32	3/8	28.78

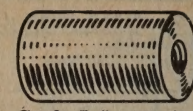
PRINTED CIRCUIT BOARD SUPPORTS

Made of nylon and snap into holes in board and chassis. Chassis hole should be .187" diam. and from .034" to .080" thick. Board hole should be .156" diam. and 1/16" thick.



H.H.S. No.	Length, Inches	Net Each
4093	3/16	$ 5.40
4094	1/4	5.71
4095	3/8	6.01
4096	1/2	6.32
4097	5/8	6.93
4098	3/4	7.34
4099	7/8	7.85
4293*	3/16	7.03
4294*	1/4	7.34
4295*	3/8	7.75
4296*	1/2	8.16
4297*	5/8	8.87
4298*	3/4	9.48
4299*	7/8	10.09

*Self-extinguishing nylon.



CERAMIC STANDOFFS

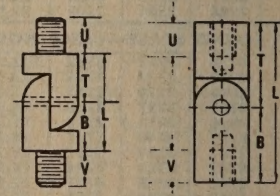
Grade L-5 ceramic with glazed outside. MIL types are made to MIL 1-10 specifications.

H.H.S. No.	MIL No. NL523W-	Lgth. Ins.	Thd. Depth Ins.	Net per 10
3/8" ROUND, 6-32 THREAD				
2600	01-004	.500	5/32	$6.00
2601	01-005	.625	3/16	6.20
2602	01-006	.750	1/4	6.40
2603	01-008	1.000	3/8	7.00
2604	01-010	1.250	3/8	7.40
2605	01-012	1.500	3/8	7.80
2606	01-016	2.000	3/8	8.80
1/2" ROUND, 8-32 THREAD				
2607	02-005	.625	3/16	$ 6.40
2608	02-006	.750	1/4	7.00
2609	02-008	1.000	1/4	7.40
2610	02-010	1.250	3/8	7.80
2611	02-012	1.500	3/8	8.40
2612	02-016	2.000	3/8	9.60
2613	02-020	2.500	3/8	10.60
2614	02-024	3.000	3/8	9.96
3/4" ROUND, 10-32 THREAD				
2615	03-008	1.000	3/8	$12.80
2616	03-010	1.250	3/8	13.60
2617	03-012	1.500	3/8	14.80
2618	03-016	2.000	3/8	15.40
2619	03-020	2.500	3/8	17.70
2620	03-024	3.000	3/8	19.10
2621	03-032	4.000	3/8	20.90
1" ROUND, 1/4-20 THREAD				
2622	04-010	1.250	7/16	$19.80
2623	04-012	1.500	1/2	20.90
2624	04-016	2.000	5/8	24.60
2625	04-020	2.500	5/8	27.60
2626	04-024	3.000	5/8	29.40
2627	04-032	4.000	5/8	32.40
2628	04-040	5.000	5/8	35.30
2629	04-048	6.000	5/8	38.00

COMMERCIAL TYPES

H.H.S. No.	Length, Ins.	Diam., Ins.	Thd. Depth, Ins.	Net per 10
6-32 THREAD				
2640	1/4	1/4	Thru	$5.20
2641	1/2	1/4	5/32	5.60
2642	3/8	3/8	5/32	5.70
2643	1/2	3/8	3/16	5.80
2644	1/2	1/2	9/64	6.00
2645	3/4	1/2	1/4	6.30
2646	1	1/2	3/8	7.00
2647	1 1/2	1/2	9/16	8.00
2648	2 1/2	1/2	1/2	9.90
1/4-20 THREAD				
2649	2 1/2	3/4	3/4	$147.00
2650	4	3/4	3/4	171.00

SWIVEL STANDOFFS



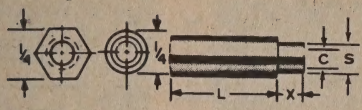
Tin-plated brass swivel standoffs for use with printed-circuit boards. Special sizes are available on request; contact factory.

H.H.S. No.	Thd.	Dimensions, Ins. T	U	B	V	L	Net per C
FEMALE INTERNAL THREAD							
3021	§4-40	.375	.172	.375	.172	3/4	$37.62
3022	§4-40	.375	.172	.625	.250	1	37.62
3023	6-32	.375	.172	.375	.172	3/4	39.83
3024	6-32	.375	.172	.625	.250	1	40.93
3025	8-32	.375	.172	.375	.172	3/4	38.73
3026	8-32	.375	.172	.625	.250	1	39.83
MALE EXTERNAL THREAD							
3027	§4-40	.250	.250	.250	.250	1/2	$33.19
3028	6-32	.250	.312	.250	.312	1/2	38.73
3029	8-32	.250	.312	.250	.312	1/2	37.62

§3/16" O.D.; others 1/4" O.D.

H. H. Smith Standoffs and Insulators

THREADED SWAGE STANDOFFS



Nickel-plated brass.

Round H.H.S. No.	Round Net per C	Dimensions, Inches X	L	S	C	Hex H.H.S. No.	Hex Net per C
2-56 THREAD FOR 3/64" THICK PANELS							
4369	$13.92	.094	.125	.138	.113	4269	$14.48
4370	14.14	.094	.187	.138	.113	4270	14.71
4371	14.25	.094	.250	.138	.113	4271	14.81
4-40 THREAD FOR 3/64" THICK PANELS							
4354	$13.92	.094	.125	.138	.113	4254	$14.78
4358	14.14	.094	.187	.138	.113	4258	14.71
4362	14.25	.094	.250	.138	.113	4262	14.81
4-40 THREAD FOR 1/16" THICK PANELS							
4355	$13.92	.105	.125	.138	.113	4255	$14.48
4359	14.14	.105	.187	.138	.113	4259	14.71
4100	14.25	.105	.250	.187	.156	4200	14.81
4103	15.49	.105	.375	.187	.156	4203	16.02
4106	18.81	.105	.500	.187	.156	4206	19.35
4109	19.78	.105	.625	.187	.156	4209	20.35
4112	23.00	.105	.750	.187	.156	4212	23.56
4115	26.88	.105	1.000*	.187	.156	4215	27.43
4-40 THREAD FOR 3/32" THICK PANELS							
4356	$13.92	.135	.125	.138	.113	4256	$14.48
4360	14.14	.135	.187	.138	.113	4260	14.71
4101	14.25	.135	.250	.187	.156	4201	14.81
4104	15.49	.135	.375	.187	.156	4204	16.02
4107	18.81	.135	.500	.187	.156	4207	19.35
4110	19.78	.135	.625	.187	.156	4210	20.35
4113	23.00	.135	.750	.187	.156	4213	23.56
4116	26.88	.135	1.000*	.187	.156	4216	27.43
4-40 THREAD FOR 1/8" THICK PANELS							
4357	$13.92	.165	.125	.138	.113	4257	$14.48
4361	14.14	.165	.187	.138	.113	4261	14.71
4102	14.25	.165	.250	.187	.156	4202	14.81
4105	15.49	.165	.375	.187	.156	4205	16.02
4108	18.81	.165	.500	.187	.156	4208	19.35
4111	19.78	.165	.625	.187	.156	4211	20.35
4114	23.00	.165	.750	.187	.156	4214	23.56
4117	26.88	.165	1.000*	.187	.156	4217	27.43
6-32 THREAD FOR 1/16" THICK PANELS							
4363	$14.59	.105	.125	.138	.113	4263	$15.15
4366	14.92	.105	.187	.138	.113	4266	15.49
4118	15.25	.105	.250	.187	.156	4218	15.81
4121	16.02	.105	.375	.187	.156	4221	16.59
4124	17.80	.105	.500	.187	.156	4224	18.35
4127	18.57	.105	.625	.187	.156	4227	19.14
4130	22.56	.105	.750	.187	.156	4230	23.11
4133	25.00	.105	1.000*	.187	.156	4233	25.55
6-32 THREAD FOR 3/32" THICK PANELS							
4364	$14.59	.135	.125	.138	.113	4264	$15.15
4367	14.92	.135	.187	.138	.113	4267	15.49
4119	15.25	.135	.250	.187	.156	4219	15.81
4122	16.02	.135	.375	.187	.156	4222	16.59
4125	17.80	.135	.500	.187	.156	4225	18.35
4128	18.57	.135	.625	.187	.156	4228	19.14
4131	22.56	.135	.750	.187	.156	4231	23.11
4134	25.00	.135	1.000*	.187	.156	4234	25.55
6-32 THREAD FOR 1/8" THICK PANELS							
4365	$14.59	.165	.125	.138	.113	4265	$15.15
4368	14.92	.165	.187	.138	.113	4268	15.49
4120	15.25	.165	.250	.187	.156	4220	15.81
4123	16.02	.165	.375	.187	.156	4223	16.59
4126	17.80	.165	.500	.187	.156	4226	18.35
4129	18.57	.165	.625	.187	.156	4229	19.19
4132	22.56	.165	.750	.187	.156	4232	23.11
4135	25.00	.165	1.000*	.187	.156	4235	25.55
8-32 THREAD FOR 1/16" THICK PANELS							
4136	$15.25	.105	.250	.187	.156	4236	$15.81
4139	16.02	.105	.375	.187	.156	4239	16.59
4142	17.80	.105	.500	.187	.156	4242	18.35
4145	18.57	.105	.625	.187	.156	4245	19.14
4148	22.56	.105	.750	.187	.156	4248	23.11
4151	25.00	.105	1.000▲	.187	.156	4251	25.55
8-32 THREAD FOR 3/32" THICK PANELS							
4137	$15.25	.135	.250	.187	.156	4237	$15.81
4140	16.02	.135	.375	.187	.156	4240	16.59
4143	17.80	.135	.500	.187	.156	4243	18.35
4146	18.57	.135	.625	.187	.156	4246	19.14
4149	22.56	.135	.750	.187	.156	4249	23.11
4152	25.00	.135	1.000▲	.187	.156	4252	25.55

*Thread is ½" from each end; not continuous thru. ▲Thread is full length but does not clear counterbore.

STEATITE AND PORCELAIN INSULATORS

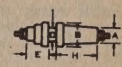
STEATITE THRU-PANEL BUSHINGS

Consists of a pair of identical insulators supplied with cushion washers and hardware. No. 9555 has interlocking insulators which are self-centering in mounting hole and may be used on very thin panels.

H.H.S. No.	Dimensions, Inches A	B	D	E	H	M	Hdwre.	Net Each
9555	½	¾	15/32	.....	¼	.....	6-32	$0.74
9550	3/8	¾	15/32	.....	½	.....	6-32	1.01
9551	5/8	1¼	27/32	.....	13/16	.....	10-32	1.61
9552	⅞	1¾	17/32	.....	1⅛	.....	¼-20	2.29

THRU-PANEL INSULATORS

Compression mounted by means of stud throughout entire length of unit. Insulator base extends thru mounting hole to increase the breakdown rating. Supplied with cushion washers. Types with jacks have terminal permitting connection above as well as below panel.



STEATITE

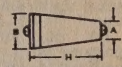
9544	3/8	5/8	5/16	5/16	5/8	.....	6-32	$1.15
9542	½	¾	13/32	5/8	⅞	.....	10-32	1.29
9540	19/32	15/16	7/16	½	1¼	.....	10-32	1.68
9543	No. 9542 with standard banana jack							1.58
9541	No. 9540 with standard banana jack							1.82

PORCELAIN

9545	5/8	1¼	½	1 1/16	1⅜	.....	10-32	$1.99
9548	¾	1 5/8	1 1/16	⅞	2	.....	10-32	2.57
9546	1 5/16	1 5/8	1 1/16	1	2¾	.....	¼-20	4.20
9547	1 1/16	2⅛	31/32	1½	4½	.....	¼-20	5.73
9557	No. 9545 with standard banana jack							1.99
9558	No. 9548 with standard banana jack							2.87
9556	No. 9546 with giant banana jack							4.20

STEATITE CONE INSULATORS

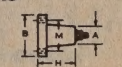
Constructed of grade L-423 or better steatite, with threaded holes. Supplied with nickel-plated machine screws, nickel-plated brass washers and a cork cushion washer.



9500	7/16	5/8	.....	21/32	.....	6-32	$1.38
9501	½	¾	.....	1 1/32	.....	8-32	2.06
9502	½	1	.....	1 7/16	.....	8-32	2.29
9503	5/8	1⅛	.....	2 1/16	.....	10-32	4.58
9504	¾	1½	.....	3 1/16	.....	10-32	10.69

STEATITE STAND-OFF INSULATORS

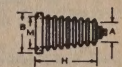
Two-hole mounting permits substational lateral loads. Supplied with screw, flat washer and two nuts.



9524	1⅜	1	.....	5/8	1 1/16	6-32	$0.54
9522	15/32	1 5/32	.....	1	1 1/16	8-32	.77
9520	¾	1¾	.....	1 9/16	1 5/16	10-32	1.07
9523	No. 9522 with standard banana jack						.95
9521	No. 9520 with standard banana jack						1.53

PORCELAIN STAND-OFF INSULATORS

Square mounting base with four mounting holes. Porcelain is dense molded and glazed except on mounting surfaces.



WITHOUT BASE

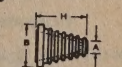
9562	⅞	1⅞	.....	2¾	1⅜	¼-20	$2.68
9560	1 3/16	2½	.....	4½	1⅞	¼-20	3.82

WITH ALUMINUM BASE

9565	5/8	1⅞	.....	1⅜	1½	10-32	$3.82
9568	23/32	1¾	.....	2	1⅜	10-32	4.96
9566	1	1¾	.....	2¾	1⅜	¼-20	5.73
9567	1 1/16	2¼	.....	4½	1¾	¼-20	6.11

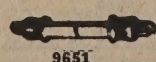
PORCELAIN LEAD-IN BUSHINGS

Single porcelain insulators less all hardware and mounting flange except cushion washer.



9553	1 1/16	2½	.....	1¾	$2.60
9554	1	3½	.....	4	4.58
9590	Mounting flange for No. 9553				5.35
9591	Mounting flange for No. 9554				6.11

PORCELAIN ANTENNA STRAIN INSULATORS

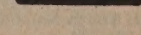

9651

9632

H.H.S. No.	Breaking Strength	Length, Inches	Net Each
9632	.....	1½	$ 0.46
9604	400 lbs.	4	7.32
9607	800 lbs.	7	11.97
9612	800 lbs.	12	17.21
9651	5000 lbs.	15½	55.84
9652	5000 lbs.	19½	73.12
9653	5000 lbs.	25½	87.76

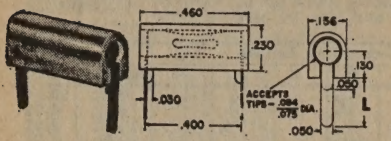
PORCELAIN FEEDER INSULATORS

H.H.S. No.	Length, Inches	Net Each
9622	2	$0.37
9624	4	.74
9626	6	.92



H. H. Smith P.C. JACKS, SOCKETS AND CARD RACKS

PRINTED CIRCUIT TEST JACKS
MILITARY TYPE (MEETS MIL-C-39024/11)



Military PC Test Jack

Double entry design; probes insert from either end of jack. Closed entry construction will not accept probes larger than .084", will contact probes down to .074". Closed bottom design keeps jack from fouling with solder or flux. Locking ears keep jack firmly in board until soldered. Precise dimensions allow for automated assembly on boards. **Ratings:** Operating voltage, 1500 V at 60 Hz rms, sea level; 350 V, 60 Hz rms at 50,000 feet. Maximum current rating, 5 amps AC. Contact resistance, 20 mV drop max. at specified current, at 25° C. **Mechanical Data:** Thermal shock, vibration, humidity, insulation resistance, salt spray per MIL-STD-202B. All mechanical tests per applicable section of MIL-C-39024. Insertion force, 30 oz. maximum; withdrawal force, 3 oz. minimum with .080" probe. **Body:** Molded nylon per MIL-P-17091. Available in 10 colors, as indicated below. **Spring:** Beryllium copper per QQ-C-533. **Finish:** Gold plate per MIL-G-45204, Class I, Type 2. Nickel underplate per QQ-N-290, Class I, Type 7, .0002" thick. **Mounting:** Mounts in .052" dia. holes on .400" centers; board thickness as specified below. Can be spaced side-by-side .160" on centers minimum.

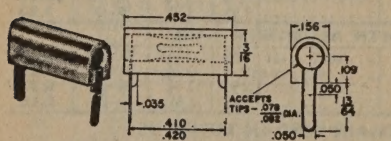
H. H. Smith No. 325—"L" dimension, 0.156"; for boards up to 1/16" thick. Meets MIL-C-39024/11-01 through -10.
Net per 100.....**$30.00**

H. H. Smith No. 321—"L" dimension, 0.219" for boards up to 1/8" thick. MIL-C-39024/11-21 through -30.
Net per 100.....**$30.00**

ECONOMY MILITARY TYPE

H.H.S. No.	Spring Plating	Net per C
"L" DIMENSION 0.156"		
306	Gold flash over .0002" silver	$26.00
359	.0002" silver	26.00
"L" DIMENSION 0.219"		
328	Gold flash over .0002" silver	$26.00
402	.0002" silver	24.00

COMMERCIAL TYPE



Commercial PC Test Jack

Mechanical Data: Thermal shock, vibration, humidity, insulation resistance and salt spray tests per MIL-STD-202B. Solderability per MIL-S-6872. Insertion and withdrawal force, 8 oz. min., 5 lbs. max. with .080" (±.001") dia. probe. **Ratings:** 5 amps AC for 10° C temp. rise, continuous duty. 1.5 kV, 60 Hz AC continuous working voltage. Contact resistance, 5 milliohms max. at rated current. Capacitance, less than 5 mHz at 1 pF. **Finish:** Silver underplate, .0002" minimum per QQ-S-365, Type I, with .00003" gold overplate per MIL-F-14072, M-310. **Mounting:** Mounts in .052" dia. holes, on .400" centers, in boards up to 3/16" thick. Can be spaced side-by-side .160" on centers min.

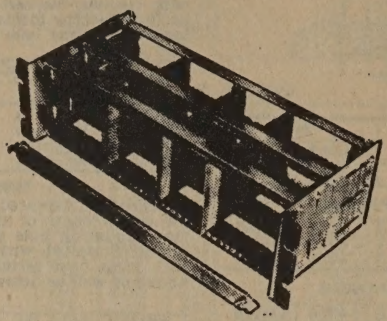
H. H. Smith No. 430—
Net per 100.....**$30.00**

ECONOMY COMMERCIAL TYPE

H. H. Smith No. 499—Spring is gold flash over .0002" silver. Net per 100..**$26.00**

H. H. Smith No. 498—.0002" silver.
Net per 100.....**$24.00**

ADJUSTABLE PRINTED CIRCUIT CARD RACK



Universally adjustable, economical support system for printed circuit cards. Adjusts up-and-down for card widths from 2 3/8" to 4 3/4"; adjusts front-to-back for card lengths from 3 1/2" to 7 1/2". Card spacing is adjustable in .400" increments. Adjustable, calibrated slide racks for fast, precise adjustment to any card size. Adjustable locking bar holds cards securely against rear connectors; adjustable for various PC connector sizes. Fits standard 19" racks.

SPECIFICATIONS

Card Capacity: Up to 39 cards (.400" minimum centers). **Card Sizes:** With locking bar: 4 3/4" maximum width, 6 1/2" maximum length, 2 3/8" minimum width, 4 3/8" minimum length. Without front card lock: 7 1/2" maximum length, 3 1/2" minimum length. **Card Guides:** Precision molded plastic. Four guides provided for each card to nsure location accuracy. **Connector Spacing:** Accommodates card-edge connectors with mounting centers from 0.936" to 4.437". **Locking Bar:** Held in place with captive screws for rapid card change. Card identification marking available on front of locking bar.

H. H. Smith No. 3050 Card Rack—
Net Each, Lots of 1-9.....**$41.72**

H. H. Smith No. 3051 Board Guides—
Net per 100.....**$6.35**

P.C. CARD RACK BLANK END PLATES

Anodized aluminum blank end plates for P.C. card racks. Designed for use with the standard No. 3050 hardware when designing custom rack sizes. Flanged and notched for standard EIA rack mounting. Drilling templates furnished with each pair.

H.H.S. No.	Lgth, Ins.	Hgth, Ins.	Ctrs, Ins.	Net Each
3052	7.812	5.219	1.125	$ 6.66
3053	9.000	6.970	2.000	8.06
3054	11.000	8.718	2.875	9.71
3055	12.000	5.219	1.125	11.51
3056	12.000	10.470	3.750	12.51

P.C. CARD RACK STACKING PLATES

Use to stack two or more No. 3050 card racks. Can also be used to create a double size rack to accommodate larger cards. Anodized aluminum, supplied with mounting hardware.

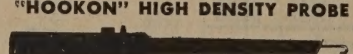
H. H. Smith No. 3057 Rack Stacking Plates—Net Each.....**$4.85**

RACK CARD GUIDES

Mount P.C. boards in rack chassis either horizontally or vertically. Guides snap into .125" dia. holes at both ends. Natural nylon.

H.H.S. No.	Dimensions A	Dimensions B	Net per C
6339	3"	2 1/2"	$57.75
6340	4"	3 1/2"	69.30
6341	6"	5 1/2"	73.92
6342	8 1/2"	8"	73.92

"HOOKON" HIGH DENSITY PROBE



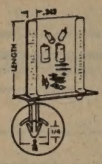
The "Hookon" reaches thru the densest concentrations of wires and terminals and hooks onto leads, pins, etc., for safe, sure connections. The fingertip slide control includes a self-locking open position and a spring grip upon trigger release. Universal socket at lead end accepts wires, test prods, phone clips or banana plugs. The corrosion-resistant steel clip is fully covered by body of Lexan plastic.

H. H. Smith No. 3070 Hookon Probe—
Net Each.....**$5.72**

H. H. Smith No. 3071 RF Adapter—Converts Hookon probe to BNC female for RF use. Net Each.....**$2.80**

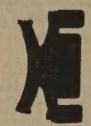
H. H. Smith No. 3072 Ground Lead Extension—Clips to No. 3071 RF Adapter to extend ground lead by 18". Has insulated miniature alligator clip. Net Ea...**$1.04**

P.C. BOARD GUIDES



Mount P.C. boards of any width. Nylon guides snap into .17" x .31" hole. Double channeled for stacking. Accepts board thicknesses from .030" to .075".

H.H.S. No.	Length	Net per C
6249	1"	$25.41
6250	2"	27.14
6251	3"	32.92



NYLON P.C. CARD HANDLE

Designed for use as a permanent handle or puller for quick, easy card insertion and removal.

H. H. Smith No. 6298—
Net per 100.....**$54.29**

NYLON P.C. CARD EJECTOR

For quick, easy removal of boards. Lever action prevents damage to card or components. For cards to 1/16" thick. Complete with mtg. pins.

H. H. Smith No. 6297 P.C. Card Ejector—
Net per 100.....**$48.51**

POWER TRANSISTOR SOCKET

For use with TO-3 transistors. Phenolic body with phosphor bronze contacts, gold plated over silver. Mounting plate tapped for 6-32 screws. Bosses on mtg. holes eliminate need for insulating washers.

H. H. Smith No. 6266 Power Transistor Socket—
Net per 100.....**$63.53**

TRANSISTOR WAFER SOCKETS

For use with TO-3 and TO-66 transistors. Molded nylon top with molded-on washers. Mounting bracket self-threading for #6 screws. Cadmium-plated brass contacts and mounting plate.

H.H.S. No.	For Case	Net per C
6288	TO-3	$40.43
6289	TO-66	40.43

PROTECTIVE NYLON COVER

Case insulator for top of transistors. Webbed construction for free air flow.

6287	TO-3	$47.59
6294	TO-66	39.24

MICA INSULATING WASHERS

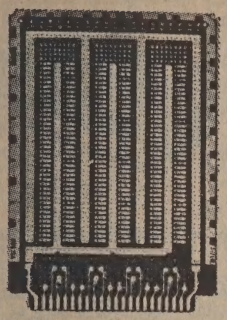
Improves heat transfer between power transistor case and chassis or heat sink.

H.H.S. No.	For Case	Net per C
6285	TO-3	$5.94
6286	TO-66	5.94
6291	TO-36	5.94

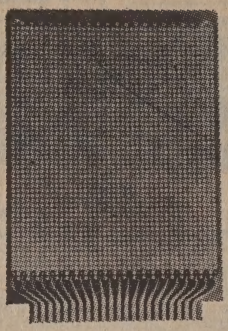
SOLD IN STANDARD PACKAGES ONLY

Vector Plugbords®

DIP PLUGBORDS

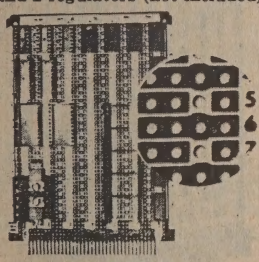


3677-2

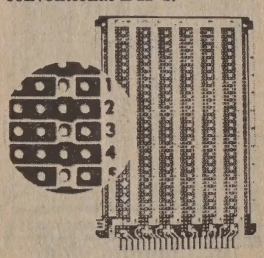


3662

Plugbord material is epoxy glass or FR4 glass composite material, except models with WE suffix are made only in epoxy glass. Contacts on all models are gold flashed nickel plate. **3682 Series:** Mount wrap post sockets. Have interleaved etched tinned power and ground buses, punched .042″ holes on 0.1″ x 0.1″ grid. -4 model has O/A etched tinned ground plane with etched clearance area on each hole. **3662 and 3719 Series:** Upper area is copper free and punched with .042″ holes on 0.1″ x 0.1″ grid. **3677 Series:** Have etched 3-hole tinned pads and interleaved buses for Vcc and ground, punched .042″ holes on 0.1″ x 0.1″ grid, holds 24 14-pin or 21 16-pin DIP's. **4112 Series:** Have punched .042″ holes on 0.1″ x 0.1″ grid, groups of 3-hole etched, tinned pads, interleaved zig-zag bus, back side tinned ground plane with etched clearance holes. Ideal for soldered circuits mixing any size DIP's, transistors or discretes. **4066 Series:** Ideal for wrapped wire construction. Has O/A punched .042″ holes on 0.1″ x 0.1″ grid, two interleaved tinned zig-zag buses plus back side tinned ground plane with etched clearance holes. **4493 and 4494 Series:** Have universal bus pattern for any DIP with leads on 0.1″ x 0.3″, 0.4″, 0.6″ or 0.9″ centers plus option zone to mount included heat sink, and 2 regulators (not included) or conventional DIP's.



4493DP



4494DP

Vector No.	Contacts	Spacing In.	Plugbord Type	Size, In.	Receptacle	Net Each
3677	44	.156	Solder	4.5 x 9.6	R644	$13.33
3677-2	44	.156	Solder	4.5 x 6.5	R644	11.75
3682	44	.156	W.W.	4.5 x 9.6	R644	13.63
3682-2	44	.156	W.W.	4.5 x 6.5	R644	11.54
3682-4	44	.156	W.W.	4.5 x 6.5	R644	13.19
3662	44	.156	Plain	4.5 x 6.5	R644	9.96
3662-2	44	.156	Plain	4.5 x 9.6	R644	10.85
3662-5	44	.156	Plain	4.5 x 4.5	R644	7.68
3719-1	72	.100	Plain	4.5 x 6.5	R636-1	9.74
3719-4	72	.100	Plain	4.5 x 9.6	R636-1	12.00
3719-5	72	.100	Plain	4.5 x 4.5	R636-1	10.29
848PWE	35*	.....	Plain	4.5 x 6.5	R635	16.98
3797	30	.....	Plain	2.73 x 4.5	R630	6.56
3797-2	30	.....	Solder	2.73 x 4.5	R630	9.71
4112-4	44	.156	Solder	4.5 x 6.5	R644	15.55
4112-5	44	.156	Solder	4.5 x 4.5	R644	12.49
4066-4	36/72	.100	W.W.	4.5 x 6.5	R636-1	13.18
4066-5	36/72	.100	W.W.	4.5 x 4.5	R636-1	19.40
4493	36/72	.100	W.W.	4.5 x 6.5	R636-1	19.37
4493-1	36/72	.100	W.W.	4.5 x 9.6	R636-1	23.83
4494	44	.156	W.W.	4.5 x 6.5	R644	16.01
R636-1‡	72	.....	Receptacle	4.44 x .34 x .610		7.13
R644♯	44	.....	Receptacle	4.36 x .34 x .442		4.78
R644-1‡	44	.....	Receptacle	4.36 x .41 x .730		7.70
R644-2‡	44	.....	Receptacle	3.16 x .37 x .625		4.91
R644-3‡	44	.....	Receptacle	4.36 x .41 x .550		4.66
R630♯	30	.....	Receptacle	3.27 x .34 x .442		6.18

*Elco Varicon contacts. ♯Has solder tabs. ‡0.025″ sq. wire wrap tail model.

DISCRETE PLUGBORDS

Prepunched .062″ holes on alternate 0.1″ centers. Contacts are nickel/gold.

Vector No.	Type	Contacts	Size, In.	Net Each
838A	Epoxy paper, 1 side	22 etched	4½ x 6½	$ 5.67
838AWE-1GN	Epoxy glass, 2 sides	43 etched	4½ x 6½	11.98

CIRCBORDS

Popular etched plugbord wiring patterns without expensive finger contacts have universal I/O area for mounting any type of connector. Epoxy glass composite material etched and tinned one side (except 8005). Measure 4.5″ x 6.5″ x .062″.

Vector No. 8003—Pad-per-hole-Quick solder mounting of 60 16-pin DIP's. Net Each..... **$9.95**

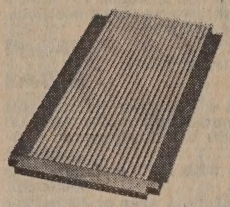
Vector No. 8004—Clearance ground planemounts 50 16-pin DIP's compact or 40 16-pin DIP's spaced or mixed. Net Each. **$9.95**

Vector No. 8005—Bare, unclad. Mounts 60 16-pin DIP's compact or 48 16-pin DIP's spaced or mixed. Net Each..... **$3.25**

Vector No. 8001—3-hole pads and 2 buses for soldering and wire wrapping. Mounts twenty 16-pin DIP's. Net Each..... **$9.95**

Vector No. 8002—Has 2 buses. Best for wire wrapping. Mounts 35 16-pin DIP's. Net Each..... **$9.95**

CARD EXTENDERS



Provide means of working on operating Plugbord by providing extensions to raise Plugbord out of equipment. Supplied with nickel plated, gold plated contacts and mounted receptacles.

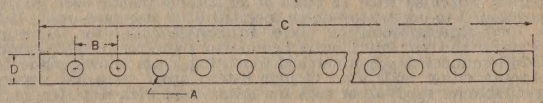
Vector No.	For Plugbord Series	Size (Ins.)	Net Each
3690	838, 3662, 3677, 3682	4.5″ x 6.5″	$15.97
3690-2	3719	4.5″ x 11″	24.21
3690-10	3797	2.73″ x 5.5″	22.83
3690-12	8800 V	9.99″ x 7.5″	26.91
3690-16	4610	4.5″ x 6.5″	21.42

SOLDERLESS BUS KLIPS/STRIPS

Accept round component leads .015″ to .032″ dia. or .025″ sq. pins. Single continuous interior beryllium copper contact spring with fused tin-lead coating is housed in brass shell with insulated sides. Available with or without riveted .042″ dia., .285″ long pins, which fit .042″ dia. holes.

Vector No.	No. of Holes	No. of Mtg. Pins	Mtg. Pin Spacing	Qty. per Pkg.	Net per Pkg.
WITH MOUNTING PINS					
T45-24/2	24	3	.800″	2	$2.74
T45-48	48	6	.800″	2	5.66

PUNCHED BUS STRIPS WITH ROUND HOLES

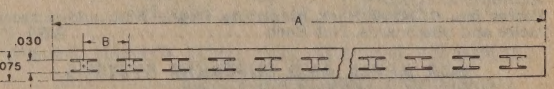


Install on circuit boards as alternative to etched bus lines. Holes accept various terminals made by Vector and some models accept IC socket tails.

Vector No.	Dimensions A	B	C	D	Material Thickness	Net per 10
T57/10	.093″	.265″	16″	.200″	.015″	$ 3.13
T58/10	.093″	.265″	8″	.200″	.015″	1.85
T104/C	.062″	.200″	17″	.125″	.012″	19.30*
T107/C	.047″	.100″	14″	.080″	.017″	40.12*
T107-3/10	.047″	.100″	3.5″	.080″	.017″	1.78

*Net per 100.

PUNCHED TYPE WITH SQUARE HOLES



T112 Series—Use short versions as grounding clips between .025″ square posts and PC board circuitry. Install by hand and use P133A tool to push down and wrap post. Resilient fingers hold part on post until soldered. Use long versions for busing groups of .025″ square posts.

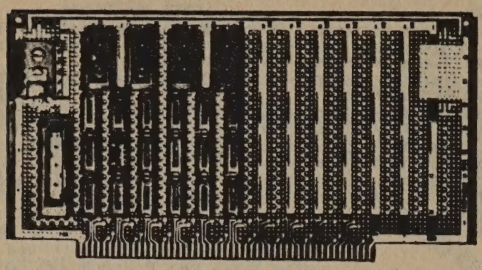
Vector No.	Dimensions A	B	No. of Holes	Qty. per pkg.	Net per Pkg.
T112/1	12.0″	0.1″	120	1	$1.05
T112-1/C	0.2″	.....	1	100	1.93
T112-2/C	0.3″	.....	1	100	2.15
T112-3/1	12.0″	0.2″	60	1	1.05
T112-4/1	12.0″	0.3″	40	1	1.05

Material: Beryllium copper. .007″ thick with tin plating.

QUANTITY PRICES AVAILABLE ON REQUEST

Vector Microcomputer Support Products

PLUGBORDS FOR S100 SYSTEMS



Mount DIP devices anywhere on Plugbords in pre-punched 0.042″ dia. holes. Have 100 contacts (50 each side on 0.125″ centers). Heavy tinned buses back-to-back provide good distributed capacitance. Fit all S100 and IEEE 696 systems. 10″ wide x 5.313″ high. Furnished with one heat sink, two regulator positions, one pre-wired. Install wrap post sockets and wire.

Vector No. 8800V—With buses. Net Each.....**$22.48**

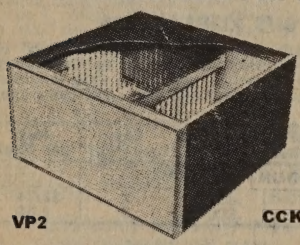
Vector No. 8801-1—With edge contacts, no buses. Net Each.....**$15.67**

Vector No. 8800R2—Coated both sides with copper and positive photoresist. Gold plated contacts continuous into copper fields on both sides. Make your own custom S100 board. Complete step-by-step instructions. Net Each.....**$23.99**

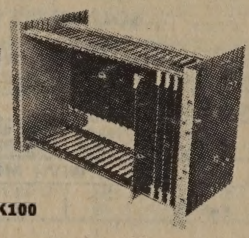
Vector No. 8804—Board for all DIPs with 0.3″, 0.4″, 0.6″ and 0.9″ lead spacing. Net Each.....**$24.67**

Vector No. 8801—Pad-per-hole board. Mounts wrap or solder tail components everywhere on board. Net Each.....**$23.12**

ENCLOSURES FOR S100 SYSTEMS



VP2



CCK100

Assembled enclosure with interior mounting system for cards, connectors and power supply. Blue vinyl finish. Slide-off top and bottom side panels. Easily removed front and rear clear anodized panels. Supplied with 12 pairs of adjustable plastic card guides, positioned to accept top-down inserted S100 standard cards (5.3″ x 10″), chassis mounting plate, adjustable connector mounting brackets and rear input/output connector panel for 10 ITT Cannon D25S connectors. Symmetrical mounting holes allows connector cutouts either end. Two models listed; other sizes and models available for modules or rack mounting, and with slope fronts, in 11 different colors.

Vector No. VP1—17.58″ w. x 17.1″ d. x 9.01″ h., with slots running perpendicular to front panel. Net Each.....**$171.00**

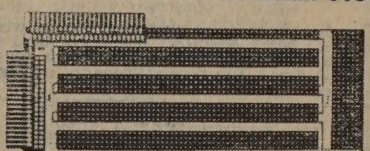
Vector No. VP2—Same as above, but with card slots running parallel to front panel. Net Each.....**$166.95**

Vector No. 8803—S100 mother board with 11 positions, ready for connectors with solder masked etched circuitry. Net Ea. **$31.57**

Rack mountable cage is especially designed to accommodate S100 size plugboards. Cage measures 19″ wide x 12.2″ high x 8.9″ deep. Cage has .081″ thick anodized aluminum side walls with flanges with mounting holes in accordance with EIA standard, handle holes, and extruded aluminum cross members with holes for snap-in nylon guides (furnished). Rear pair of mounting struts adjust four ways and accommodate mounting of a mother board or connectors without hole drilling or special hardware. Will accommodate plugboards 5.313″ to 6.5″ long and 10″ to 11.5″ wide. Cage assemblies quickly, and furnished guides can be positioned on multiples of 0.25″.

Vector No. CCK100 Rack Mounting Cage—With added receptacles and plugboards. Net Each.....**$51.79**

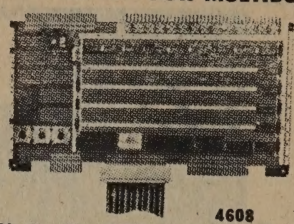
FOR APPLE AND SUPERKIM SYSTEMS



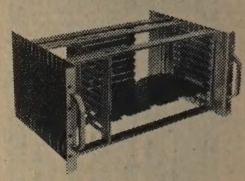
4609

Vector No. 4609—Compatible with Apple II™, Pet Commodore™ with Expandamem™, Super-Kim™. Extra I/O edge connector. Gold plated contacts. Extended 7.7″ for 1.9 sq. in. extra area without interference. .042″ dia. holes on 0.1″ grid. Net Each.....**$23.00**

FOR MULTIBUS SYSTEMS



4608



CCK80

Vector No. 4608—Compatible with Intel SBC80 and National BLC80 series. Mounts 54 16-pin DIP's and any size DIP wherever required in .042″ holes on 0.1″ x 0.1″ grid. Dual bus pattern under DIP's permits easy power and ground connections. Has 43/86 contacts on .156″ centers and 30/60 nickel plated gold flashed contacts on .100″ centers along bottom edge plus 3 sets of I/O connector fingers at top. Overall size, 6.75″ long x 12″ wide. Net Each.....**$59.23**

Vector No. 4608-1—Same as 4608, except without bus pattern. Net Each.....**$40.02**

Vector No. CCK80—Rack mountable cage for Plugbords above and 4611 Plugbords listed below. Measures 8.75″ h. x 12″ d. x 19″ w. Assembled with 10 pairs of adjustable guides. Net Ea..**$82.16**

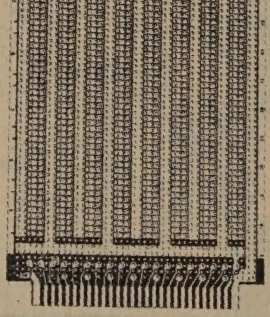
FOR MOTOROLA EXORCISER™ SYSTEMS

Bus terminations per Motorola standard. 43/86 contacts on 0.156″ centers. 0.042″ diameter holes on 0.1″ grid. Measure 6″ x 9.75″.

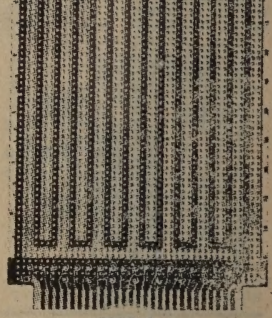
Vector No. 4611—With buses and pads for soldering or wire wrapping. Net Each.....**$29.95**

Vector No. 4611-1—With edge contacts, but no buses. Net Each.....**$19.95**

Vector No. 4611-2—For wire wrapping. Net Each.....**$29.95**



4610



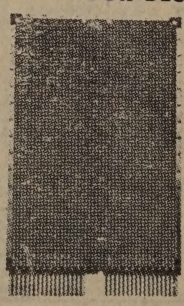
4610-2

Vector No. 4610—Compatible with STD BUS Pro-Log Microcomputer and general use. 4.5″ x 6.5″ x .062″. 28/56 gold plated contacts on 0.125″ center. .042″ dia. holes on 0.1″ grid. Net Each.....**$18.95**

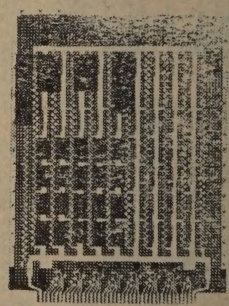
Vector No. 4610-1—With edge contacts; no busses. Net Each.....**$15.95**

Vector No. 4610-2—Wire wrapping board. Ground bus terminated per STD BUS convention. Net Each.....**$18.95**

FOR DEC AND T1980 SYSTEMS



4607



4350

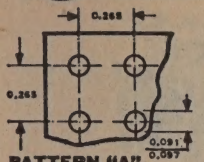
Vector No. 4607—Compatible with DEC LSI11, PDP8 and PDP11 and Heath H-11 computers. Main area of board is copper free for maximum component mounting flexibility in .042″ holes on 0.1″ grid. Has two sets etched contacts, 18/36 on 0.125″ centers and holds 89 16-pin DIP's or any size DIP. Overall size, 8.43″ long x 5.19″ wide. Net Each.....**$17.07**

Vector No. 4350—Compatible with TI980 computer. Epoxy glass composite 9.6″ long x 7″ w. x 1/16″ thick. Has 80 (40 each side) nickel gold contacts on 0.125″ centers. Heavy back-to-back tinned copper buses. .042″ dia. holes on 0.1″ grid. Net Ea.....**$23.94**

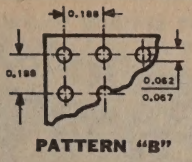
Apple II is a trademark of Apple Computer, Inc.; Pet Commodore is a trademark of Commodore Business Machines; Superkim is a trademark of Microproducts; Expandamem is a trademark of Compu/Think; Exorciser is a Motorola trademark.

PRICES LISTED ARE FOR GUIDANCE ONLY

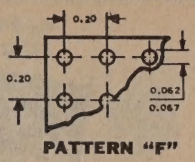
Vector Boards, Terminals and Tools



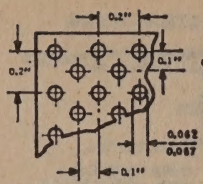
PATTERN "A"



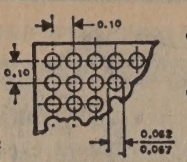
PATTERN "B"



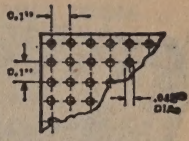
PATTERN "F"



PATTERN "G"



PATTERN "H"



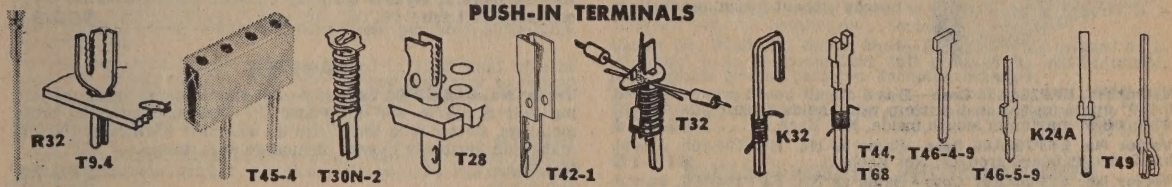
PATTERN "P"

Vectorbord and Micro-Vectorbord are made from flame-retardant materials and precision punched in a variety of materials and hole patterns. Materials used are phenolic; type PBE-P per L-P-513, NEMA grade FR 2, copper clad phenolic in 1 oz. NEMA FR 2; paper epoxy per MIL-P-22324 type PEE NEMA grade FR 3; copper clad epoxy paper type FL-PX per MIL-P-13949 NEMA grade FR 3; epoxy glass MIL-P-18177 type GEE NEMA FR 4 and G-10; copper clad epoxy glass MIL 13949 type FL-GF NEMA FR 4 and G-10. Glass composite is FR 4 grade. Boards accept push-in and wire wrappable terminals as shown, and many component leads without hole drilling.

Vector No.	Hole Pattern	Size, Inches W x L x Th.	Net Ea., Lots of 1-19	20-99	100-199
GLASS COMPOSITE					
42G24WE	G	4.80 x 8.51 x 1/16	$2.49	$2.24	$1.99
59P44-032	P	4.50 x 6.00 x 1/32	1.85	1.67	1.48
64A18WE	A	4.80 x 16.99 x 1/16	5.36	4.82	4.29
64P44	P	4.50 x 6.50 x 1/16	1.83	1.65	1.46
84P44	P	4.50 x 8.50 x 1/16	2.25	2.03	1.80
85G24WE	G	4.80 x 16.99 x 1/16	5.50	4.95	4.40
169P44	P	4.50 x 17.00 x 1/16	5.15	4.64	4.12
169P59-047	P	6.00 x 17.00 x 1/16	7.12	6.41	5.70
169P79	P	8.00 x 17.00 x 1/16	7.71	6.94	6.17
169P84	P	8.50 x 17.00 x 1/16	9.00	8.10	7.20
169P84C1*	P	8.51 x 17.00 x 1/16	11.04	9.94	8.83
EPOXY PAPER					
64P44EP	P	4.50 x 6.50 x 1/16	$2.15	$1.94	$1.72
84P44EP	P	4.50 x 8.50 x 1/16	2.68	2.41	2.14
85F24EP	F	4.80 x 16.99 x 1/16	3.74	3.37	2.99
85G24EP	G	4.80 x 16.99 x 1/16	3.17	2.85	2.54
85G42EP	G	8.51 x 16.99 x 1/16	5.49	4.94	4.39
169P44EP	P	4.50 x 17.00 x 1/16	4.87	4.38	3.90
169P47EP	P	4.80 x 17.00 x 1/16	5.07	4.56	4.06
169P84EP	P	8.50 x 17.00 x 1/16	8.64	7.78	6.91
PHENOLIC					
32AA18	A	4.80 x 8.51 x 3/32	$1.92	$1.73	$1.54
45B30	B	5.69 x 16.97 x 1/16	1.64	1.48	1.31
64A18	A	4.80 x 16.99 x 1/16	1.99	1.79	1.59
64AA18	A	4.80 x 16.99 x 3/32	2.56	2.30	2.05
64AA32	A	4.80 x 16.99 x 3/32	4.37	3.93	3.50
64P44XXXP	P	4.50 x 6.50 x 1/16	1.56	1.40	1.25
90B30	B	5.69 x 16.97 x 1/16	3.59	3.23	2.87
EPOXY GLASS					
64P44WE	P	4.50 x 6.50 x 1/16	$2.22	$2.00	$1.78
84P44WE	P	4.50 x 8.50 x 1/16	2.74	2.47	2.19
85H48WE	H	4.80 x 8.50 x 1/16	2.65	2.39	2.12
169P44WE	P	4.50 x 17.00 x 1/16	5.40	4.86	4.32
169P44WEC1*	P	4.50 x 17.00 x 1/16	7.29	6.56	5.83
169P84WE	P	8.51 x 17.00 x 1/16	10.38	9.34	8.30
169P84WEC1*	P	8.50 x 17.00 x 1/16	12.72	11.45	10.18
170H48WE	H	4.80 x 17.00 x 1/16	5.86	5.27	4.69

*Copper clad one side.

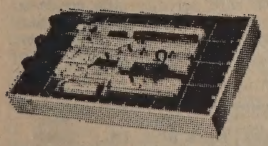
PUSH-IN TERMINALS



Zip push-in terminals are fast and easy to use because they fit prepunched holes in Vectorbord®, Micro-Vectorbord® and Plugbords. Simple, listed hand tools firmly seat terminals to hold without staking. Slots or fingers in some models hold leads until soldered. Wire wrappable types have sharp-cornered, 0.025" square tails for reliable wire wrapping. Klip-Strip T45-4 accepts DIP leads or #22 gauge wire for solderless interconnections. T30 and T32 types hold up to 6 leads in solderless spring connection and are ideal for experimental terminals.

Fits Hole Size	Description	Material/ Plating	Overall Length Inches	Installing Tools Manual	Installing Tools P158 Die Point	Package of 100 Vector No.	Package of 100 Net Per Pkg.	Package of 1000 Vector No.	Package of 1000 Net Per Pkg.
SOLDERABLE TYPES									
.093"	Push-in	Brass/Tin	3/16	P122B	.....	T9.4/C	$ 1.90	T9.4/M	$ 14.06
.062"	Push-in	Copper alloy/Tin	.437	P91A	.....	T28/C	1.75	T28/M	11.28
.042"	Push-in	Copper alloy/Tin	.360	P149A	.....	T42-1/C	1.75	T42-1/M	11.28
.042"	Round pin	Phr. Brz./Gold	.375	.....	D7-2	K24A/50†	3.23†	K24A/M	44.30
.042"	Round pin	Phr. Brz./Tin	.375	.....	D7-2	K24C/50†	2.18†	K24C/M	23.82
WRAP-POST TYPES									
.042"	.025" Sq.	Copper alloy/Tin	.690	A13	D11	T44/C	$ 2.34	T44/M	$ 14.35
.042"	.025" Sq.	Phr. Brz./Tin	.690	.....	.....	K32/C	3.04	K32/M	18.95
.042"	.025" Sq.	Phr. Brz./Tin	.625	P156	D8	T49/C	3.29	T49/M	26.90
.042"	.025" Sq.	Phr. Brz./Gold	.625	P156	D8	T49A/C	6.72	T49A/M	59.09
.042"	.025" Sq.	Phr. Brz./Tin	.460	.....	.....	T46-4-9/C	2.77	T46-4-9/M	17.76
.042"	.025" Sq.	Copper alloy/Tin	.800	A13-1	.....	T68A/C	2.67	T68A/M	16.05
.042"	.025" Sq.	Phr. Brz./Tin	.880	P133B	.....	T46-5-9/C	2.92	T46-5-9/M	21.64
.042"	.025" Sq.	Phr. Brz./Gold	.745	.....	D9	R32/C	23.08	R32/M	215.54
SOLDERLESS TYPES									
.093"	Spring	Brass/Nickel	.906	P92A	.....	T30N2/C	$22.01	T30N2/M	$182.66
.093"	Spring	Brass/Nickel	1.250	P136	.....	T32A/C	28.70	T32A/M	228.40
.042"	Klip-Strip	Phr. Brz./Tin	.555	P154-1	.....	T45-4/16*	8.81*	T45-4/C■	48.57■

†Pkg. of 50. *Pkg. of 16. ■Pkg. of 100.



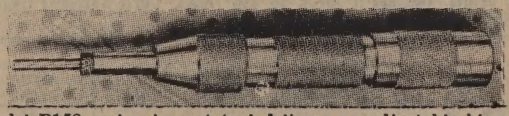
51X DIP PATCHBOARD

No soldering—Use ordinary #22 bare wire for interconnections—Fast

Flexible and adjustable. Handles microprocessor chips, MSI and LSI packages with .6" as well as .3" spaced leads. Accepts up to 12 DIP's. Includes 4½" x 8" epoxy glass composite "P" pattern Micro-Vectorbord® with printed registration mounted on a 1" high aluminum frame. Has eight 24-quad Klip-Bloks (T66-96); four 48-tie-point Klip-Buses (T45-48); three 5-way power binding posts installed; four Klip-Strips (T45-4); DIP marker strips for pin identification; adapter pins (T49-1) for large leads; complete instructions and application suggestions.

Vector No. 51X DIP Patchboard—Net Each.....**$39.93**

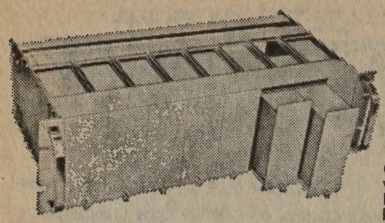
SPRING IMPACT TOOL FOR SEATING TERMINALS



Model P158 spring impact tool delivers an adjustable blow to easily drive in and seat Zip Push-In Terminals. Interchangeable die points (listed with their appropriate terminals above) deliver the force to the terminals and make terminal installation fast and easy. Order **P158-1** adapter to use P158 Tool in drill press or arbor press.

Vector No. P158 Impact Tool—Net Each.....**$24.25**
Vector No. P158-1 Press Adapter—Net Each.....**11.17**
Vector No. D7 Die Point—Net Each.....**7.34**
Vector No. D7-2 Die Point—Net Each.....**9.80**
Vector No. D8 Die Point—Net Each.....**4.71**
Vector No. D9 Die Point—Net Each.....**4.71**
Vector No. D11 Die Point—Net Each.....**5.38**

Vector Cases and Cages



CMA3A20 Cage with added HA12 Handles, Filler Panels and Modules

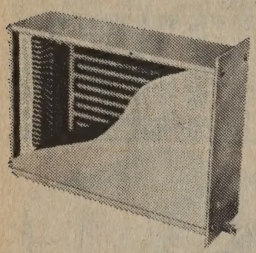
The Vector Pak system is a coordinated packaging system which provides modular cases and cages for nearly all Vector Plugbords and many industry-standard plug-in boards. Adjustable rear struts mount almost any PC connector without hole drilling or special brackets. Other sizes and cage parts are available separately—write for catalog.

Vector No. CMA3A20 Cage—5¼″ h. x 8.9″ deep fits 19″ racks. Holds eight 2″ wide x 6½″ long x 4.6″ high modules (Vector No. EFP204A66). Net Each.....**$65.43**

Vector No. CMA4A20 Cage—5¼″ h. x 12″ deep fits 19″ racks. Holds eight 2″ wide x 9.6″ long x 4.6″ high modules (Vector No. EFP204A97). Net Each.....**$67.19**

Vector No. CMA3A16 Cage—Same as No. CMA3A20, except holds ten 1.6″ wide x 6.6″ long x 4.6″ high modules (Vector No. EFP164A66). Net Each.....**$71.81**

EFP MODULES



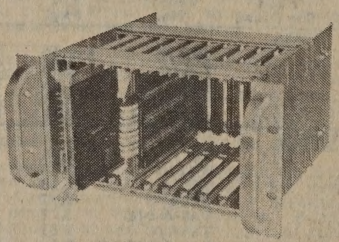
All-aluminum modules have anodized finish and have 5¼″ high front panels with thumb screw, solid rear panels for connector mounting or circuit board slotting, rear sliding side covers, and inner multiple-grooved top and bottom rails to hold 1/16″ thick circuit boards without special bracketing.

Vector No. EFP164A66 Case—Has 6 circuit board grooves spaced 0.150″ apart on top and bottom rails, holds circuit boards 4.5″ wide x 6.5″ maximum length inside. Net Each.....**$10.84**

Vector No. EFP204A66 Case—Same as No. EFP164A66, except has 9 circuit board grooves. Net Each.....**$11.15**

Vector No. EFP204A97 Case—Same as No. EFP164A66, except holds circuit boards 4.5″ wide x 9.6″ maximum length inside. Net Each.....**$12.79**

SNAP-IN CARD GUIDES/CAGES

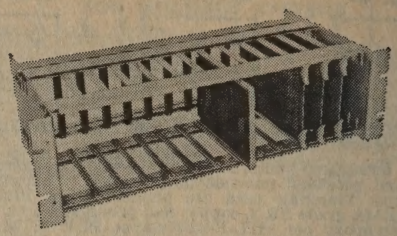


Vector "S" Series cages utilize molded snap-in nylon card guides and are available in 5¼″ high models. Besides guides, cages include 2 aluminum walls with adjustment slots for different card widths and connector lengths, heavy extruded cross members with card guide mounting holes on 0.25″ centers, connector mounting struts with mounting hardware and attaching slotted mounting brackets, permitting forward/backward connector positioning. Kits assemble quickly with provided hardware. Snap-in molded gray nylon card guides are .375″ wide and have .072″ wide by .100″ deep card slots and ferry boat tapered ramps at each end. Guides may also be mounted in sheet metal plates .050″ to .125″ thick for creating non-rack mounted card carriers. **Card Width Range:** 3″ min. to 4½″ max. **Card Length:** 6½″. **Spacing:** Any multiple of 0.25″.

Vector No.	Guides Furnished for No. of Positions	Dimensions		Net Each
		Width	Depth	
CCK-13S	21	19″	9″	$42.64
CCK-135AS	10	10¼″	9″	37.44

SNAP-IN CARD GUIDES FOR .156″ HOLES

Vector No.	Overall Length	Mounting Hole Pitch Distance	Net Each
BR20-19S	8.42″	7.5″	$0.36
BR20-17S	6.92″	6″	.36
BR20-6S	5.42″	4.5″	.33
BR20-13S	3.17″	2.25″	.29



CCK13

VECTOR-PAK CARD CAGES

19″ rack mounting cages are supplied completely assembled, ready for connectors. Models listed accommodate 1/16″ thick cards 4.5″ maximum to 3″ minimum width x 6.5″ long except CCK14 holds cards 9.6″ long. Heavy extruded aluminum cross members (T-Struts) provide strength and easy, infinitely variable connector spacing. 21 pairs of 4-40 connector mounting nuts are furnished installed.

Vector No. CCK3 Card Cage—Has 108 grooves 0.075″ wide for 1/16″ circuit cards in extruded aluminum plates mounted top and bottom. Vertically and horizontally adjustable rear cross members have 21 pairs of 4-40 nuts in captive grooves for easy connector mounting. Net Each.....**$49.86**

Vector No. CCK13 Card Cage—19″ wide x 5¼″ high x 8.9″ deep. Has 21 pairs of riveted anodized aluminum card guides. Net Each.....**$52.00**

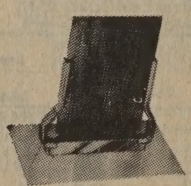
Vector No. CCK13P Card Cage—Same as No. CCK13, except with riveted ABS plastic guides. Net Each.....**$52.00**

Vector No. CCK14P Card Cage—19″ wide x 5¼″ high x 12 deep. Has 21 pairs of riveted card ABS plastic card guides on 0.75″ centers. Net Each.....**$59.94**

CAGE KIT

Vector No. CA52HP89 Cage Kit—All-aluminum 19″ rack mounting unit is 5¼″ x 8.9″ deep and has 6 bracket-mounted cross members, slotted side walls, and all assembly hardware. Use for maximum flexibility in card or module cage design. Net Each.....**$39.73**

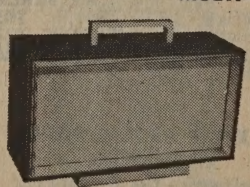
BR27 SERIES RECEPTACLE MTD. CARD GUIDES



Provides support for receptacle supported circuit boards. For plugbords with centered contacts except BR27-2 for .050″ offset contact plugbords. With mounting hardware.

Vector No.	Use With Receptacle	Net/ Pair	Vector No.	Use With Receptacle	Net/ Pair
BR27D	R644, -1	$1.64	BR27-3	R630	$2.70
BR27-1	R636	2.21	BR27-4	R644-2	2.25
BR27-2	R644, -1	1.82			

MULTI-MOD CASES



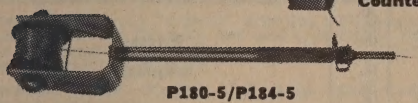
Sleek and sturdy aluminum cases have .075″ wide slots on .150″ centers across case width for screw-free mounting of circuit cards or shielding panels. Easily removable fourth side permits side cover to slide off for quick access. Clear anodized; colors available. Eight rubber feet supplied with each case.

Vector No.	Size, Inches			For Circuit Card Size, In.	Net Each
	Width	Length	Height		
W16-31-31B	1.6	3.10	3.10	2.98 x 2.98	$ 6.10
W20-28-46B	2.0	2.85	4.61	2.73 x 4.50	5.94
W20-66-46B	2.0	6.61	4.61	4.50 x 6.50	7.42
W30-66-46B	3.0	6.61	4.61	4.50 x 6.50	9.04
W30-86-46B	3.0	8.61	4.61	4.50 x 8.50	10.07
W45-66-46B	4.5	6.61	4.61	4.50 x 6.50	11.80
W45-86-46B	4.5	8.61	4.61	4.50 x 8.50	13.31
W45-10-66B	4.5	10.00	4.61	4.50 x 9.88	18.17
FT3	Rubber bumper feet (package of 8)				.97

Vector Wire Wrapping Tools ands PC Kits

SLIT-N-WRAP WIRING TOOLS FOR 0.025" SQUARE POSTS

P184-7 Turns Counter Model



P180-5/P184-5

Patented

P180-3/P184-3

Shows cross section on diagonal on left end and unwrapped wire on right.

28 gage

The Vector method uses polyurethane/nylon coated wire (P180) or Tefzel coated wire (P184) fed from a spool mounted on the tool. The tool slits the insulation during wrapping, but not between wraps. Four times faster than other manual wrapping techiques, eliminates cutting, measuring, stripping and permits daisy-chain wrapping. Shorter length wrap posts may be used. Produces reliable, gas-tight, low-resistance connections per MIL-STD-113A paragraph 5.6.

Models with wire gripper eliminate need to hand hold wire at start. All models supplied with wire tension regulator to reduce wire breakage. Models with turns counter are available.

Vector No. P180-1 Manual Wire Wrap Tool—With wire tension regulator. Supplied with two 100′ spools of wire. Net Each.....**$39.00**

Vector No. P180-5 Manual Wire Wrap Tool—With wire tension regulator and wire gripper. Supplied with two 100′ spools of wire. Net Each.....**$44.00**

Vector No. P180-2 Battery Powered Wrap Tool—With wire tension regulator and wire gripper. Supplied with nickel cadmium batteries, recharger, and two 100′ spools of wire. Net Each.....**$125.00**

Vector No. P180-7 AC Powered Wrap Tool—With wire tension regulator, wire gripper, and turns counter. Supplied with two 100′ spools of wire. Net Each.....**$198.00**

Vector No. 01—Replacement wrap bits for polyurethane wire. Net per package of 2.....**$21.20**

Vector No. W28-2 Replacement Wire Spools—Package of three 100′ spools. Add suffix specifying color: **A,** green; **B,** red; **C,** clear; **D,** blue. Net per package of 3.....**$3.53**

Vector No. P184-1 Manual Wrap Tool—With wire tension regulator. Supplied with two 50′ spools of wire. Net Ea.....**$39.00**

Vector No. P184-5 Manual Wrap Tool—With wire tension regulator and wire gripper. Supplied with two 50′ spools of wire. Net Each.....**$44.00**

Vector No. P184-2 Battery Powered Wrap Tool—With wire tension regulator and wire gripper. Supplied with nickel cadmium batteries, recharger, and 300′ spool of wire. Net Ea...**$125.00**

Vector No. P184-3 AC Powered Wrap Tool—With wire tension regulator and wire gripper. Supplied with AC transformer and 300′ spool of wire. Net Each.....**$125.00**

Vector No. P184-7 AC Powered Wrap Tool—With wire tension regulator, wire gripper, and electronic turns counter. Supplied with 300′ spool of wire. Net Each.....**$198.00**

Vector No. W28-6 Replacement Wire Spools—Package of two 50′ spools. Add suffix specifying color: **A,** green; **B,** red; **D,** blue; **E,** white; **F,** yellow; **H,** black. Net per package of 2.....**$5.67**

Vector No. W28-6*S Replacement Wire Spools—One 300′ spool. Replace * in Part No. with color suffix as above. Net Ea..**$15.73**

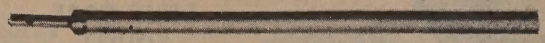
WIRING PENCIL

New P178-1 wiring pencil wires circuits three times faster than conventional soldering or manual wrapped wire connections. Tool is used to guide and wrap heat-strippable insulated wire, fed off a self-contained, replaceable bobbin, onto component leads or terminals. Connections are made by soldering. When heat is applied to junction points with soldering iron, the wire insulation melts, permitting the applied solder to bond the junction.

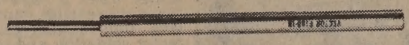
Vector No. P178-1 Wiring Pencil—Complete with 250-ft. spool each of red and green wire, threading loop and instructions. Net Each.....**$9.95**

Replaceable Wire—No. 36 wire with solder-thru insulation. Specify **No. W36-8A** for green; **W36-8B** for red. Package of two spools. Net per pkg.....**$4.13**

WRAP-N-STRAP WIRE WRAPPING TOOLS



Manual Wrapper P160-2B

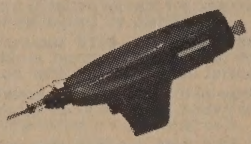


Manual Unwrapper P160-1B

Vector tools for wrapping 0.025″ square posts provide high quality at minimum price. Wraps and unwraps either right or left hand wraps.

Vector No. P160-2B Manual Wrapping Tool—Wraps #26-30 AWG wire on 0.025″ square posts. Net Each.....**$ 8.50**

Vector No. P160-1B Manual Unwrapping Tool—Unwraps #26-30 AWG wire from 0.025″ square posts. Net Each.....**$12.50**



P160-4R4

P160-4R1

Electric motor powered driver tools for both standard and modified wrap joints per MIL-Std.-1130. Have wire grip feature to eliminate hand held wire at start.

Vector No. P160-4R4—110 VAC powered tool. Net Ea..**$81.00**

Vector No. P160-4R5—DC model with nickel cadmium battery. Recharger included. Net Each.....**$81.00**

Driver Tools Only—Order Vector Wrap-N-Strap or Manual Slit-N-Wrap tools for installation in tools.

Vector No. P160-4R3 Driver Unit—For all Vector manual wire-wrapping tools. Portable field unit powered by self-contained, rechargeable Ni-Cad batteries. Includes recharger. Net Each.....**$76.00**

Vector No. P160-4R1—Same as above, but powered by 110 VAC. Net Each.....**$76.00**

32XA1 +POSITIVE PHOTOSENSITIZED ETCHED CIRCUIT KIT

Vector kits produce sharply detailed circuits with a minimum delay in the laboratory, shop or school. Kits are built around 1 oz. copper-clad laminate. U.V. light sensitive, resist-coated, copper-clad boards are included in kits, together with positive rub/transfer art work patterns for DIP's, transistors, lines, dots, block areas, connector patterns, etchant, developer, etching tray and Mylar. Make circuits on Mylar for single or multiple reproduction; directly on uncoated copper for one-of-a-kind.

ORDERING INFORMATION

Vector No. 32X1 Etched Circuit Kit—Contains 1 bare and 1 sensitized 4½″ x 6″, 1 oz., clad-one-side, 1/16″ thick, phenolic board; etching tray; ferric chloride etchant; developer; glass exposure plate; mask cutting film; tape; brush; razor knife; 4 sheets of rub/transfer art work; layout paper and instruction sheets. Net Each.....**$18.24**

Vector No. 32XA1 Etched Circuit Kit—Contains larger assortment of materials described above plus total of seven 1 oz. copper-clad phenolic boards: 3 boards sensitized one side, 4½″ x 6½″, 8″ x 5.1″, 4.5″ x 2.73″; 2 boards sensitized two sides, 4½″ x 6½″, 4.5″ x 2.73″; 2 bare boards, 4½″ x 6½″, 4.5″ x 2.7″. Net Ea.**$46.41**

Vector No. 0088-21-15—1¼ oz. bottle of positive acting developer. Net Each.....**$1.70**

Vector No. 0088-21-45—6 oz. bottle of positive acting developer. Net Each.....**$2.57**

Vector No. R407—Rub transfer art work set; 4 sheets. Includes lines, donuts and IC and transistor pads. Net per set.....**$2.99**

Vector No. CU65R45-1—Positive photoresist coated, phenolic boards. 6½″ x 4½″ x 1/16″. Net per pkg. of 5.....**$14.08**

KESTER Solder and Flux

KESTER "44" RESIN CORE SOLDER

Revolutionary solder advancement uses a fast-acting, instant-wetting, non-corrosive, non-conductive flux for faster soldering and long-lasting, stronger bond. Available in any size ranging from .005" to .250". Also available for Fed. Spec. QQ-S-571d. Two standard put-ups: 1-lb. and 5-lb. spools; 20 lb. spools available on special order.

Alloy Tin/Lead	Dia. In.	Spool of	Net per Spool, Lots of 1-10 Lbs. 11-24 Lbs. 25-49 Lbs.
40/60	.031	1 lb.	Prices on Request
	.062	1 lb.	
	.093	1 lb. 5 lbs.	
50/50	.031	1 lb.	
	.062	1 lb. 5 lbs.	
	.093	1 lb.	
60/40	.015	1 lb.	
	.020	1 lb.	
	.025	1 lb.	
	.031	1 lb. 4 lbs.	
	.040	1 lb.	
	.050	1 lb. 5 lbs.	
	.062	1 lb. 5 lbs.	
	.093	1 lb.	
63/37	.020	1 lb.	
	.025	1 lb.	
	.031	1 lb.	
	.040	1 lb.	
	.050	1 lb.	
	.062	1 lb.	

KESTER SOLID WIRE SOLDER

For use with external flux, this solder is equal in quality and purity to Kester "44" solder. Always uniform in diameter and alloy. Standard put-ups are 1-lb. and 5-lb. spools; 20-lb. spools and 50-lb. reels also available.

Alloy Tin/Lead	Dia. In.	Spool of	Net per Spool, Lots of 1-10 Lbs. 11-24 Lbs. 25-49 Lbs.
40/60	.062	1 lb.	Prices on Request
	.093	1 lb.	
	.125	1 lb. 5 lbs. 20 lbs.	
50/50	.062	1 lb.	
	.093	1 lb.	
	.125	1 lb. 5 lbs. 20 lbs.	
60/40	.031	1 lb.	
	.062	1 lb.	
	.093	1 lb.	
	.125	1 lb.	

"ULTRAPURE" BAR SOLDER

Extruded bar solder with an absolute minimum of oxides and metallic impurities. Personnel handling "Ultrapure" in the factory wear gloves to prevent contamination from body salts and oils. Small, 1¾ lb. bars are extruded from one large ingot. A series of parallel grooves along the bar identify the alloy at any period during its use.

BAR SOLDER

Available in all the tin-lead alloys. Uniform distribution of tin/lead alloys provides for more efficient and easy application.

Alloy Tin/Lead	Bar Weight	Net Each, Lots of 1-10 Lbs. 11-24 Lbs. 25-49 Lbs.
30/70	1 lb.	Prices on Request
40/60	1 lb.	
50/50	1 lb.	
SN60	1 lb.	
60/40	1 lb.	
SN63	1 lb.	
63/37	1 lb.	

SOLDER OFF™ DE-SOLDERING AID

A simple method for correcting soldering errors or removing unwanted solder. Six foot coil in plastic spool. Optimum size (approx. .080) handles most applications.

Kester Printed Circuit Board Solder—Carton of 10 boxes (total weight, 1 lb.)*

Kester Acid Core Solder—1-lb. Spool, 5-lb. Spool.*

Kester "Metal Mender" Acid Core Solder—40/60 solder in handy display carton of ten 2-oz. boxes.*

Kester Soldering Paste—Display carton of ten 2-oz. cans.*
*Prices on Request.

KESTER SOLDERING FLUXES

For use on all metals except aluminum. Remain stable even under extreme conditions. The latest development in practical flux, these efficient formulations meet all manufacturing techniques including specialized assembly, automation, modular techniques, etc. Choice of pint, quart or gallon put-ups; 5-gallon containers also available on request.

Formula 135—An external non-conductive flux conforming to MIL-F-14256.

Formula 145—A flux more dilute than No. 135 and often specified for solderability tests.

Formula 105—A solvent for thinning formulas 135 and 145.

Formula 115—A general-purpose flux, absolutely non-corrosive, non-conductive and conforming to MIL-F-14256.

Formula 101—For thinning or diluting formula 115.

Formula 197—A mildly activated rosin flux in an alcohol solvent and conforming to MIL-F-14256. The surface tension has been adjusted so that a low air pressure wil produce a very uniform head of small bubbles for foam fluxing applications.

Formula 108—For thinning or diluting formula 197.

Formula 1544—A rosin flux virtually as active as an "acid" flux yet safe for use on electronic equipment. Especially effective for soldering zinc and nickel.

Formula 1571—Slightly more dilute than formula 154 and intended for PC board assemblies.

Formula 1545—Slightly more dilute than formula 1571. Requires cleaner circuit assemblies but leaves less flux residue.

Formula 1547—Requires very clean parts, but leaves a minimum of flux residue.

Formula 104—For thinning or diluting fluxes of the 1500 series.

Formula 1585—Similar to formula 1571, but formulated for easy foaming action for flux foaming applications.

Formula 1587—Similar to formula 1585, but leaves less flux residue.

Formula 1589—A dilute flux for use where a minimum of flux residue is desirable. Permits easy soldering on difficult parts.

PRICES LISTED ARE FOR GUIDANCE ONLY

KESTER SOLDERING FLUXES CONT'D

Formula 103—For thinning or diluting formulas 1585 and 1587.

Formula 1636—Employs a relatively non-volatile solvent to minimize additions of thinner to maintain the proper density for high-speed soldering.

Formula 1626—A more dilute flux for use when parts are cleaner and minimum residue is desirable.

Formula 102—For thinning or diluting formulas 1636 and 1626. Useful for cleaning foam fluxing equipment.

Formula 1429—An "organic" type flux with cleaning action intermediate between the rosin and acid type fluxes. The flux residues are decomposed at soldering temperatures leaving very little residue. Slightly corrosive.

Formula 1429F—Similar to formula 1429, modified for foam fluxing applications.

Formula 2211—An organic flux in an alcohol solvent for foam fluxing applications.

Formula 415—A mild acid flux for use where soldering can be accomplished quickly. Leaves little or no residue.

Formula 635—Similar to formula 415, but with a non-volatile solvent for use where soldering time must be extended.

Formula 541—Similar to formula 415, but much more acidic. Will solder badly oxidized metals. Leaves little or no residue.

Formula 751—Formulated especially for soldering to brass, it is free from ammonium salts which could cause corrosion or "cracking" of the brass.

Formula 715—The standard, all-purpose acid flux with high activity, stability and heat resistance. Rapid soldering can be accomplished on most metals.

Formula 737—Less concentrated than formula 715. Leaves less residue.

Formula 815—The most active flux made by Kester. Can be used for soldering all common metals except aluminum and manganese. This most corrosive flux should be used only after other types have failed to clean the metal.

Formula 817—Similar to but milder than formula 815. Developed for soldering stainless steel and nickel-chrome.

Formula 121—Similar to Formula 115 except that it is less concentrated. All other chemical properties are identical.

Formula 1015—Recommended for most soldering applications where contamination causes problems. Has high mobility and activity because of its slow evaporating solvents.

Formula 1025—More dilute than 1015 for use where leads and circuitry are less oxidized.

Formula 1645—Designed for use in foam fluxing units of automatic wave soldering machines, but works equally well in automatic spray or wave fluxers. For use when board assemblies are difficult to solder.

Formula 1636—Recommended for wave soldering machines where the heavier 35% solids content eliminates the icycling, bridging, pin-holing and webbing experienced with more dilute fluxes.

Formula 1626—A more dilute formulation for most wave soldering applications. Lower solids content.

Formula 1616—A very dilute formulation for use where a minimum of flux residue is desirable.

Formula 932 DIN—An alcohol solution of high quality, purified water-white rosin and an extremely effective activating agent. Contains no halogens and is non-corrosive in accordance with specification DIN 8511, Type F-SW32.

Formula 2300—An organic flux with a high solids content and an effective activating agent. Low halide content.

Formula 2330—An organic acid flux designed for soldering applications requiring either a water-removable flux residue or a more active fluxing system than provided by rosin fluxes.

Formula 2331—A neutral organic flux for the electronics industry. The flux is not acid or alkaline and is effectively cleaned with water. Improve productivity and reduce cost.

Formula 2211—An organic flux for foam application. The residue is soluble in water or alcohol.

Formula 1588—Designed for applications where good control of heating rates is not possible. Low in solids content.

Formula 1589—Recommended for most applications where minimal flux residue desired and the necessary controls can be maintained.

Formula 1590F—For applications where solderability of the surfaces is excellent and the controls can be held tightly. Practically no residue.

Formula 1590—Designed for automatic spray or wave fluxers. Also tinning of wires and component leads.

KESTER VAPOR DEGREASING SOLVENTS

These solvents are blends of high purity fluorocarbons and electronic grade solvents capable of removing completely all traces of organic contamination and rosin residues which remain after soldering with activated rosin fluxes. All formulations can be reclaimed by distillation, are stabilized against chemical degradation, and can be used by cold immersion or spraying in vapor degreasers or in ultrasonic equipment.

KESTER VAPOR DEGREASING SOLVENTS CONT'D

Formula 5130—The most effective solvent—will remove even the hardest, baked-on polymerized rosin. The low boiling point of 105° F. reduces heat damage to components. Plastics and markings should be tested before immersion in 5130 due to the very strong solvent action.

Formula 5120—A general-purpose, medium-strength solvent boiling at 120° F.

Formula 5110—A very mild fouorocarbon-alcohol blend, boiling at 112° F., will effectively remove soft rosin residues and activating agents but will not attack polystyrene, polycarbonate and other plastics.

KESTER ROSIN RESIDUE REMOVERS AND ELECTRONIC CLEANERS

Solvents formulated to remove completely flux residues, oils and greases in applications where vapor degreasing is not available. With the exception of formula 5211, all can be used in vapor degreasing equipment if desired. Formula AP-20—An unusually fast and effective solvent for rosin residues. Boiling point is 245° F. Can be reclaimed by distillation.

Formula 5240—Developed for use in automatic soldering machines incorporating in-line cleaning equipment. Slightly milder and with less odor than formula AP-20. Boiling point is 249° F.

Formula 5235—A medium-strength solvent boiling at 154° F. Has minimum odor and is preferred for in-line cleaning equipment incorporating a reclaiming still.

Formula 5211—A very mild solvent blend of fluorocarbons and alcohol, designed to remove residues with virtually no attack on plastics, inks and critical components. Developed as a safe, nonflammable replacement for dangerous solvents such alcohols and naphtha.

Formula 5770 Bio-Kleen—A concentrated solution which is mixed 1:10 with water for removal of rosin flux residue. The mixed solution is used hot (165–185° F) to convert rosin to biodegradable soap for disposal in a sanitary sewer. Designed for use in production equipment.

Formula AP-20—A blend of organic solvents to dissolve and remove all types of rosin or resin flux residues. Clear, colorless, non-ionic and relatively non-toxic.

Formula 5760—Buffered, alkaline concentrated formula to remove acid flux residues, either organic or inorganic.

Formula 5761—For use in high-pressure spray systems.

Formula 5345—A bipolar azeotrope to remove both non-polar rosin residues and polar ionic chloride residues from rosin fluxes.

Formula 5121—A blend of chlorinated and fluorinated solvents and alcohol for vapor degreasing machines.

KESTER SPECIAL PURPOSE CHEMICALS

Formula 5560 "Solder-Nu"—For cleaning and activating solder coatings, very tarnished copper, and silver-plated surfaces.

Formula 5520 "Copper-Nu"—For cleaning and activating copper and gold-plated surfaces. Copper-Nu and Solder-Nu effectively remove oxides, sulfides, carbonates and etch residues from metal surfaces to facilitate soldering. After water rinsing, these solutions leave a chemically active surface without etching away valuable base metal.

Formula 5610 "Surf-Kote"—A thin, non-tacky resinous protective coating for most solderable surfaces. Dissolves in all Kester resin fluxes during soldering. Can be removed with any Kester solvent or flux remover.

Formula 5721 "Screen Wash"—A cleaning solvent for rapid removal of most synthetic epoxy resin compounds with no attack on silk or stainless steel screen materials. Epoxy solder resists and marking inks are removed quickly from screening equipment and hands.

Formula 5740 "Fusing Compound"—A white wax-like solid melting at 120–130° F. The molten liquid possesses unusually high flash and fire points. The primary application is as a heat transfer medium for fusing or reflowing solder plating. Also has been used as a dross inhibitor on solder baths up to 550° F.

Formula 5731 "Tinning Oil"—A high quality, very stable oil formulation designed for use in automatic soldering machines which employ an oil blanket or oil-injection system. Relieves interfacial tension between solder and base metal, eliminating icicling and bridging.

Formula 5780 "Peel-Kote"—A liquid, masking elastomer developed to provide a temporary resistant coating for soldering or painting. It is brushed on or parts are dipped and allowed to dry. Removal is by peeling the coating from the surface, leaving no residue.

Formula 5751 Tinning Oil—A highly refined synthetic oil composition designed for use in automatic soldering machines.

Formula 5733 Tinning Oil—A non-silicone oil for minimizing oxidation in automatic machines or solder pots.

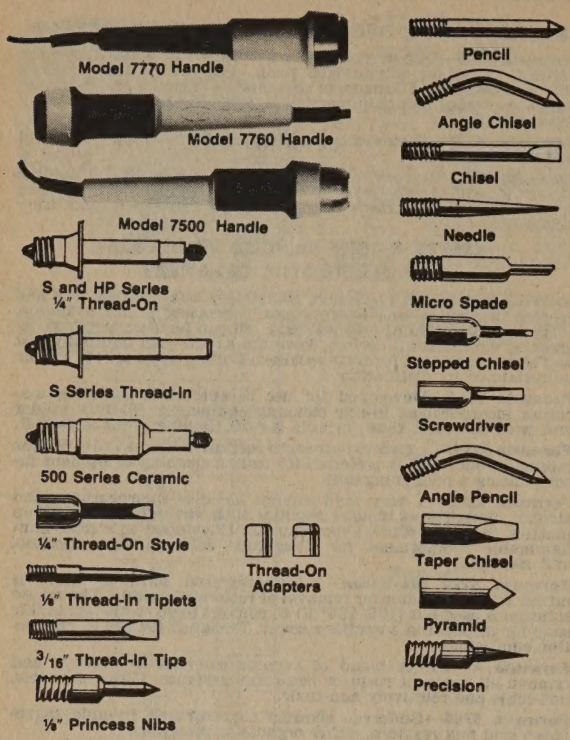
Formula 5611-S "Protecto"—A rosin-based protective coating for etched and cleaned PC boards.

Kester Sales Aides—Quality Workmanship Manuals & Standards. Volume I—A 167 page Reference Manual with illustrations and diagrams.

Volume II—A sturdy compact 5 x 8½ inch performance guide with color photos that show standards to strive for defects to avoid.

Solder Analysis—Programs to provide the control required. Three options available. Price on request for various soldering operations.

Ungar "STANDARD LINE" SOLDERING TOOLS



The modular "Standard Line" provides the professional with a durable yet economical iron for all types of soldering. Handles are perfectly balanced for comfort and fatigue-free soldering. Heaters provide fast recovery and maximum heat transfer. All irons are for operation on 120 VAC.

MODEL 7500 GROUNDED 3-WIRE HANDLE

The handle, when assembled with the S or HP Series heaters, is completely grounded from tip to plug and eliminates electrostatic tip potential. A unique, spring-loaded ground plate reflects heat away from the operator's hand. **For use only with S or HP heaters.**

Ungar Model 7500 Grounded Handle—Net Each.....**$11.83**

MODEL 7770 CLEAN ROOM HANDLE

Convection-cooled, molded grip for "clean room" use. Octagonal handle prevents rolling. Stainless steel heat reflector. Accepts all Standard Line heaters and integral heater/tips, including the S and HP series.

Ungar Model 7770 Clean Room Handle—Net Each.....**$5.92**

MODEL 7760 CORK GRIP HANDLE

Same as Model 7770, but red with cork grip.

Ungar Model 7760 Handle—Net Each.....**$5.92**

Ungar Model 7070 Technician's Soldering Kit—33 W, 120 VAC with No. 7760 handle, No. 1237-S heater, and Nos. 111, 113 and 116 tips. Net Each.....**$16.15**

500 SERIES CERAMIC HEATERS

The most economical and popular 27-watt ceramic heaters and integral heater tips. For use only with Models 7760 and 7770 handles. Model 537 Thread-On Heater will accept all ¼" Thread-On Tips and, with No. 100 Adapter, all ⅛" Tiplets and Nibs; with No. 101 Adapter, all 3/16" Thread-In Tips.

S SERIES STAINLESS STEEL HEATERS

Constructed of corrosion-resistant stainless steel. Units feature improved 2- or 3-wire versatility, high strength, resistance to abuse and provide positive transfer of heat to the tip. Wedge-shaped base guide permits firm, taper-fit assembly to the handle. The heat reflecting shield also provides positive ground when used with Model 7500 grounded handle. Models 537-S, 1237-S and 4037-S Thread-On Heaters will accept all ¼" Thread-On Tips and, with No. 100 Adapter, all ⅛" Thread-In Tiplets and Nibs; with No. 101 Adapter, all 3/16" Thread-In Tips.

HP SERIES HIGH PERFORMANCE HEATERS

Also constructed of corrosion-resistant stainless steel and designed for applications requiring extra heat output. Units will out-perform bigger conventional irons. Respond automatically to temperature change, provide reserve power and fast recovery. Model 37HP will accept all ¼" Thread-On Tips and, with No. 100 Adapter, all ⅛" Thread-In Tiplets and Nibs; with No. 101 Adapter, all 3/16" Thread-In Tips.

REPLACEMENT TIP PACKS

Ungar No. 156 Tip Pack—Contains one #111 pencil, one #113 chisel and one #116 pyramid tip. Net Each.....**$3.78**

Ungar No. 157 Tip Pack—Contains two #113 chisel tips. Net Each.....**$4.70**

ALL PARTS THREAD TOGETHER WITH FINGERTIP EASE

INTEGRAL HEATER/TPS

Ungar No.	Temp. °F	Watts @ 120 VAC	Material	Tip Shape	Net Each
533†	650-700	27	Copper	Lg. chisel	$5.37
536†				Pyramid	5.37
539†				Sht. chisel	5.37
533-S	800§	23	Copper	Lg. chisel	6.62
536-S	900§			Pyramid	6.62
539-S	900§			Sht. chisel	6.62
1233-S	900§	33	Copper	Lg. chisel	8.20
1236-S	900§		Iron clad, plated	Pyramid	8.20
1239-S	1000§			Sht. chisel	8.20
4033-S	1000§	45	Iron clad, plated	Lg. chisel	10.30
4036-S	1100§			Pyramid	10.30
4039-S	1100§			Sht. chisel	10.30
33 HP	850-1000	50	High perf.	Lg. chisel	16.49

†Not for use with No. 7500 handle. §Approximate.

HEATERS

Ungar No.	Temp. °F	Watts @ 120 VAC	Description	Net Each
For ¼" THREAD-ON TIPS				
537†	600-650	27	1.01" lg. × .312" diam.	$5.22
537-S	700§	23	3.67" lg. × .365" diam.	6.42
1237-S	800§	33	3.65" lg. × .375" diam.	7.70
4037-S	900§	45	3.45" lg. × .365" diam.	9.75
37HP*	800-850	50	3.27" lg. × .365" diam.	14.87
FOR ⅛" THREAD-IN TIPLETS AND NIBS				
535†	600-650	27	1.175" lg. × .312" diam.	$5.22
535-S	700§	23	3.18" lg. × .365" diam.	6.42
1235-S	800§	33	3.56" lg. × .365" diam.	7.70
4035-S	900§	45	3.56" lg. × .365" diam.	9.75
FOR 3/16" THREAD-IN TIPS				
4045-S	900§	45	3.56" lg. × .365" diam.	$9.75

†Not for use with No. 7500 handle. *Chrome-plated, corrosion-resistant. §Approximate.

TIPS AND ADAPTERS

Ungar No.	Material	Tip Shape	Size, Ins. Ovrl. Lgth.	Size, Ins. Tip Diam.	Net Each
¼" THREAD-ON TIPS					
PL-111	Plated*	Pencil	1¼	⅛	$2.15
111	Copper	Pencil	1¼	⅛	1.07
PL-113	Plated*	Chisel	1¼	⅛	2.15
113	Copper	Chisel	1¼	⅛	1.07
PL-114	Plated*	Micro spade	1	.05	2.15
PL-116	Plated*	Pyramid	1	5/16	2.22
116	Copper	Pyramid	1	5/16	1.13
PL-133	Plated*	Taper chisel	1 1/16	⅛	2.22
133	Copper	Taper chisel	1 1/16	⅛	1.13
PL-138	Plated*	Needle	1¼	3/64	2.15
PL-151	Plated*	Screwdriver	1¼	⅛	2.15
PL-153	Plated*	Chisel	1 1/16	3/16	2.15
PL-155	Plated*	Stepped chisel	1¼	1/16	2.15
⅛" THREAD-IN TIPLETS					
PL-331	Plated*	Pencil	¾	⅛	$1.72
331	Copper	Pencil	¾	⅛	.73
PL-332	Plated*	Angle pencil	¾	⅛	1.72
332	Copper	Angle pencil	¾	⅛	.73
PL-333	Plated*	Chisel	¾	⅛	1.72
333	Copper	Chisel	¾	⅛	.73
PL-338	Plated*	Needle	¾	1/32	1.72
PL-340	Plated*	Micro spade	9/16	3/64	1.72
7062	Plated*	Precision	¾	3/32	2.97
7154	Plated*	Pencil	¾	1/16	1.72
7155	Plated*	Chisel	¾	1/16	1.72
⅛" PRINCESS NIBS					
6960	Plated#	Pencil	⅜	1/16	$1.85
6950	Copper	Pencil	⅜	1/16	.95
6961	Plated#	Screwdriver	7/16	1/16	1.85
6951	Copper	Screwdriver	7/16	1/16	.95
6962	Plated#	Spade	⅜	1/16	1.85
6952	Copper	Spade	⅜	1/16	.95
6963	Plated#	Precision	⅜	1/16	3.32
6953	Copper	Precision	⅜	1/16	1.82
3/16" THREAD-IN TIPS					
PL-823	Plated*	Pyramid	1	3/16	$1.93
823	Copper	Pyramid	1	3/16	.90
PL-824	Plated*	Chisel	1	3/16	1.93
824	Copper	Chisel	1	3/16	.90
PL-833	Plated*	Chisel	1¾	3/16	2.80
PL-834	Plated*	Angle chisel	1¼	3/16	2.80
ADAPTERS					
100	⅛" thread-on heaters to ⅛" thread-in tips				$0.72
101	¼" thread-on heaters to 3/16" thread-in tips				.72

*Iron clad and silver plated. #Iron clad and gold plated.

QUANTITY DISCOUNTS AVAILABLE ON REQUEST

PRICES LISTED ARE FOR GUIDANCE ONLY

3-WIRE AND DI® LINE SOLDERING IRONS, DE-SOLDERING TIPS AND ACCESSORIES

3-WIRE SOLDERING IRONS

FOR USE WITH MORE THAN 40 INTERCHANGEABLE TIPS FOR SOLDERING AND DE-SOLDERING

Provides many of the advantages of the Standard Line as a production soldering tool with approved grounding. Lightweight, integrated iron, has molded handle and octagonal cool grip. Threaded metal body for tip selection. Accepts ¼" thread-on tips, with adapter #100, ⅛" nibs and Tiplets; with adapter #101 for all $^{3}/_{16}$" thread-in tips. Choose from more than 40 tips and de-soldering accessories. Simplified design makes it easy for in-shop replacement or change of heating element or cord. Three wattages available; temperature ranging from 650° F to 1000° F approx. 3-wire line is designed to eliminate static induced currents, iron is especially desirable for work on MOSFET and other IC components. Meets OSHA requirements. UL Listed.

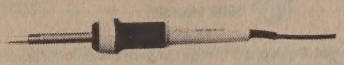
Ungar No.	Voltage	Watts	Tip Temperature	Net Each
1270*	120	27	650° F-750° F	$17.77
1350*	120	35	750° F-850° F	17.77
1450*	120	45	900° F-1000° F	17.77

*Adapter and tip not included; all temperatures approx.

REPLACEMENT PARTS FOR 3-WIRE SOLDERING IRONS

Ungar No.	Description	Net Each
127-S	27 W heating element assembly	$6.42
135-S	35 W heating element assembly	6.42
145-S	45 W heating element assembly	6.42
129	Heat reflector and washer	.75
1300	Threaded body for heating element	5.15
1360	Handle and cord set assembly	7.65

DOUBLE INSULATED D I® LINE



- **Easy to use—lightweight and compact design with flexible cord set.**
- **Easy to change—rugged stainless steel thread-in heaters.**
- **Cool—handle is molded of durable plastic, with finger-ease grip.**
- **Safe—new heater and handle with two-conductor cord set and safety plug, are double insulated. Meets OSHA requirements. UL Listed.**
- **Plus—use any Standard Line thread-on tips or with Ungar's #100 adapter, all ⅛" Tiplets and nibs. With adapter #101, all $^{3}/_{16}$" thread-in tips. Choose from more than 40 tips and desoldering accessories.**

Ungar No.	Volts	Watts	Tip Temperature*	Net Each
360	120	27	650° F-750° F	$9.72
361	120	35	750° F-850° F	9.72
362	120	45	850° F-950° F	9.72
363†	120	45	850° F-950° F	11.09
555	120		Thread-in handle	6.72

*All temperatures are approximate. †With integral tip.
Note: Use heater and handle together.

DE-SOLDERING TIPS AND ACCESSORIES

8800 SOLDERING IRON HOLDER

Holds all Ungar soldering irons except the Princess line and ceramic-type heaters. Also can be used for the Hot-Vac 2000/4000 desoldering tool and most soldering irons with $^{5}/_{16}$" to $^{7}/_{16}$" diameter heater cases. Sturdy, freestanding iron holder holds iron in proper position. Easy to assemble. Convenient tip cleaning sponge and tray.

Ungar No. 8800 Soldering Iron Holder—Net Each.....$10.99

SOLDERING IRON HOLDER

Protects operator from burns; prevents iron breakage. Use with Ungar Standard Line, Imperial Line, 3-Wire Line and D I Line. Attaches easily to bench; angle adjustable.

Ungar No. 8000 Holder—Net Each.....$5.65

KLEEN-TIP SPONGE AND TRAY

Specially processed sponge provides the surest way to clean soldering tips. Removes oxidation, prevents contamination and insures soldering reliability. Phenolic tray. Fastens to bench.

Ungar No. 400—Net Each.....$3.07
Ungar No. 455 Refill Sponge—Individually packaged. Net Each.....$1.20

UNGAR SOLDER-OFF BULB

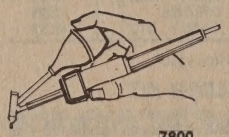
Desoldering bulb with TFE tip facilitates accurate printed circuit soldering and cleaning. May be used with "Imperial" and "Standard Line" soldering irons. (Not illustrated.)

Ungar No. 7805 Solder-Off Bulb—Net Each.....$3.33
Ungar No. 7851 Replacement TFE Tip—Net Each.....$1.77

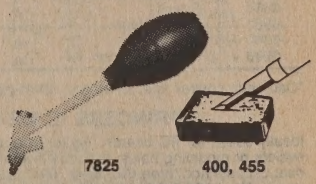
DIP DESOLDERING KITS

Adapt Ungar Standard Line, 3-Wire Line, DI Line and UNGARmatic irons for fast, easy desoldering of DIP's up to 16 pins. Each kit contains a No. 6948 slotted bar desolder tip which melts the solder on all leads, a No. 6982 spring-loaded DIP extractor which extracts the DIP at the precise moment of solder melt, a roll of Super-Wick to remove the solder from the holes in the board, and a tip adapter.

Ungar No. 50DK Desolder Kit—For UNGARmatic controlled soldering irons. Net Each.....$14.40
Ungar No. 51DK Desolder Kit—For Standard Line, 3-Wire and DI Line irons. Net Each.....$12.95



7800



7825 400, 455

MODEL 7825 DE-SOLDERING ATTACHMENT

Melts and removes solder in one operation. Vacuum action lifts solder from PC boards. Tips use special liner for long life. For use with #4037-S or 37 HP Standard Line heating unit and 7760, 7500 or 7700 handles; also 3-wire iron #145 and new DI Line heater #362. Uses No. 7806 or 7812 Tips below.

Ungar No. 7825 De-Soldering Attachment—Net Each.....$19.07

DESOLDERING, CLEANING TOOL

Reduced PC repair and rework time. Melts and removes solder in fast, one-hand operation. Complete with Standard Line Handle 7770, Heating Unit #4037-S and Tip #7806, with special liner for long life.

Ungar No. 7800A Tool—Net Each.....$33.29
Ungar No. 7806—Replacement tip for above; .057" dia. hole. Net Each.....$1.93
Ungar No. 7812—Same as above, but with .033" dia. hole. Net Each.....$2.70

NOTE: See next page for desoldering tips.

SUPER-WICK

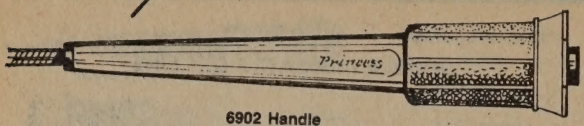
Woven copper braid to remove solder from unwanted spots on PC boards. Pure water-white rosin flux assures clean and contaminant-free desoldering.

Ungar No.	Width, Inches	Application	Net Each
5002*	.050	.060" to .125" pads	$1.78
5004*	.100	.190" and larger pads	2.03
5011	.025	.060" and smaller pads	1.53
5012	.050	.060" to .125" pads	1.53
5013	.075	.125" to .190" pads	1.53
5014	.100	.190" and larger pads	1.75

*1 per blister card.

QUANTITY DISCOUNTS AVAILABLE ON REQUEST

Ungar / Princess® SOLDERING TOOLS, ACCESSORIES



6902 Handle

Miniature soldering iron designed to meet requirements for precision micro-electronic circuitry and high density assembly. Offer thermo-efficiency and work capacity never before achieved in small feather-weight irons. Slim design, turquoise handle assures deft soldering. Choice of easy-to-assemble units thread together for versatility in tip shapes and temperature capabilities. Low initial investment, economical maintenance and inexpensive parts replacement.

PRINCESS HANDLES

Slim, cool design is molded of heat-resistant nylon in pastel turquoise. New, cool plastic grip. Integral cord set, available in 2 or 3-wire models. Rated 120 volts AC/DC. Cords are flexible vinyl-covered. Heat capsule threads into handle socket. Perfectly balanced, pencil slim, new cooler operation. UL listed.

Ungar No.	Cord Type	Net Each
6902	2-conductor with plug	$10.42
6903	3-conductor with NEMA plug	13.64

PRINCESS HEAT CAPSULES

Threaded to accept the special thread-in Princess soldering nibs and mating to the Princess handles with finger-tip ease. Also accept "Standard Line" ⅛" Tiplets if desired (will not accept Imperial tips). Choice of three wattages and temperature ranges to suit most production requirements. For 120 VAC/DC operation. Size. 3⅛" long; extends 2⅜" from handle. Wt., 0.2 oz.

Ungar No.	Watts	Temperature Range	Net Each
6910	10	575° F to 650° F	$12.24
6915	15	700° F to 775° F	12.24
6918	18	775° F to 850° F	12.24

PRINCESS SOLDERING NIBS

Choice of silver-plated iron clad or unplated cadmium copper tips in four standard shapes. Finger-tip ⅛" thread-in use on any Princess heat capsule listed above. Ungar's ⅛" Standard Line Tiplets may also be used (see listing on another page). Wt., .03 oz.

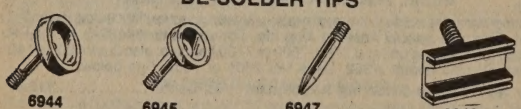
Ungar No.	Shape	Lgth., In.	Tip Stepped to:	Net Each
6950	Pencil	7/16	.080" × .015"	$0.95
6951*	Screwdriver	½	.080" × .055"	.95
6952*	Spade, 45°	7/16	.080" dia.	.95
6953*	Precision point	7/16	.080" × .005"	1.82
6960	Pencil	7/16	.080" × .015"	1.85
6961	Screwdriver	½	.080" × .055"	1.85
6962	Spade, 45°	7/16	.080" dia.	1.85
6963	Precision point	7/16	.080" × .010"	3.32

*Cadmium copper tips; all others, silver-plated iron-clad.

PRINCESS IC DE-SOLDER KIT

Ideally suited for PC boards 1/32" or less, using low-density circuitry, unplated eyelets or mounting holes. Includes 3-wire grounded Princess handle, 18-watt heat capsule and three (No. 6945, 6947, 6948) de-solder tips. (Not Illustrated.)
Ungar No. 6939 De-Solder Kit—Net Each.....$41.07

DE-SOLDER TIPS



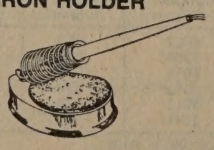
6944 6945 6947 6948

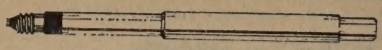
Iron-clad, nickel-plated and pre-tinned tips may be used with Ungar "Standard" line heating units No. 535, 535-S, 1235-S and 4035-S or Princess heat capsules (for lower or higher tip temperatures).

Ungar No.	Tip Temp. at 18 W	Description	Net Each
6943	700°F	TO pkg. (cup) .6" dia.	$5.18
6944	710°F	TO pkg. (cup) .5" dia.	5.18
6945	720°F	TO pkg. (cup) ⅜" dia.	5.18
6946	780°F	TO pkg. (cup) .28" dia.	5.18
6947	750°F	Slotted (lead and tab) straightener	4.10
6948	570°F	Dual inline IC	5.78

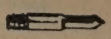
PRINCESS SOLDERING IRON HOLDER

Plastic base for convenient holding of Princess iron. Comes with specially-processed sponge for tip cleaning. Weight, 3 oz.
Ungar Model 6990 Holder—Net Each.....$9.14
Ungar No. 6991 Sponge Refill—Replacement cleaning sponge for above holder. Net Each.....$1.32

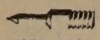




6910, 6915, 6918 Heat Capsules



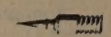
Nib



6950, 6960

6951, 6961

6952, 6962



6953, 6963

PRE-ASSEMBLED PRINCESS COMBINATIONS

MODEL 6975 SOLDERING IRON

All-in-one package provides a complete Princess soldering iron with three interchangeable copper nibs. Includes one 6902 handle with 2-conductor cord and plug, one 6910 Heat Capsule rated 10 watts, one 6950 pencil nib, one 6951 screwdriver nib and one 6952 spade nib.

Ungar No. 6975 Princess Assembly—Net Each.....$24.97

MODEL 6900 SOLDERING STATION

Fully assembled iron with three interchangeable copper nibs, plus Princess holder with cleaning sponge. Includes: 6902 handle with 2-conductor cord and plug, 6910 heat capsule rated 10 watts, 6950 pencil nib, 6951 screwdriver nib, 6952 spade nib, and 6990 soldering iron holder complete with cleaning sponge.

Ungar No. 6900 Soldering Station—Net Each.....$34.12

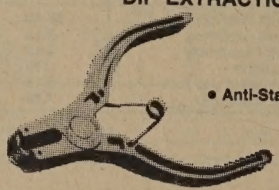
PRINCESS DUAL INLINE AND TO-5 EXTRACTORS

No. 6982 extracts up to 16-pin dual inline IC's; use 6948 desolder tip.

Ungar No. 6982 Dual Inline—Net Each.....$4.88

6982

DIP EXTRACTION PLIERS

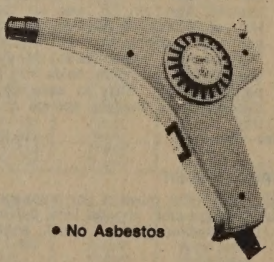


• Anti-Static

Spring loaded extraction pliers remove 4-48 pin DIP's without bending leads. Self-activating; one hand operation.

Ungar No. 6980 DIP Extraction Pliers—Net Each.....$16.17

HEAT GUN



• No Asbestos

Hot air tool offers a unique combination of features and benefits to users of heat shrinkable products as well as many other lab and industry uses. Lightweight of only 13 oz. Insures positive control wherever precise hot air direction is required. Reduces operator fatigue. Air stream width at nozzle is ⅜". Reducing baffle, included with gun, reduces air stream, width to .200"; 4 baffle reflectors are included for preforms and shrink tubing applications. Reflectors are designed to decrease shrinking time by directing hot air flow around all tubing surfaces simultaneously. Delivers an air flow temperature at the nozzle of approx. 750° F to 800° F in seconds. Designed for either hand-held use, or may be placed on table or workbench without need for holder. On-off cold switch at trigger position. Allows cooling or drying as well as heat applications. For solder preforms and all polyvinyl, olefins, silicone rubber and TFE heat shrink materials; also ideal for shrink film packaging, epoxy curing and encapsulation. UL Listed. Rated 250 watts, 120 VAC only.

Ungar No. 6966C Heat Gun—3-wire model. With NEMA plug for approved grounding. Net Each.....$65.00

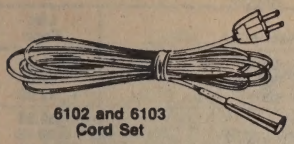
REPLACEMENT PARTS

Ungar No.	Description	Net Each
168	Cone and insulator	$8.10
182	Heating element with diode assembly	13.42
183	Motor and scroll assembly	23.07
187	3-wire cord assembly	7.27
188	Hot-off-cold switch	4.70
189	Heat gun case	19.45
6956	½" large reflector	.83
6957	1¼" large reflector	.83
6958	Reducing baffle	1.80
6964	Reflector for shrink tubing	3.70

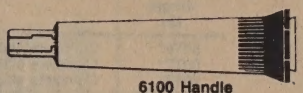
QUANTITY DISCOUNTS AVAILABLE ON REQUEST

PRICES LISTED ARE FOR GUIDANCE ONLY

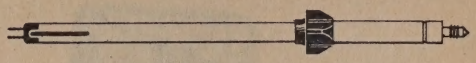
Ungar® / Imperial® PRECISION MATCHED COMPONENTS, SOLDERING TOOL



6102 and 6103 Cord Set



6100 Handle



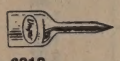
6200, 6201, 6202 and 6203 Heat Cartridges

6304

6305

Interchangeable cord sets, tips and heat cartridges ideal for critical micro-miniature components. Reliable, low wattage, high temperature performance. Perma-Cool handle has double cushion of air combined to 5 heat-transition surfaces for continuous cooling. Components individually packaged on cards; assemble to suit your needs. All electrical tools and components are UL Listed and rated at 120 volts AC/DC. **Not interchangeable with "Standard Line".**

PERMA-COOL COLORED HANDLE

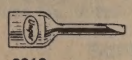


6312
6313

6316

Cool, pastel turquoise handle has been proven to reduce operator fatigue. Virtually indestructible, handle is made of high strength plastic resin. Diecast heat sink built-in. Pencil type design for easy handling. UL Listed. Size, 0.8" O.D. at grip; 4.7" lg. Weight, 1 oz.

Ungar No. 6100—Handle only. Net Each..... **$4.30**



6318
6319

6324
6325

INTERCHANGEABLE CORD SETS

Instantly adapts your iron to any 2 or 3 wire outlet. Molded female connector plugs onto the Perma-Cool handle without tools. Vinyl-covered cord, 18 gauge, 65 strands extra-flexible copper; terminals and connectors molded polyvinyl chloride. Center conductor (3-wire type) is insulated with green polyvinyl. Weight: 2½ oz., 2-wire; 4 oz., 3-wire. Supplied in pastel turquoise color only.

Ungar No.	Description	Net Each
6102	Standard 2-wire cord set with plug	$6.53
6103	3-wire cord set with NEMA plug	9.54

6331
6481

6333

INTERCHANGEABLE LONG-LIFE HEAT CARTRIDGES

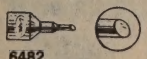
Stainless steel, sealed cartridge with element at tip and threaded end for quick tip changes; keeps heat at tip where it belongs. Four ratings available: **6200:** 45 watts for 750-950° F; accepts all tip Nos. 6304 through 6482. Size, 7½" 1. × .363" dia. (2½" 1. from flange). Wt., 1.1 oz. **6201:** Same, but 35 watts for 650-850°F. **6202:** Same, but 25 watts for 600-800°F. **6203:** 55 watts for heat range, 850° to 1150° F (2.65" 1. from flange). Accepts Imperial© MINI-TIPS® only.

Ungar Number	Rated Watts	Net Each	Ungar Number	Rated Watts	Net Each
6200	45	11.64	6202	25	$11.64
6201	35	11.64	6203	55	13.74

6366

6368

6473



6482

THREAD-ON IMPERIAL SOLDERING TIPS

For Imperial heat cartridges only. New, improved iron-clad tips are pre-tinned and chrome-plated for improved performance.

ANTI-SEIZE

Ungar No. 8001—Specially formulated lubricant for use on metals operating at high temperatures. Reduces tip thread seizure and prolongs tip life. ½ oz. tube. Net Each..... **$1.97**

QUANTITY DISCOUNTS AVAILABLE ON REQUEST

TIPS FOR 6200, 6201, 6202, or 6203 HEAT CARTRIDGES

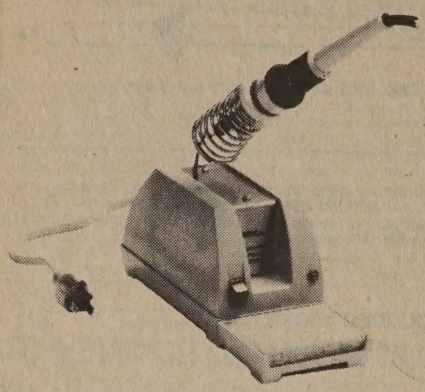
Ungar No.	Shape	Material	Size, In. O.D. × L.	Temp. (°F)* With Cartridge Rated 25 W	35 W	45 W	Net Each
6304	Micro-chisel	Iron clad	3/64 × ½	750	800	890	$2.82
6305	Micro-spade	Iron clad	3/64 × ½	750	800	890	2.82
6312	Pencil	Copper	⅛ × ¾	750	800	910	1.33
6313	Pencil	Iron clad	⅛ × ¾	60	750	860	2.82
6316	Offset pencil	Iron clad	⅛ × ¾	690	750	860	2.82
6318	Long taper chisel	Copper	⅛ × ¾	750	800	890	1.33
6319	Long taper chisel	Iron clad	⅛ × ¾	690	750	860	2.82
6324	Long taper pyramid	Copper	⅛ × ¾	750	800	890	1.33
6325	Long taper pyramid	Iron clad	⅛ × ¾	690	750	860	2.82
6331	Screwdriver	Iron clad	⅛ × ¾	690	750	860	2.82
6333	Needle	Iron clad	⅛ × ¾	690	750	860	2.82
6366	Long taper chisel	Iron clad	3/16 × ¾	680	730	850	3.30
6368	Long taper pyramid	Copper	3/16 × ¾	.....	.....	.....	1.57
6473	Long taper chisel	Copper	⅜ × ¾	.....	.....	.....	1.57
6481	Tapered screwdriver	Iron clad	¾ × 3/32	690	750	860	2.82
6482	Micro-spade stepped	Iron clad	3/64 × ½	700	770	860	2.82

*Slight variation in line voltage will give ± 25° F deviation.

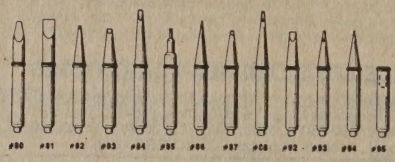
IMPERIAL COMPLETE SOLDERING IRON

Ungar No. 6010—Includes one 6100 handle, one 6102 cord set, one 6200 heat cartridge and 6318, 6368, and 6473 Tips. Net Each..... **$26.94**

UNGARMATIC® TEMPERATURE CONTROLLED SOLDERING STATION



Low-voltage, grounded three-wire system for soldering in critical equipment. Thread-together modular design allows quick, on-line heater or tip change. Specially designed handle with cool grip provides operator comfort. The stand/power supply has on-off switch and indicator light. Iron cord is super flexible, 3-wire and burn-resistant. Snap-on sponge tray can be removed and placed elsewhere. Long-life interchangeable tips are iron-clad, chrome-plated and pre-tinned. Power-supply input, 120 VAC, 60 watts; output, 24 VAC, 2 amps. Three temperature ranges; 600° F, 700°F, and 800°F. Available as complete station or individual components; power supply soldering iron, heater or tips.



Ungar No.	Description	List Each
50T6*	Complete station, 600° F	$82.80
50T7*	Complete station, 700° F	82.80
50T8*	Complete station, 800° F	82.80
60T6	Soldering iron only, 600° F	39.56
60T7	Soldering iron only, 700° F	39.56
60T8	Soldering iron only, 800° F	39.56
70B	Power supply only—includes switch, pilot lamp and power cord.	51.81 22.70
76	Thread-in heater, 600° F	22.70
77	Thread-in heater, 700° F	22.70
78	Thread-in heater, 800° F	18.02
71	Handle and cord set	4.50
72	Iron holder and mounting assembly	2.40
73	Fuse, 1 A, 3AG; pack of 5	2.50
73A	Fuse, 4 A , 3 AG; pack of 2	1.90
74	Neon lamp assembly for #70 supply	1.90
74A	Neon lamp assembly for #70B supply	1.90
75	Switch and cap assembly	1.27
79	Spring-loaded tip retainer	2.27
89	Tray and sponge	3.25
91	Replacement sponge	1.20

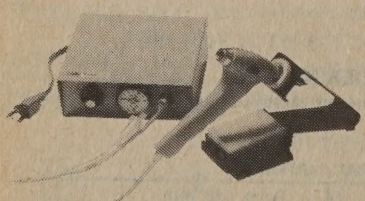
*Includes power supply, handle and cord set, sponge tray, iron holder, heater and #87 tip.

UNGARMATIC® TIPS

Ungar No.	Tip Description	List Each
80	Long screwdriver, 1/8"	$2.97
81	Screwdriver, 15/64"	2.97
82	Spade, 1/32"	2.97
83	Screwdriver, 3/32"	2.97
84	Long screwdriver, 5/64"	2.97
85	Stepped spade, 3/64"	2.97
86	Needle tip, 3/64"	2.97
87	Screwdriver, 1/16"	2.97
88	Long screwdriver, 3/64"	2.97
92	Screwdriver, 1/8"	2.97
93	Screwdriver, 1/32"	2.97
94	Short conical, 1/32"	2.97
95*	Adapter	1.83

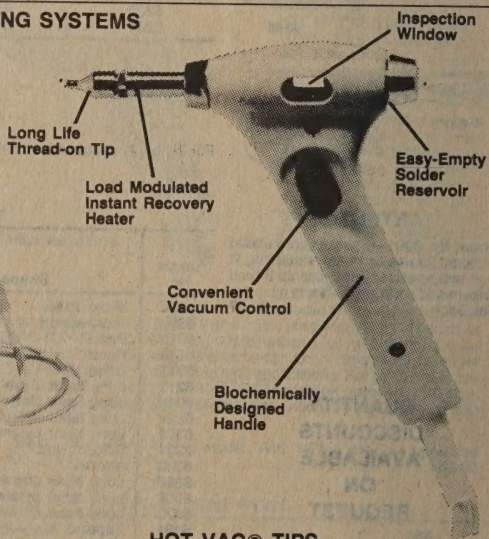
*For micro applications. Adapter permits use of all thread-in 1/8" Tiplets and Nibs.

HOT VAC® DESOLDERING SYSTEMS



HOT VAC 2000A

HOT VAC 4000



HOT VAC MODEL 2000A

The HOT VAC 2000A uses normal shop air supply to remove excess and unwanted solder from PC boards. A solid state control regulates tip temperature from 500° to 1000° F and adapts the HOT VAC 2000A to a wide variety of applications. The long-life tips are available in a range of hole sizes from .032" to .089" and are machined from an alloy which resists abrasion and erosion by the solder. The solder reservoir is located in the handle and can be emptied even while the unit is operating. The exhaust is muffled for quiet and can be fitted with a remote exhaust for clean room applications.

Ungar No. HOT VAC 2000A Desoldering System—
Net Each..... **$339.00**

HOT VAC MODEL 4000

Similar to the Model 2000A, except has built-in vacuum pump that operates only when the handle switch is actuated. A low-noise exhaust system and vibration isolators keep the pump quiet. The case is steel with baked-enamel finish. A convenient handle and a locking device to secure the handle permit easy transporting.

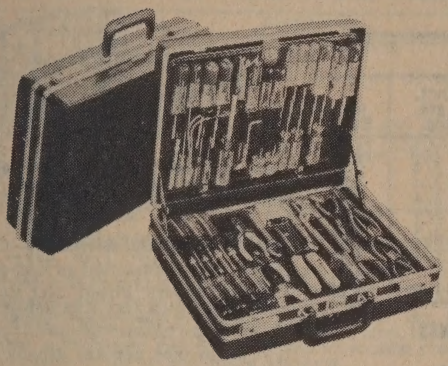
Ungar Model HOT VAC 4000 Desoldering System—
Net Each..... **$399.00**

HOT VAC® TIPS

Ungar No.	Dimensions (Ins.) Inside Dia.	Outside Dia.	Depth	Length	Net Each
2005	.032	.060	.12	.75	$5.20
2006	.040	.080	.12	.75	5.20
2007	.062	.100	.12	.75	5.20
2008	.089	.120	.12	.75	5.20
2009	.062	.100	.37	1.00	5.20
2010	.032	.060	.015	.64	5.20
2011	.040	.080	.015	.64	5.20
2012	.020	.040	.12	.75	5.20

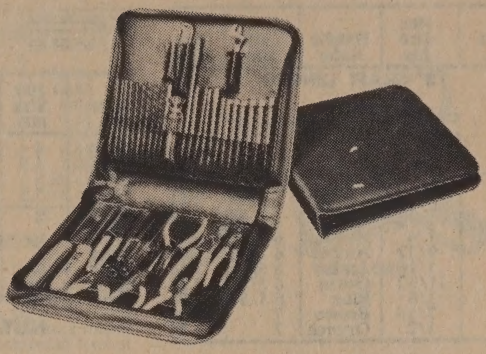
VACO® Tool Cases

ORIGINAL SUPER CASE
70260



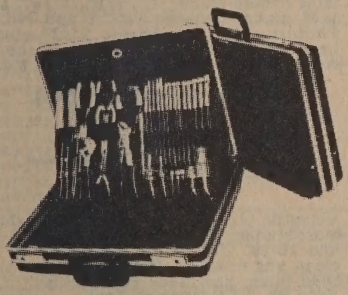
Popular assortment of 48 precision engineered tools. Includes screwdrivers, nut drivers, electrical tools, pliers and specialty tools on two custom-fitted pallets. Storage space in bottom for meters, power tools and other equipment. Large pocket in lid. Black simulated top-grain leather covers sturdy molded case. Measures 19" × 14 1/2" × 6". Shipping Weight 20 lbs.
Vaco No. 70260—Net Each **$376.18**

SUPER ZIP
70390



This compact super assortment holds 36 popular professional tools. Includes interchangeable 90-series handle and screwdriver, nut driver and hex driver blades plus pliers, electrical tools, and offset and regular screwdrivers. Zippered vinyl case is tough, rugged and lightweight. Measures 12 1/2" × 10 1/4" × 1 3/8". Shipping Weight 8 lbs.
Vaco No. 70390—Net Each **$202.67**

SUPER CASE II
70380

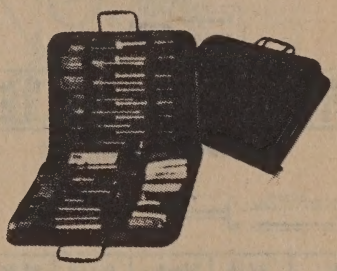


The Super Case II contains 45 of the most popular professional tools and a versatile terminal service kit with crimping tools. Includes handy, interchangeable 90-series screwdriver, nut driver and hex driver blades and handles, plus pliers, screwdrivers, electrical tools. Rugged wood case is covered with tough rugged vinyl. Measures 18 3/4" × 3 7/8" × 4 5/8". Shipg. Wt. 12 lbs.
Vaco No. 70380—Net Each **$320.36**

SUPER TOOL SET
70420

Interchangeable screwdriver, nutdriver and hexdriver blades and handles plus pliers, screwdrivers and electrical tools are mounted on a steel-bound, vinyl-covered pallet. Grommets allow easy hanging on workbench or pegboard. Contains 45 individual tool items.
Vaco No. 70420—Net Each **$174.93**

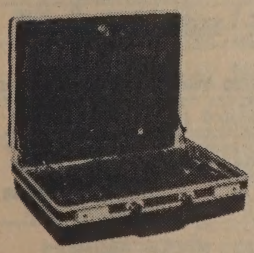
TOOL BUX SUPER CASE
70470



Assortment of 29 popular tools, including screwdrivers, nutdrivers, electrical tools, and specialty tools, all contained in an attractive, vinyl, zippered case with sturdy retractable handles for easy carrying. Each tool is held by heavy duty elastic bands, making it easy to select the proper tool for the job. Case measures 25" × 15 1/2" × 1 3/4". Shipping weight, 8 lbs.
Vaco No. 70470—Net Each **$150.12**

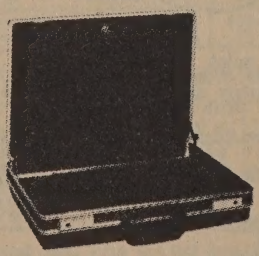
EMPTY ATTACHE TOOL CASE PROGRAM

TWO-PALLET CASE
70261



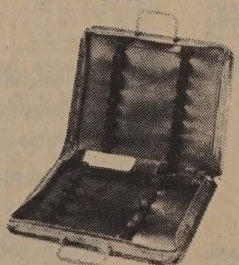
Two-pallet case is molded of ABS plastic with fiberglass reinforced corners. A padded, steel-core matching handle adds to ease of portability. Aluminum, reinforced valance adds to durability. Document pocket in lid allows storage of important papers. Ample storage space in bottom for meters, power tools, and other equipment. Shipping weight, 10 lbs.
Vaco No. 70261—Net ..**$149.54**

ONE-PALLET CASE
70422



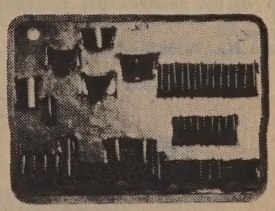
Convenient, single-pallet case is made of top quality molded ABS plastic with fiberglass reinforced corners. Document pocket in lid for storage of important papers. Pallet is bound with an aluminum vinyl covered binding. Extra strong pockets hold tools firmly. Shipping weight, 8 lbs.
Vaco No. 70422—Net ..**$131.06**

TOOL CASE
70471



Attractive, vinyl, zippered case with sturdy retractable handles for easy carrying. Heavy duty elastic holders secure each tool for easy selection. Reinforced material adds durability and longer life. Shipping weight, 3 lbs.
Vaco No. 70471—Net ...**$34.56**

PALLET ONLY
70419

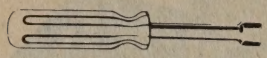


Durable pallet has aluminum-bound border with leather-like pockets. It organizes your tools and can be hung on pegboard or at your workbench for easy use. Shipping weight, 2 lbs.
Vaco No. 70419—Net ...**$26.24**

VACO® Nut Drivers & Electrical Tools

HOLLOW SHAFT HEX NUT DRIVERS

3" SHAFT LENGTH

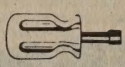


Vaco No.	Hex Size Ins.	Handle Color	Ov'l. Lgth. Ins.	Net Each
S5	5/32	Amber	6 1/2	$2.61
S6	3/16	Black	6 5/8	2.58
S7	7/32	Amber	6 5/8	2.61
S8	1/4	Red	6 5/8	2.58
S9	9/32	Amber	6 5/8	2.61
S10	5/16	Amber	6 5/8	2.58
S11	11/32	Green	6 5/8	2.58
S12	3/8	Blue	6 5/8	2.58
S14	7/16	Brown	7	3.24
S16	1/2	Orange	7	3.24

4" SHAFT LENGTH

S18	9/16	Amber	8	$4.15
S20	5/8	Amber	8	4.57

STUBBY 1 1/4" SHAFT LENGTH

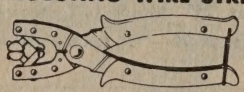


SS8	1/4	Amber	3 1/2	$2.36
SS10	5/16	Amber	3 1/2	2.36
SS12	3/8	Amber	3 1/2	2.36

6" SHAFT LENGTH

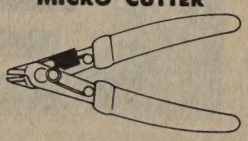
S66	3/16	Black	9 5/8	$3.34
S86	1/4	Red	9 5/8	3.34
S106	5/16	Amber	9 5/8	3.34
S116	11/32	Green	9 5/8	3.34
S126	3/8	Blue	9 5/8	3.34
S146	7/16	Brown	10	3.91
S166	1/2	Orange	10	3.91

SELF-ADJUSTING WIRE STRIPPER



A wire stripper so simple to use, it automatically adjusts itself to the wire diameter. The cutting blades never touch the conductors; damage to the wire is impossible. Spring action returns stripper to the ready-to-use position. Strips all wire automatically from 18 to 10 gauge.
Vaco No. 70358C—Net Each **$19.47**

MICRO CUTTER



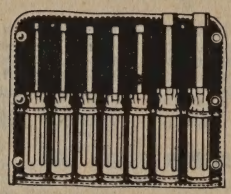
A precision wire cutter for electronic and electrical applications. Cuts wire from 14 gauge to the finest gauges. Flush cut blades allow cuts to be made parallel and tangent to circuit boards, etc. Coil spring opens handles after use. With cushion grip handles.
Vaco No. 70319 Standard Micro Cutter—Net Each **$5.65**
Vaco No. 70351 Deluxe Micro Cutter—Same as above, except has retainer to hold cut-off wire. Net Each **$7.08**

METRIC NUT DRIVERS

3" SHAFT LENGTH

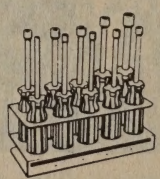
Vaco No.	Hex Size mm	Handle Color	Ov'l. Lgth. Ins.	Net Each
70204	4	Blue	6 3/4	$2.56
70245	4.5	Blue	6 3/4	2.56
70205	5	Blue	6 3/4	2.56
70255	5.5	Blue	6 3/4	2.56
70206	6	Blue	6 3/4	2.56
70207	7	Blue	6 3/4	2.56
70208	8	Blue	6 3/4	2.56
70209	9	Blue	6 3/4	2.56
70210	10	Blue	7	3.15
70211	11	Blue	7 1/8	3.15

NUT DRIVER KIT



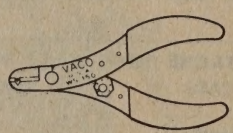
Vaco No. K7—Stand up or hang up kit contains 3/16", 1/4", 5/16", 11/32", 3/8", 7/16", 1/2" drivers. Boxed. Net Each **$22.63**

NUT DRIVER SET



Vaco No. 70200—Metal stand contains 4 mm, 4.5 mm, 5 mm, 5.5 mm, 6 mm, 7 mm, 8 mm, 9 mm, 10 mm, and 11 mm drivers. Boxed. Net Each **$29.06**

WIRE STRIPPER AND CUTTER



Spring loaded for quick response to working requirements. Cuts and strips 12-24 gauge wire, simply turn adjusting dial to size required. With cushion grip handles.
Vaco No. WS150—Net Each **$3.55**

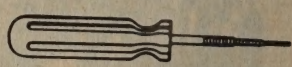
CRIMPING TOOL

One tool, one die, crimps all styles of insulated and non-insulated terminals in wire range from 22 to 10 gauge. Built-in ratchet assures uniform crimp every time, and compound lever action from narrow span handles eases required effort. Terminals are quickly positioned for double crimps by special terminal locator. Cushion grip handles.
Vaco No. T1710 Crimping Tool—Net Each **$134.40**

TORQUE COMMANDER® TOOL SETS

Vaco No. 70101 Screwdriver Set—Contains handle and No. 0, No. 1, and No. 2 Phillips plus 3/32", 1/8", 3/16", 1/4", and 5/16" slotted drivers. Boxed. Net Each **$12.70**
Vaco No. 70103 Nut Driver Set—Contains handle and 3/32", 1/8", 5/32", 3/16", 7/32", 1/4", 9/32", 5/16", 11/32", and 3/8" nut drivers. Boxed. Net Ea. **$17.46**
Vaco No. 70105 Hex Key Set—Contains handle and 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", and 1/4" Allen type hex key drivers. Boxed. Net Each **$15.14**
Vaco No. 70110 Combination Set—Contains handle; No. 1 and No. 2 Phillips; 1/8", 3/16", and 1/4" slotted drivers; and 3/16", 1/4", 5/16", 11/32", and 3/8" nut drivers. Boxed. Net Ea. **$17.46**
Vaco No. 70137 Square Recess Set—Contains handle and No. 00, No. 0, No. 1, No. 2, and No. 3 square recess drivers; 1/8", 3/16", and 1/4" slotted drivers; and No. 1 and No. 2 Phillips drivers. Boxed. Net Each **$16.64**
Vaco No. 70139 Mobile Home Set—Contains handle and 3/32", 1/8", 3/16", and 1/4" slotted drivers; No. 1 and No. 2 Phillips; 1/4" nut driver; 5/32" clutch head driver; No. 1 and No. 2 square recess drivers. Boxed. Net Each ..**$16.64**

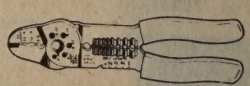
3-IN-1 TAPPING TOOL



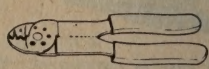
Versatile tool has cutting taps to fit three most popular threaded holes—6-32, 8-32, and 10-24. Use to tap new holes or to clean and retap existing holes. Hardened steel blade has black oxide finish.
Vaco No. TT31 Tapping Tool—Net Each **$6.26**

CRIMPING TOOLS

Special crimping dies designed to provide strong, secure bond between terminal and wire. Wire stripping dies will handle 22 to 10 gauge wire without nicking wire. Bolt-cutting dies handle 4-40, 6-32, 8-32, 10-24 and 10-32 bolts without deforming threads. Black oxide finish with deep etched markings. Cushion grip handles for operator comfort.



Vaco No. 19730 Wire Plier—Similar to No. 1900, except crimps both insulated and non-insulated terminals, has nose-mounted wire cutter, and stripping dies from 22 to 6 gauge. Net Each ...**$13.49**
Vaco No. 70286 Wire Plier—Same as No. 19730, except for metric sizes. Net Each **$14.68**



Vaco No. 70362 Crimping Tool—For U-shaped barrel terminals. Cuts five sizes of bolts, strips wires from 30 to 18 gauge. Built-in wire cutter. Net Each **$18.47**
Vaco No. 70393 Crimping Tool—Same as No. 70362, except for stripping wire sizes from 26 to 14 gauge. Net Each **$18.47**

PRICES LISTED ARE FOR GUIDANCE ONLY

(Continued from previous page)

REPLACEMENT PARTS FOR MODELS WTCPN, WTCPL, TCP-12 AND TCP-24

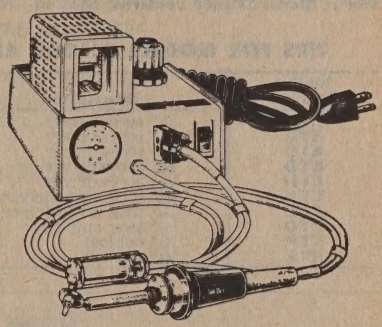
Weller No.	Description	Net Each
TCP-1	Replacement soldering pencil with PTA7 tip for WTCPL	$38.74
SW60	Switch assembly for TCP-1 and TCP-12	11.64
HE60	Heating element	10.45
CS100HB	Cord set, silicone, with handle	9.84
BA60	Barrel nut assembly for TCP-1 and TCP-12	3.46
FP1	Fuse for PU1, PU1A, PU2 and WTCP2	2.37
LN2	Lamp assembly for WTCPL and PU2	3.46
PUS	Switch for PU2	3.46
HE12	Heating element for TCP-12	10.45
HE24	Heating element for TCP-24	10.45

Series MP

TEMPERATURE-CONTROLLED DESOLDERING STATION

Stainless steel lined desoldering tips draw molten solder into see-through collecting tube which is easily cleaned and replaced. Collector tube filter prevents solder from entering and clogging vacuum tube. Vacuum is created by conversion of air pressure through a special transducer; vacuum adjustable from 5" to 20" Hg. A foot switch turns vacuum on and off. Cabinet-mounted gauge shows vacuum level. Station is designed to use factory air. Lighted on-off power switch. Quick-connect locking plug prevents accidental loss of power. Available in 700° F and 800° F versions.

Weller No.	Description	Net Each
DS500	Desoldering station; 1 per box	$403.74
DS501	Power supply; 1 per box	325.52
DS502	Foot switch; 1 per box	51.80
DS503	Tool holder; 1 per box	45.31
DS504	Transducer; 1 per box	64.75



DS500

SERIES MP MINIATURE SOLDERING STATION

Designed for PC electronics, and for fast and economical production soldering. Closed loop temperature control system with low voltage output. Non-burnable cord; replaceable tips in wide range of configuration. New plug-in pencil for maximum flexibility and reduced maintenance cost.

Weller No.	Description	Qty./ Box	Net Each, Lots of 1-11	12-47	48 Up
MP126	650° F soldering pencil	1	$36.39	$32.69	$28.98
MP127	750° F soldering pencil	1	36.39	32.69	28.98
MP201	Transformer with terminals	1	33.90	30.45	27.00
MP202	Sponge	10	1.40	1.26	1.12
MP213	Funnel	1	1.40	1.26	1.12
MP214	Iron holder assembly	1	2.69	2.42	2.14
MP210	Barrel nut assembly	1	3.46	3.11	2.75
MP303	Iron receptacle 10/contr circ	1	10.45	9.39	8.33
MP304	Switch w/light	1	7.01	6.30	5.59

REPLACEMENT TIPS FOR SERIES MP AND SERIES W-MCP

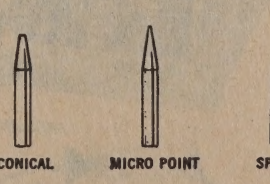
Weller No.	Reach, Inches	Description	Net Each, Lots of 1-11	12-47	48 Up
MP131	1/64"	Conical	$2.81	$2.52	$2.23
MP132	1/32"	Bent Conical	2.81	2.52	2.23
MP133	1/32"	Single Flat 45°	2.81	2.52	2.23
MP134	3/64"	Bent Conical	2.81	2.52	2.23
MP135	3/64"	Single Flat 45°	2.81	2.52	2.23
MP136	1/16"	Narrow Screwdriver	2.81	2.52	2.23
MP137	5/64"	Screwdriver	2.81	2.52	2.23
MP138	5/64"	Chisel	2.81	2.52	2.23

SCREWDRIVER BENT CONICAL

CONTROLLED OUTPUT INDUSTRIAL SOLDERING IRONS

Sensing device at tip assures reliable soldering; won't overheat; maintains selected maximum temperature. Two-wire cord. With 700° F tips. "Temperature Sensing" tips are available in standard industrial configurations at 600°, 700° and 800° F; see listings below. Models W60 and W100 have new blue color.

Weller No.	Watts	Type	Tip	Overall Length	Wt., Oz.	Net Each, Lots of 1-11	12-47	48 Up
W60	60	Pencil	1/4" screwdriver	7 1/4"	2 1/2	$30.13	$27.06	$23.99
W100	100	Pencil	3/8" screwdriver	8 1/4"	3 1/2	38.41	34.50	30.59



CONICAL MICRO POINT SPADE

PREMIUM PLATED REPLACEMENT TIPS FOR W60 SOLDERING IRON

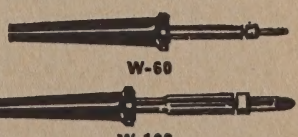
For Model W60 blue series tools only.

Point Size	Description	Reach	Weller Number 600° F	700° F	800° F	Net Each, Lots of 1-11	12-47	48 Up
1/16"	Screwdriver	1 5/32"	CT5A6	CT5A7	CT5A8	$3.24	$2.91	$2.58
3/32"	Screwdriver	1 5/32"	CT5B6	CT5B7	CT5B8	3.24	2.91	2.58
1/8"	Screwdriver	1 5/32"	CT5C6	CT5C7	CT5C8	3.24	2.91	2.58
3/16"	Screwdriver	1 5/32"	CT5D6	CT5D7	CT5D8	3.24	2.91	2.58
1/4"	Screwdriver	1 5/32"	CT5E6	CT5E7	CT5E8	3.24	2.91	2.58

PREMIUM PLATED REPLACEMENT TIPS FOR W100 SOLDERING IRON

For Model W100 blue series tools only.

Point Size	Description	Reach	Weller Number 600° F	700° F	800° F	Net Each, Lots of 1-11	12-47	48 Up
1/8"	Screwdriver	1 5/32"	CT6C6	CT6C7	CT6C8	$4.64	$4.17	$3.70
3/16"	Screwdriver	1 5/32"	CT6D6	CT6D7	CT6D8	4.64	4.17	3.70
1/4"	Screwdriver	1 5/32"	CT6E6	CT6E7	CT6E8	4.64	4.17	3.70
3/8"	Screwdriver	1 5/32"	CT6F6	CT6F7	CT6F8	4.64	4.17	3.70



W-60

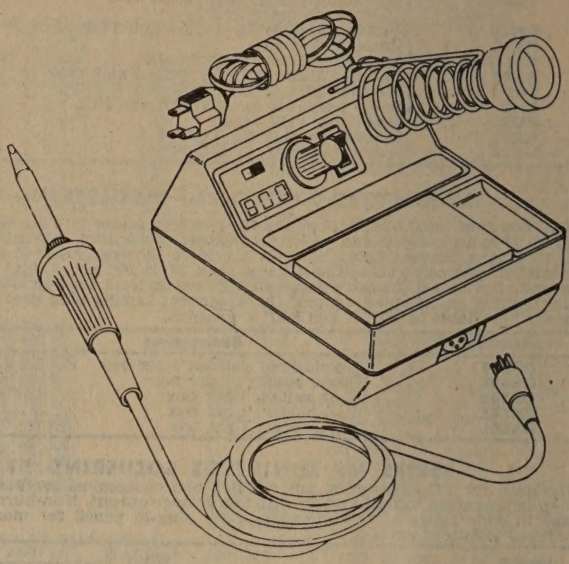
W-100

CONTINUED ON NEXT PAGE

MODEL EC2000 TEMPERATURE CONTROLLED SOLDERING STATION

The most advanced soldering station on the market. Any tip temperature from 350° F to 850° F may be selected and locked by the operator. Actual tip temperature is shown on a large, three-digit, LED display to within 1° F. Tip temperature is maintained at the desired setting by a positive-temperature-coefficient platinum sensor. It is not affected by varying line voltages, voltage spikes, or line noise, nor does it create line noise because of an interference-free design. Zero-crossing control of heater current eliminates RFI/EMI; time proportioning reduces tip temperature hysteresis. Irons plug into the station with a positive plug lock. The iron tip is grounded and has room-temperature compensation. All irons are interchangeable among control stations without recalibration of the temperature setting. Control station has circuit breaker, extra large sponge, iron holder, tip holding tray, solder drip shield, and lighted on/off switch.

Weller Model EC2000 Soldering Station—Net Ea.... **$157.93**



MODEL EC1000 TEMPERATURE CONTROLLED SOLDERING STATION

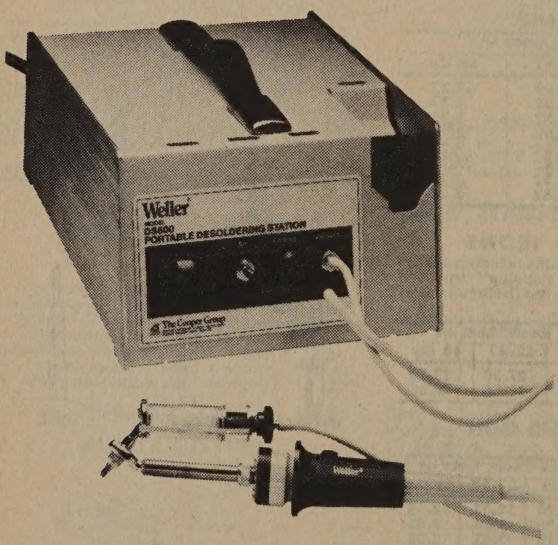
Model EC1000 is identical to Model EC2000, except that it does not have the LED display. The EC1000 is dial controlled and is calibrated in 10° F steps. Both the EC1000 and the EC2000 meet government specification requirements for contract work.

Weller Model EC1000 Soldering Station—Net Ea.... **$115.80**

TIPS FOR MODELS EC1000 AND EC2000

Weller Number	Description	Net Each
ETA	1/16" screwdriver	$2.72
ETB	3/32" screwdriver	2.72
ETC	1/8" screwdriver	2.72
ETD	3/16" screwdriver	2.72
ETH	1/32" screwdriver	2.72
ETK	3/64" long screwdriver	2.72
ETL	5/64" long screwdriver	2.72
ETO	1/32" long conical	2.72
ETP	1/32" conical	2.72
ETS	1/64" conical	2.72

MODEL DS600 PORTABLE DESOLDERING STATION



A self-contained system, designed for use in industrial and service applications where portability or lack of a suitable air source requires a self-contained unit. A pushbutton, built into the handle of the desoldering iron, controls the vacuum pulse, and thus, the desoldering operation. The desoldering head is designed to provide positive sealing to prevent vacuum loss. The desoldering head, supplied with the unit, is temperature controlled to 700° F (371° C) by the reliable Weller "Magnastat" closed loop temperature control system. The desoldering iron heating element and pushbutton control circuit are electrically isolated from the 120 VAC power source, through a 120/24 volt step-down transformer. A 24 volt signal, from the pushbutton, activates a photoisolator circuit which turns the 120 volt compressor motor on and off. This isolation prevents voltage spikes from the motor or pushbutton from reaching the desoldering iron tip. The tip is also grounded to prevent damage to voltage-sensitive components. The case contains a convenient carrying handle, power cord storage, built-in iron holder and an air outlet for heat-shrink tubing.

Weller Model DS600 Desoldering Station—Complete with DS601 desoldering iron and DS104 clean-out tool. Net Each. **$353.22**

Weller Model DS601 Desoldering Iron—Net Each..... **$90.85**

Weller Model DS602 Power Unit Only—Net Each... **$278.66**

Weller Model DS107 Large Sponge Holder—Contains sponge and recess for holding 5 interchangeable tiplets. Net Each.. **$53.86**

REPLACEMENT TIPS FOR DS600

Weller Number	Dimensions (In.)			Net Each
	Outside	Inside	Length	
DS110	.060	.025	.50	$6.38
DS111	.090	.025	.50	6.38
DS112	.076	.036	.50	6.38
DS113	.098	.045	.50	6.38
DS114	.125	.071	.50	6.38
DS115	.060	.025	.75	6.38
DS116	.098	.045	.75	6.38
DS117	.090	.025	.75	6.38

INSTRUMENT LABORATORIES

The complete instrument capability with in-depth inventory, warranty and non-warranty service, modification, engineering, and technical support to meet your specific requirements.

ANALOG PANEL & SWITCHBOARD METERS
General Electric, Jewell, LFE/API, Modutec, Sigma, Simpson, Triplett, Weston

CALIBRATORS
Data Precision, Analogic

CLAMP-ON AMMETERS
Amprobe, General Electric, Simpson, Triplett, Weston

DIGITAL PANEL METERS (DPM's)
LFE/API, Newport, Simpson, Weston, Analogic

DIGITAL MULTIMETERS(DMM's)
B&K, Beckman, Data Precision, Fluke, Keithley, Leader, Simpson, Triplett, Weston

FREQUENCY METERS (ANALOG)
General Electric, Simpson

FREQUENCY COUNTERS (DIGITAL)
B&K, Data Precision, Fluke, Kessler Ellis, Leader, Newport, Simpson, Global Specialties

LOGIC PROBES
B&K, Global Specialties

LOGIC & SIGNATURE ANALYZERS
B&K

METER RELAYS & CONTROLLERS
General Electric, Jewell, LFE/API, Simpson

OSCILLOSCOPES
B&K, Leader, Simpson

POWER SUPPLIES
B&K

PRINTERS
Newport

PYROMETERS
Fluke, LFE/API, Newport, Simpson, Triplett, Analogic

PORTABLE STANDARDS & ANALYZERS
B&K, Leader, Simpson, Weston

RECORDERS
Amprobe, General Electric, Rustrak, Simpson

SHUNTS & CURRENT TRANSFORMERS
General Electric, LFE/API, Midwest, Simpson, Triplett, Weston

TACHOMETERS GENERATORS
General Electric, Weston

TEMPERATURE CONTROLLERS
General Electric, Jewell, LFE/API, Newport, Simpson

TEST EQUIPMENT
B&K, GSC, Leader, Simpson, Triplett, Weston, Data Precision, GE

THERMOMETERS
Fluke, Newport, Weston

TIMERS
Kessler-Ellis

TIME ELAPSED METERS
General Electric, Kessler-Ellis, Simpson

TRANSDUCER
General Electric, Weston, LFE.

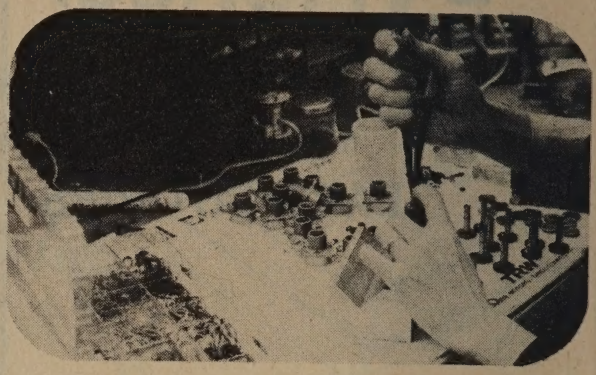
THESE PRODUCT LINES ARE STOCKED IN DEPTH AT ALL OF OUR LABORATORIES CLEVELAND, DAYTON, GAITHERSBURG

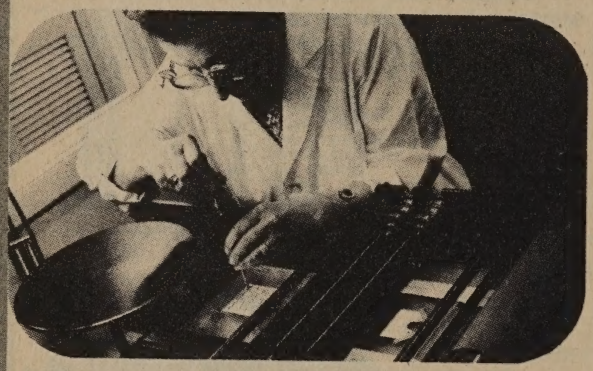
Pioneer/Instrumentation

In stock at the Cleveland, Dayton, and Gaithersburg Laboratories; the largest inventories of panel and switchboard meters, controllers, analog/digital instruments, and accessories in the country.

CUSTOM MOTORS

Our motor dept. can assemble a wide variety of TRW/Globe motors from off the shelf parts. The combinations range from 20,000 RPM at .1 oz. in. to .1 RPM (or slower) at 8800 oz. in.



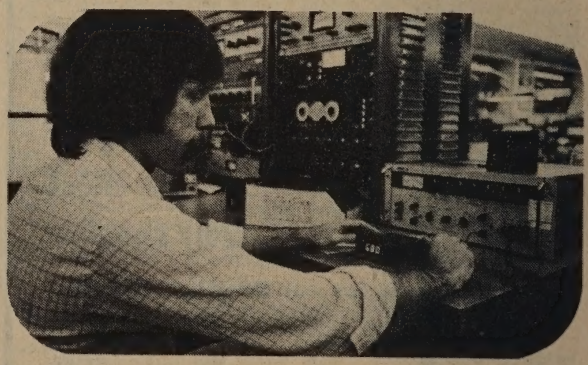


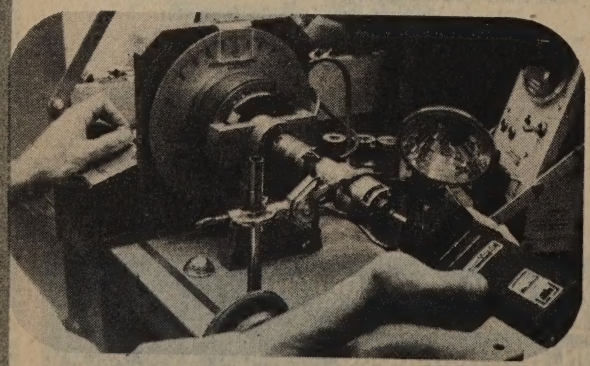
CUSTOM PRINTING

Large quantities of custom dials are printed or silk screened. Color matching, special logos and symbols are furnished as per your requirements.

INSPECTION

Rigid inspection of all parts and assemblies enables Pioneer/Instrumentation to provide a 1-year warranty on all meters, whether standards or specials.





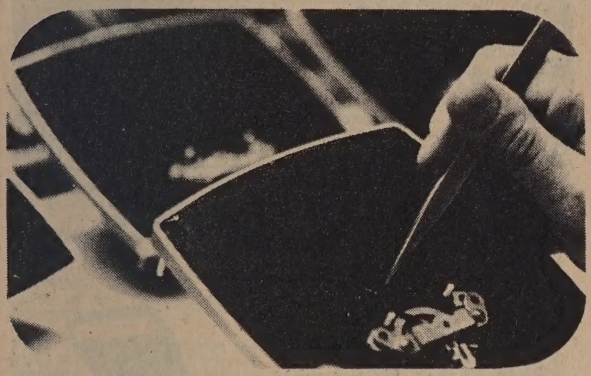
MOTOR TESTING

Every motor assembled at Pioneer is subjected to electrical and mechanical inspection to achieve high reliability in your motion application.

SALES OFFICES IN ALL OF OUR COMPONENT STOCKING BRANCHES

Pioneer/Instrumentation

You receive the extras in service from Pioneer/Instrumentation. Whether for single units or large quantities, standard models or special instrumentation, we can quickly fill your requirements. We invite you to visit our laboratories in person to view and discuss our capabilities and how we may better serve you.

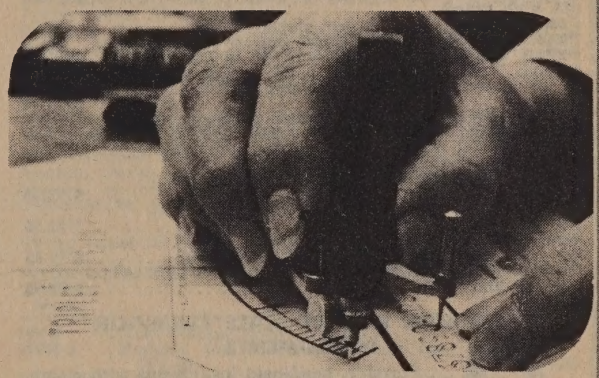


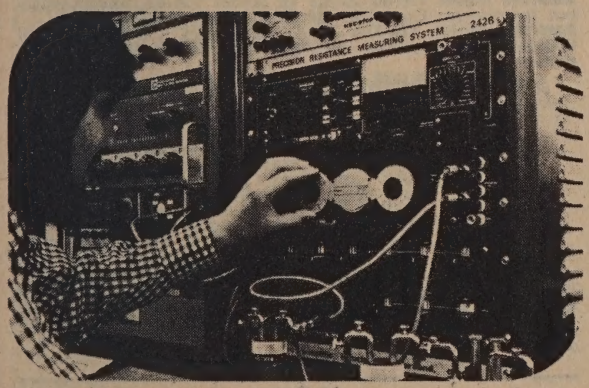
MODIFICATIONS

Modifications of panel, switchboard, and digital insturments, to your specifications, in single lot to OEM quantities are a feature of our Laboratories. Delivery on special meters is normally three days to three weeks.

CUSTOM DIALS

Precise hand-drawn dials are used for small quantity meter modifications. Tight accuracies, color bars, dual arcs and special captions are standard services.



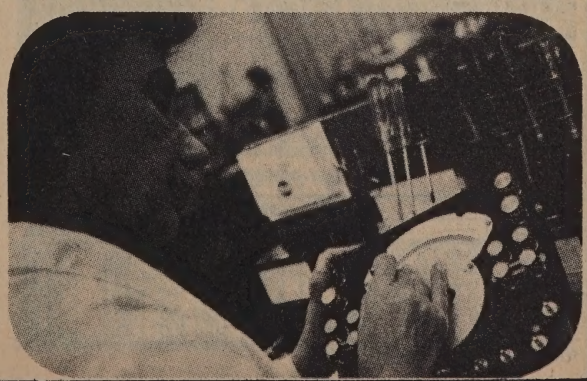


CALIBRATIONS

Our instrument calibration test reports are accepted by all government services. Delivery is from three to five days, or for out-of-town customers, one day on appointment. Standard cells require three weeks, due to temperature stabilization and a series of readings to establish mean value.

REPAIRS

Repair services are available for all our lines. We are the authorized sales service center, warranty repair station and parts distributor for Amprobe, Analogic, B & K, Data Precision, Fluke, General Electric, Jewell, LFE/API, Newport, Rustrak, Simpson, TRW/Globe, Triplett, and Weston.



THESE SERVICES ARE AVAILABLE AT ALL OF OUR LABORATORIES

AMPROBE® Test Instruments

AMPROBE DIGITAL CLAMP-ON VOLT-AMP-OHMMETERS

Portable, hand-held volt-amp-ohmmeter, designed for one-hand operation. Large, easy-to-read, digital readout virtually eliminates reading errors. Circuit design prevents digit flickering. Auto-ranging for simplicity of operation. Over-range and low-battery indications. Measures AC volts, AC amps and ohms from 0.1 to 999. "Continuous"* or "peak" readings. Withstands momentary overloads up to 50%. Fuse protected ohmmeter (fuse in test lead). Measures motor starting surge current and other surges and peaks. Accurately measures low resistances, such as motor windings, etc. Clamp-on jaws accept up to 2" diameter conductors. Extendo-type leads. *ACD-2, 300 amps.

SPECIFICATIONS

Ranges: ACD-1—AC Volts/AC amps/Ohms, 0.1-999. ACD-2—AC Volts/Ohms, 0.1-999; AC amps, 0.1-300 continuous, 0.1-999 Peak. All readings below 100 are shown to the nearest tenth; e.g., 68.7. DC voltage may be measured by using a multiplying factor.
Accuracy: ±2%, ±1 LSD (least significant digit) of reading. Accuracy of volts and amps based on 25-400 Hz sinusoidal waveform.
Digit Height: 7/16".
Over-Range Protection: 50% voltage and current overload for a maximum of 1 minute; ohmmeter is fused.
Case Voltage Breakdown Test: 3,000 VAC.
Operating Temperature: +32° F to +120° F up to 95% R.H.
Ohmmeter Test Voltage: 1.2 V max. (6 mA, low range; 0.6 mA high range).
Fuse: 8AG-361, 1 Amp, fast-blow.
Power Required: 9 volt alkaline battery (not supplied).
Battery Life: Based on test cycle of 10 seconds "on" and 20 seconds "off", 22.2 hours or 2,700 cycles; based on test cycle of 20 seconds "on" and 1 minute "off", 30 hours or 1,350 cycles.
Jaw Capacity: ACD-1, 2" diameter conductor; ACD-2, 1".
Unit supplied with AE carrying case, DTL-2 all-weather test leads, MTC-2 alligator clip adapter and OHB-4 fused ohmmeter test lead with 8AG-361 fuse.

Amprobe Model ACD-1 Digital Clamp-On Meter—
Net Each **$172.50**
Amprobe Model ACD-2 Digital Clamp-On Meter—
Net Each **$162.50**
Amprobe Model TACD-1 Kit—Contains ACD-1 in deluxe carrying case and A-47L energizer. Net Each **$199.85**
Amprobe Model TACD-2 Kit—Contains ACD-2 in deluxe carrying case and A-47L energizer. Net Each **$189.95**

AMPROBE ROTARY-SCALE CLAMP-ON INSTRUMENTS

Portable, hand-held instruments with clamp-on jaws permit current readings without interrupting service. Rotary scale minimizes chance of reading error. 1,000 ampere models designed for up to 2" diameter conductors; other models accept conductors up to 1" diameter. Extendo-type test leads (standard on "RS-A" models) make voltage readings faster and easier. Pointer lock permits you to take readings in hard-to-reach or darkened areas, lock the pointer, then read where it's convenient. Recessed, break-resistant window magnifies scale; makes readings easier and reduces possibility of static electricity buildup. Leads lock in; can't be accidentally pulled out, leaving high voltage exposed.
OHB-3R external battery attachment with 8AG-361 fuse supplied with ohmmeter versions. Attachment uses one size "AAA" battery (not supplied). Models RS-1000S and RS-1007S have built-in, manually-set, surge indicating capability; measure starting current surges and voltage increases lasting 1/6 second or longer. Instrument supplied with test leads and carrying case.

SPECIFICATIONS

Size: Models RS-1(A) thru RS-300(A), 2 15/16" w. × 7 3/32" h. × 1 11/32" d.; Models RS-1000(S) and RS-1007(S), 3 3/16" w. × 8 5/8" h. × 1 11/32" d.
Weight: Models RS-1 thru RS-300, 10 oz.; Models RS-1000(S) and RS-1007(S), 12 oz.
Accuracy: ±3% full scale, based on a sinusoidal waveform.
Frequency (AC): All instruments calibrated for 60 Hz operation unless otherwise specified. Model RS-3 available for 400 Hz operation for maritime and aircraft industries; specify by adding suffix 400 Hz to Model No. e.g., RS-3 400 Hz. Standard test leads supplied unless otherwise specified.

AC VOLT-AMMETERS

Amprobe Model	AC Ranges		Case	Net Each
	Amps	Volts		
RS-1	0-6/15/40/100	0-150/600	Std.	$65.50
RS-1A*	0-6/15/40/100	0-150/600	Dlx.	73.50
RS-2	0-6/15/40/100	0-150/300	Std.	65.50
RS-2A*	0-6/15/40/100	0-150/300	Dlx.	73.50
RS-300	0-6/15/40/100/300	0-150/300/600	Std.	78.85
RS-300A*	0-6/15/40/100/300	0-150/300/600	Dlx.	86.85

*Supplied with Extendo leads.

AMPROBE ROTARY SCALE CLAMP-ON INSTRUMENTS (CONT'D)

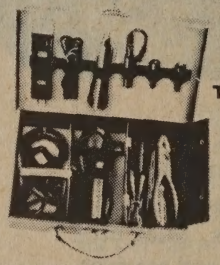
AC VOLT-AMP-OHMMETERS (25 OHMS MIDSCALE)

Amprobe Model	AC Ranges		Case	Net Each
	Amps	Volts		
RS-1B	0-6/15/40/100	0-150/600	Std.	$74.50
RS-1BA*	0-6/15/40/100	0-150/600	Dlx.	82.50
RS-3	0-6/15/40/100/300	0-150/300/600	Std.	82.85
RS-3A*	0-6/15/40/100/300	0-150/300/600	Dlx.	90.85
RS-7†	0-5/25/50/100/250	0-150/300/600	Std.	91.85
RS-7A†*	0-5/25/50/100/250	0-150/300/600	Dlx.	99.85
RS-1000	0-15/40/100/300/1000	0-150/300/600	Std.	109.85
RS-1000S	0-15/40/100/300/1000	0-150/300/600	Std.	112.85
RS-1007	0-15/40/100/300/1000	0-150/300/750	Std.	109.85
RS-1007S	0-15/40/100/300/1000	0-150/300/750	Std.	112.85

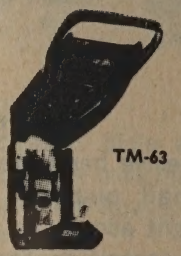
†Have volt/amp output jack for connecting accessory recording module LRS-7R. *Supplied with Extendo leads.

Amprobe Model LRS-7R Accessory Recording Module—
Net Each **$114.85**

AMPROBE TEST MASTER KITS



TM-43A

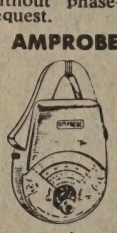


TM-63

Complete professional test instrument packages. Kits contain RS-3 instrument, extendo-type test leads and an energizer. Extendo leads provide faster, easier voltage testing. Carrying case provides easy access to instrument and quick inventory of accessories; has space for tools. Energizer permits readings as low as 0.6 amps; also "splits" 2-conductor line cord. Model TM-43A also contains a phase-sequence adapter to help determine phase sequence of 3-phase circuits and Decatran® current measuring expander. Decatran expands current measuring capability by 10 times up to 1200 amps intermittent duty.

Amprobe Model TM-63 Test Master Kit—Net Each **$104.85**
Amprobe Model TM-43A Test Master Kit—Net Each ... **$184.85**
Amprobe Model TM-60—Same as Model TM-63, except without instrument. Complete information on request.
Amprobe Model TM-33A—Same as Model TM-43A, except without phase-sequence adapter. Complete information on request.

AMPROBE JUNIOR CLAMP-ON INSTRUMENTS



Job-rated, pocket-sized, precision testers are ideal as a backup instrument or for everyday use. Tapered jaws fit into tight places; accept up to 1/2" diameter conductors. Range switch keeps instrument on highest range until pressed. All models measure AC volts and amps. YO and YTO models also measure ohms (25 ohm mid-scale). Ohmmeter versions supplied with OHJ-R external battery attachment and fuse; uses size "AAA" battery (not supplied). **Size** 2 1/2" w. × 4 3/4" h. × 1" d. **Weight:** 6 1/2 oz. **Accuracy:** ±3% full scale, based on sinusoidal waveform. All models supplied for 60 Hz operation; 50 Hz versions available.

AC VOLT-AMMETERS

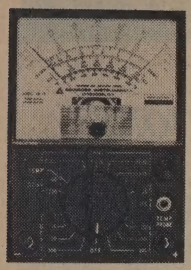
Amprobe Model	AC Ranges		Type of Leads	Net Each
	Amps	Volts		
Y25	0-25	0-125/250	Standard	$35.50
Y500	0-100	0-150/600	Standard	35.50
Y550	0-50	0-150/600	Standard	35.50
YT10-25	0-10/25	0-150/300	Standard	42.50
YT25/100	0-25/100	0-150/300	Standard	42.50
YT525/100	0-25/100	0-150/600	Standard	42.50
YTB10/25*	0-10/25	0-150/300	Extendo	51.50
YTB25/100*	0-25/100	0-150/300	Extendo	51.50

*Supplied with Extendo leads and deluxe carrying case.

AC VOLT-AMP-OHMMETERS

Amprobe Model	AC Ranges		Type of Leads	Net Each
	Amps	Volts		
YO500	0-100	0-150/600	Standard	$42.50
YO525	0-25	0-150/600	Standard	42.50
YO550	0-50	0-150/600	Standard	42.50
YTO525/100	0-25/100	0-150/600	Standard	49.50

AMPROBE INDUSTRIAL MULTIMETERS



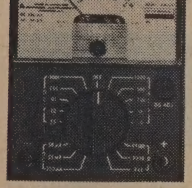
MODEL AM-1A

Easy-to-read, four color coded scale plate. Sixteen practical ranges for industrial use. 5 ohm mid-scale ohmmeter. Two millivolt ranges. Temperature capability. Taut band meter movement. Overload protective circuitry. "Off" position on range switch. All ranges fuse protected or can withstand momentary misapplication of up to 220 volts (except R × 10 and 60 mV). Molded, fully insulated case. Compact, light-weight. All-weather test leads (supplied).

SPECIFICATIONS

AC Voltage Ranges: 0-30/150/300 VAC (9,000 ohms/volt); 0-750 VAC range can be added through use of MTL5X multiplier lead (not supplied). Also see 15 KV Probe listing.
DC Voltage Ranges: 0-3/15/30/300 VDC (20,000 ohms/volt).
DC Millivolt Ranges: 0-60/1200 mV at 50 μA.
DC Current Ranges: 0-30/150 mA at 300 mV.
Resistance Ranges: R×1/R×10/R×100/R×1K.
Temperature Range: +70° F to +1200° F, using TC-3 thermocouple (not supplied).
Accuracy: DC, ±3% full scale; AC, ±4% full scale; Ohms, ±3% of arc; Temperature, ±2% full scale.
Ohmmeter Power: Four "AA" batteries in parallel (not supplied).
Fuse: 8AG-361, 1 Amp, fast-blow.
Size: 3 1/2" w. × 5" h. × 2" d.
Weight: 14 oz. (less batteries and accessories).
Supplied with MTL-1 all-weather test leads and MTC-2 alligator clip adapters.

Amprobe Model AM-1A Industrial Multimeter—Net Each **41.85**



MODEL AM-2A

Taut band meter movement with overload protective circuitry. All ranges are fuse protected or can withstand the misapplication of up to 220 volts. Compact, lightweight.

SPECIFICATIONS

DC Voltage Ranges: 0-2.5/10/50/250/1000 (20,000 ohms per volt).
AC Voltage Ranges: 0-10/50/250/500/1000 (9,000 ohms per volt).
DC Current Ranges: 0-50μA; 0-25/250 mA (at 280 mV).
Resistance Ranges: R × 1/ R × 10/ R × 100.
Accuracy: DC, ±3% full scale; AC, ±4% full scale; Resistance, ±3% of arc.
Ohmmeter Power: One "AA" cell (not supplied).
Size: 3 1/2" w. × 5" h. × 2" d.
Weight: 13 ozs.
Instrument supplied with test leads.

Amprobe Model AM-2A Multimeter—Net Each **$31.85**

MODEL AM-2DP DROP PROOF

Same size and appearance as AM-2A. Compact, drop proof, lightweight, general purpose multimeter with meter movement overload protective circuitry. Taut band movement. All ranges are fuse protected, or can withstand momentary misapplication of 220 volts. Supplied with test leads.

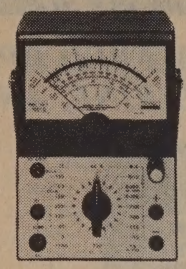
SPECIFICATIONS

AC Voltage Ranges: 0-10/50/250/500/1000 VAC (9,000 ohms/volt).
DC Voltage Ranges: 0-2.5/10/50/250/1000 VDC (20,000 ohms/volt).
DC Current Ranges: 0-50 μA at 280 mV; 0-25/250 mA at 280 mV.
Resistance Ranges: R×1, R×10, R×100.
Accuracy: DC, ±3% full scale; AC, ±4% full scale; Ohms, ±3% of arc.
Ohmmeter Power: One "AA" battery (not supplied).
Size: 3 1/2" w. × 5" h. × 2" d.
Weight: 13 oz.

Amprobe Model AM-2DP Multimeter—Net Each **$44.85**

ACCESSORIES FOR AM-1A, AM-2A, AM-2DP

Amprobe Model	Description	Net Each
MM	Carrying case	$ 7.50
MTL-1	All-weather test leads	5.25
MTC-2	Alligator clip adaptor	1.75
MTL-5X	750 VAC lead for AM-1A	7.50
HV-2	High voltage probe (15 KV)	17.85
HVR-1	Resistor for 15 KVAC range (use with HV-2)	6.85
HVR-1D	Resistor for 15 KVDC range (use with HV-2)	6.85
HVPT	Repl. probe tip for HV-2	.95
TC-3	Thermocouple for AM-1A	28.50
S915	AA size battery	.45
915	AA size battery (pkg. of 4)	1.60
8AG-361	1 amp fuse (fast blow) for AM-1A	.60
3AG-312	0.3 amp fuse for AM-2A, AM-2DP	.60



MODEL AM-3B

Rugged multimeter designed for industrial use. Easy-to-read, three-color coded scale and switch plate. Mirror scale for reading accuracy. Diode-protected, taut-band meter movement. All ranges fuse protected, or can withstand momentary misapplication of 220 volts for 1/2 minute. Recessed glass window reduces possibility of scratches and static electricity build-up. All-weather test leads (supplied). High-impact plastic molded case; fully insulated. Self locking meter stand handle.

SPECIFICATIONS

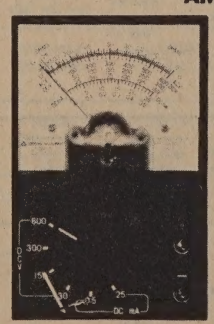
AC Voltage Ranges: 0-30/150/300/750 (10,000 ohms/volt).
DC Voltage Ranges: 0-3/30/150/300 (100,000 ohms/volt).
DC Millivolt Ranges: 0-75/750/1500 mV at 10 μA.
AC Current Ranges: 0-6000 Amps, in 8 ranges, using appropriate accessories (not supplied).
DC Current Ranges: 0-15/150 μA at 300 mV; 0-1.5/150 mA at 300 mV.
Resistance Ranges: R×1/R×10/R×100/R×10K.
Temperature Ranges: Low, −10° F to +250° F; High, +70° F to +1200° F, using appropriate temperature probes (not supplied).
Accuracy: DC, ±3% full scale; VAC, ±4% full scale; AC Current, ±5% full scale, based on sinusoidal waveform; Resistance, ±3% of arc; Low Temperature, ±3% of arc; High Temperature, ±3% full scale.
Ohmmeter Power: 2 "C" batteries in parallel (not supplied).
Fuses: One 8AG-361, 1 Amp, fast-blow and one 3AG-312, 0.1 Amp, fast-blow.
Size: 5 1/4" w. × 7 1/2" h. × 3 1/4" d.
Weight: 2 1/4 lbs.
Instrument supplied with MTL-1 all-weather test leads and MTC-2 alligator clip adapters.

Amprobe Model AM-3B Industrial Multimeter—Net Each **$87.85**
Amprobe Model TAM-3B Test Master Kit—Includes AM-3 multimeter, current transducer, universal temperature probe, thermocouple and deluxe carrying case. Net Each **$189.85**

ACCESSORIES FOR AM-3A

Amprobe Model	Description	Net Each
HV-2	High voltage probe (15 KV)	$17.85
HVR-3	Resistor for 15 KVAC range (use with HV-2)	6.85
HVR-3D	Resistor for 15 KVDC range (use with HV-2)	6.85
HVPT	Repl. probe tip for HV-2	.95
MTL-1	All weather test leads	5.25
MTC-2	Alligator clip adaptors (pkg. of 2)	1.75
8AG-361	1 amp fuse (fast blow)	.60
3AG-312	0.1 amp fuse (fast blow)	.60
RBT-11B	Immersion temperature probe	14.85
RBT-12B	Universal temperature probe	14.85
RBT-13B	Vented air temperature probe	14.85

AM-6 MULTIMETER



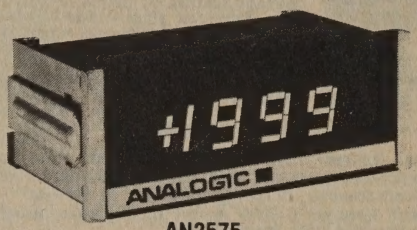
The AM-6 is a low-cost, lightweight multimeter with color-coded scale and switch plates. It covers 12 basic test ranges, is fuse and overrange protected, and can withstand the momentary misapplication of up to 220 volts. **Voltage Ranges:** 0-150/300/600 VAC (2,000 Ohms per volt); 0-30/150/300/600 VDC (2,000 Ohms per volt). **Resistance Ranges:** 0-5K Ohm (50 Ohm mid-scale); 0-50K Ohm (500 Ohm mid-scale); 0-500K Ohm (5K Ohm mid-scale). **Current Ranges:** 0-500 μA/25 mA (DC). **Weight:** 6 1/2 oz. (184 gm.). **Dimensions:** 3 1/16" w. × 4 3/4" h. × 1 9/16" d. **Fuse:** 0.1 A No. 8AG361-6. **Accuracy:** ±3% of full scale DC; ±4% of full scale on AC measurements.

Amprobe Model AM-6—Net Each **$20.85**
Amprobe Model MM-6 Case—Net Each **5.85**

ACCESSORIES FOR AM-6

Amprobe Model	Description	Net Each
MTL-1	All-weather test leads	$ 5.25
MTC-2	Alligator clip adaptor	1.75
MM-6	Carrying case	5.85
S915	AA size battery	.45
915	AA size battery (pkg. of 4)	1.60
8AG-361-6	0.1 amp fuse	.55

DC POWERED DPI'S FOR SYSTEMS, AUTOMOTIVE, MARINE, AND AIRCRAFT APPLICATIONS



AN2575

DC powered digital panel instruments offer specific advantages over line powered instruments in many applications. Since they require no line transformer or power source filtering, they are usually more compact and have less internal power supply dissapation.

Logic powered units operate from +5 VDC for systems and instruments where +5 volt power is available. Models are also available with +8 to +28 VDC power options for Automotive, Marine, and Aircraft applications.

CUTOUT DIMENSIONS

B = 3.250'' × 1.280'' (82.6 mm × 32.5 mm)
C = 1.772'' × 3.622'' (45 mm × 92 mm)
D = 0.62'' × 0.80'' (15.74 mm × 20.3 mm)
E = 2.03'' × 3.53'' (51.56 mm × 89.66 mm)

AN2575 The 3½-digit AN2575 packs AN2570 features into a miniature package that's ideal for tight quarters, including ¼-DIN installations. With its small size and tough construction. It's ideal for 5-volt portable instruments used in remote measurement, display and control applications. In addition, it can accommodate a BCD option for lab and industrial operations involving computer interaction.

AN2570 This low-cost 3½-digit instrument includes differential input with a full scale input range of ±1.999 volts or ±199.9 mv. The 8 to 28 volt version provides for portable, marine, automotive or aircraft applications. Consult the table for more complete specifications.

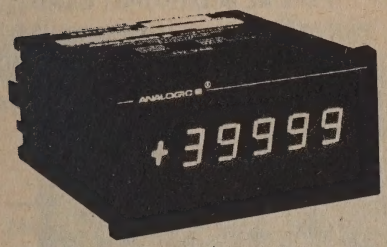
AN2545 A premier grade auto zero ±20,000 count unit requiring only 1.5 watts, including its bright 0.55'' Beckman display. This unit is ideal for wide dynamic range portable instruments. For working with certain transducers, the optional four wire ratio capability is of particular advantage.

Design Features

- New Reliability Standards, procedures & performance.
- Extremely small case sizes.
- Gas discharge and LED displays available.
- Fully floating and isolated front end on AN2530 models.
- Most units offer optional ratiometric capability.
- Auto zero, dual slope on most units.
- Metal cases standard or optionally available.
- Heavy power line filter for minimizing RFI.

MODEL NUMBER DIGITS	SALIENT CHARACTERISTICS TYPICAL APPLICATIONS	INPUT CHARACTERISTICS: F.S. DISPLAY RESOLUTION	NOMINAL STD. VOLT RANGES (LSB's)	ACCURACY (% of Rdg.) ±1 LSB	T.C. of RANGE (% of F.S./°C) T.C. of OFFSET	CONFIGURATION IMPEDANCE	CMRR CMV to 5V RETURN	Max. Conversion Rate	DISPLAY BCD OUTPUTS	CUT-OUT	UNIT PRICE
AN2530 3 digits	Ultra-isolated floating differential input. BCD outputs. Counts by 1,2,5,10. User-set F.S. sensitivity. Truly universal design.	999	≥25mV to 2V	0.2%	greater of <1 count/20°C or 250ppm/°C	Isolated floating, selectable polarity	100dB(60Hz) 120dB (DC)	3/sec	0.33'' LED (2330L,2530L) 0.55'' Gas plasma (2530S)	B	$173
	Analog meter replacement. Applications demanding high CMV and CMRR. Battery-portable instrumentation. digital systems.	0.1% (counting by 1's)	25μV to 2mV		<1 count/20°C or 20μV/°C	1000MΩ nom.	±300V DC of AC peak		Full parallel Std	B	$184
AN2535 AN2536 3½ digits	Low-cost differential, autozeroed 3½ with BCD outputs, ratiometric capability, and triggerable high speed conversion. Smallest panel area.	±1999	±2V or ±200mV	0.05%	50ppm/°C	Differential	>100dB (with filter)	100/sec	Gas plasma 0.55''	B	$258
	Battery-portable instrumentation, digital systems, industrial process monitors, medical/biochemical instrumentation	0.05%	1mV or 100μV		autozeroed	1000MΩ	±2V (200m V F.S.)		Full parallel std.	C	$197
AN2575 3½ digits	Low cost, full performance, autozeroed high reliability	±1.999	±2V or ±200mV	0.05%	35ppm/°C	Bipolar Differential	,110dB	2/sec	LED 0.43''	B	$89
	Logic powered, small size, low power (350mw) option OEM instrumentation	0.05%	1mV or 100μV		autozeroed	>1000mΩ	±2.25Vdc or AC pk		Parellel (opt'l)		
AN2545 4½ digits	Very accurate and stable logic-powered DPI. Autozeroed, ratiometric. Optional latched/buffered BCD output. Flexible external controls.	±19999	±2V	0.01%	15ppm/°C	Differential	>70dB	4/sec	Gas plasma 0.55''	C	$271
	The most demanding portable instrumentaiton and digital systems, particularly those demanding flexible external control of data flow.	0.01%	100μV		autozeroed	500MΩ	±0.25V		Full parallel, latched Buffered (optional)		

DIGITAL PANEL INSTRUMENTS



NEW AN2577 featuring ±0.005% accuracy, 100μV or 10μV sensitivity, isolated Analog and Digital grounds, remote triggering up to 10 conversions/sec, and microprocessor compatible word programmable tri-state BCD output. The AN2577 offers ultra high precision dual slope, auto zero, 4¾ digit(±40,000 count) and a guaranteed accuracy of ±0.005% of reading ±1 count with either 100μV/count or optional 10μV/count input sensitivity. The active input signal filter and optimized signal integration period provide a common mode rejection ratio of 140dB, and a normal mode rejection ratio (NMRR) of 90dB.

The entire analog section is isolated allowing the signal to "float" up to ±300 volts with respect to the digital ground. Both the analog and digital grounds are further isolated for up to 1400Vdc or ac peak, with respect to the ac power line. The AN2577 includes an ac power supply for either 100Vac ±20% or 220Vac ±20%, 50 to 500Hz at a cool 2.7 watts. User oriented features include automatic polarity indication, input signal protection up to ±100V, overrange indication, Blank, Hold, Lamp Test, and trigger controls, which allow the AN2577 to be triggered at rates up to 10 conversions per second. The optional word programmable tri-state BCD outputs are compatible with most microprocessors, peripherals and TTL/CMOS logic systems.

AN2574 It's Analogic's 4½-digit word-programmable DPI and you can't find another high-accuracy instrument even near its price range. It features gigaohm differential input, microvolt sensitivity and programmable Tri-state BCD outputs that can feed 4, 8, 12, 16 or 20 bits to a data bus. You can interrogate multiple devices on the same line or interrogate only the one you want. An outstanding capability for multi-instrument, high precision environments.

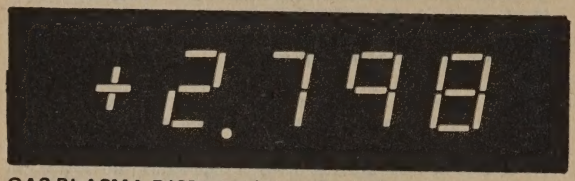
AN2570 The latest LSI technology gives this low cost 3½-digit instrument features that you just can't find anywhere else for the price. differential input with a full-scale input range of ±1.999 volts or ±199.9 mV coupled with four available power configurations (two DC and two AC) make the AN2570 universally applicable. A host of interface and control signals, including parallel BCD data output, provides maximum versatility.

MODEL NUMBER DIGITS	F.S. DISPLAY RESOLUTION (% of F.S.)	NOMINAL STD. VOLT RANGES (LSB's)	ACCURACY (% of Rdg.) ±1 LSB	T.C. of RANGE (% of F.S./°C) T.C. of OFFSET	INPUT CHARACTERISTICS CONFIGURATION INPEDANCE	CMRR CMV, ANA GND to line	CMRR CMV, +Vin to DIG. GND	DISPLAY BCD OUTPUTS	CUT-OUT	UNIT PRICE
AN2532 3½ digits	±1999 0.05%	±2V, or ±200 mV, ±20 V optionally (1 mV std.)	±0.05%	35ppm/°C ±50μV/°C	Balanced Symmetrical Differential 1000 MΩ min.	>70 dB 600 V p-p AC	70 dB ±5.5 V	Gas plasma 0.55" Nixie® Std. Parallel	E	**$249**
AN2553 3½ digits	±1999 0.05%	±2V/±200 mV or customer selected (1mV/100μV.)	±0.05%	35ppm/°C ±20μV/°C	Balanced Symmetrical Differential 1000 MΩ nom.	>80 dB intrinsic 700 V p-p	80 dB ±2.5 V	Gas plasma 0.55" LED 0.43" Parallel (opt'l.)	C	**$166**
AN2570 3½ digits	±1999 0.05%	±2V/±200 mV (1 mV/100μV)	±0.05%	35ppm/°C autozeroed	Bipolar Differ- ential >1000 MΩ	90 dB 1400 Vdc or AC pk	110 dB ±2.25 V dc or AC pk	Led 0.43" Parallel (opt'l.)	C	**$73**
AN2559 3¾ digits	±3999 0.025%	±4V/±400 mV or customer selected (1mV/100μV)	±0.05%	35ppm/°C ±20μV/°C	Balanced Symmetrical Differential 1000 MΩ nom.	>80 dB intrinsic 700 V p-p	80 dB ±4.5 V	Gas plasma 0.55" LED 0.43" Parallel (opt'l.)	C	**$186**
AN2546 4½ digits	±19999 0.005%	±2V (100μV)	±0.01%	15ppm/°C autozeroed	Differential 500 MΩ nom.	>120 dB 300 V p-p AC	>70 dB ±2.25 V	Gas plasma 0.55" Parallel Latched Buffered	C	**$265**
AN2574 4½ digits	±19999 0.005%	±2V/±200 mV (100μV/10μV)	±0.01%	15ppm/°C autozeroed	Bipolar Differential >1000 MΩ	100 dB 1400 Vdc or AC pk	120 dB ±2.25 V dc or AC pk	Led 0.43" Serial (std.) parallel tristate (opt'l)	C	**$186**
AN2577 4¾ digits	±39999 0.0025%	±4V/±400mV (100μV/10μV)	±0.005%	15ppm/°C Autozeroed	Bipolar, isolated Differential >1000MΩ	160dB 1400Vdc or AC pk	140dB typ. 300Vdc or AC pk	Led 0.43" Parallel Tristate (opt'l.)	C	**$341**

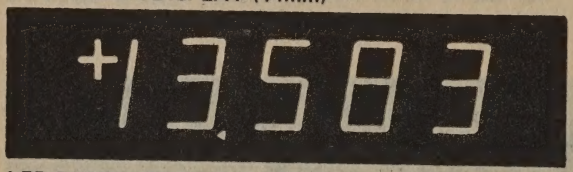
both are extremely reliable when properly specified, operated, and tested. Many customers feel that the red LED color spectrum has less contrast, is more fatiguing, and is less tolerant of ambient glare than the gas-plasma's red-orange spectrum. In general, if visibility is critical and ambient light is intense and variable, we recommend gas plasma (available on some models) or high intensity LED's. If display reliability is paramount, we recommend LED's.

INCREASED RESOLUTION? Often, 5 or 6 decades of display resolution are desired in order to reduce the possibility of reading errors. In such applications, if the last digit or last 2 digits do not represent meaningful data, then the Analogic panel instrument may be ordered with either one or two "Dummy Zeros" in the least significant digit positions. This low-cost option can increase the readout resolution of a 3½-digit DPI to 199900 maximum.

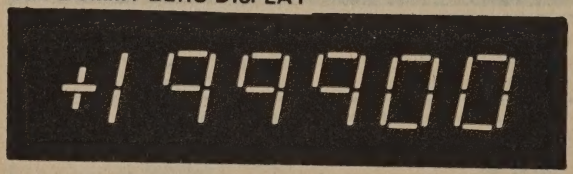
LED DISPLAY



GAS PLASMA DISPLAY (14mm)



LED DUMMY ZERO DISPLAY

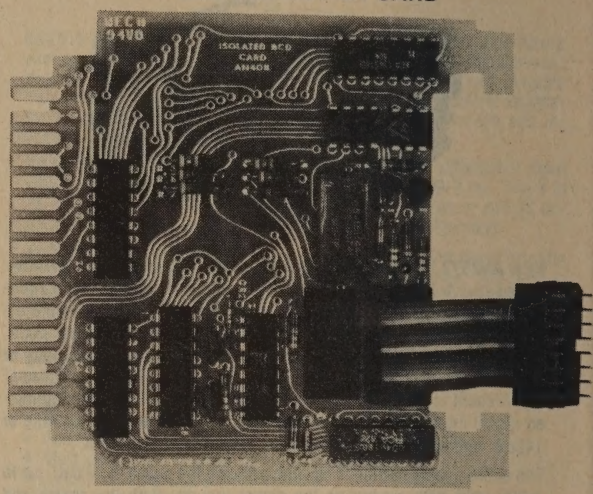


HOW MUCH EXTERNAL CONTROL? In many applications, the DPI does not stand alone, but must be integrated into the system's measurement program. Most Analogic designs offer the full range of external control facilities described below:

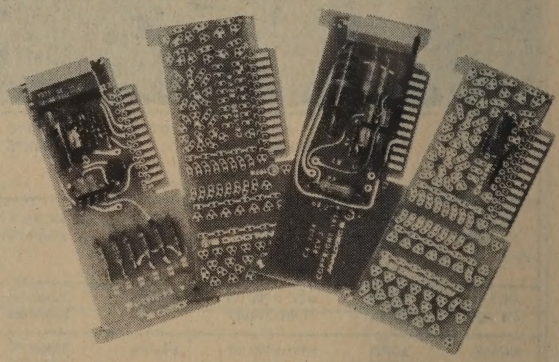
- *Triggering* of the measurement cycle by an external pulse or logic level. This permits synchronization of the measurement with multiplexing, sampling, other measurements, etc.
- *Blanking*, by which part or all of the display may be blanked at any time, for any length of time.
- *Hold*, by which the measurement process may be stopped (usually, without interfering the measurement in process).
- *Decimal-Point Positioning*, by external logic or switch contacts.
- *Conversion-Rate Control*, either by triggering or by adjustment of a voltage or potentiometer external to the instrument.

Unlimited Versatility with Analogic "Kluge Cards"

TYPICAL BCD OUTPUT CARD



TYPICAL ANALOG "KLUGE" CARDS



YOUR SPECIAL REQUIREMENT IS OUR STANDARD.

If you don't see the exact unit you need, we can make it for you. We are equipped to provide both standard and special (analog or digital) plug-in interface cards. We call them "Kluge Cards," and they are designed for use with our AN2553 and AN2559 DPIs. The addition of these cards converts these versatile units into stand-alone "subsystems".

ANALOG KLUGE CARDS
For direct interfacing of thermocouples, RTD's, and strain gages, for use as multirange DC and AC voltmeters and ammeters, for AC line monitoring RMS-DC conversion, etc.

DIGITAL KLUGE CARDS
Usable in (and powered by) the AN2553, AN2559.

AN404 – General purpose card for user-generated logic.
AN406 – Latched, buffered, 3¾ digit BCD output. Provides low-cost digital interfacing with distinct performance advantages of noise rejection and timing. The output states are continuously valid, held by latches. Regardless of electrical noise induced into the BCD lines, the buffers insure correct readout and BCD output.
AN408 – Isolated version of AN406, *Isolated up to 500 V.*

PRICES LISTED ARE FOR GUIDANCE ONLY

ANALOGIC'S MEASUROMETER™ SERIES
THE BENCHMARKS OF INDUSTRIAL MEASUREMENT

SERIES AND TYPE[1]	INPUT[2]	STANDARD RANGES[3]	ACCURACY[4]	FEATURES
PI 2452/PI 4452 Thermocouple Temperature Readout	E, J, K, R, S, T Thermocouples	Any customer-specified range between −270° C and +1800° C (−454° F to +3272° F)	±0.05% of reading, ±1 digit, exclusive of thermocouple non-linearity	High performance, low cost unit. Input over-voltage protection. Automatic open-couple indication. Cold-junction compensation. Direct-reading in °C or °F.
PI 2466/PI 4466 Wide-Range Temperature Readout	B, E, J, K, R, S, T Thermocouples	14 Standard Ranges between −270° C and +1800° C (−454° F to +3272° F)	±0.05% of reading, ±1 digit. Linearized to within ±1° F over 1500° F.	Automatic open-couple indication. Cold-Junction compensation. Exclusive Thermolizer™ linearizing circuit. Automatic Zeroing. Direct-reading in °C or °F.
PI 2453/PI 4453 RTD Temperature Readout	Jumper selectable for 2, 3, or 4 wire, 100-Ohm platinum RTD sensor.	−200° C to +600° C (−328° F to +1112° F) *or* −200.0° C to +399.9° C (−328.0° F to +399.9° F)	±0.05% of reading ±1 digit, ± conformity error (typically, 0.1° C from −100° C to +399.9° C)	Automatic open-RTD indication. Protected against RTD short to AC line. Resolution of 0.1° C or ° F on PI 4453.
PI 2455/PI 4455 Current-Loop Readout	Any standard Current Transmitter	0-20 mA 4-20 mA 10-50 mA converted to any readout range specified.	±0.05% of reading, ±1 digit.	Readout in any units specified: e.g., GPM, PSI, lbs., inches, ft. Input Voltage Drop, 1 V at full-scale current input.
PI 2456/PI 4456 Voltage-Mode Readout	Any standard Voltage Transmitter	0 to 5 V 0 to 10 V 1 to 5 V −10 to +10 V converted to any readout range specified.	±0.05% of reading, ±1 digit.	Readout in any units specified: e.g., CFM, ft/sec, RPM, kg, PSI. Auxiliary buffer amplifier output. Input impedance >100 megohms (except >100 kΩ on −10 V to +10 V input).
PI 2462/PI 4462 AC Line-Voltage Readout	AC power line or similar AC voltage sources.	0 to 199.9 V (2462) 0 to 399.9 V (4462)	±0.05% of reading, ±1 digit. 47-1000 Hz.	330 kΩ input impedance. Settling time <0.3 seconds for full-scale step input. Max. input w/o damage, 500 V. Average-sensing calibration.
PI 2461/PI 4461 True-RMS Volts Readout	Any signal source, regardless of waveform, from DC to 20 kHz.	0 to 1.999 V (to 3.999 V on 4461) 0 to 19.99 V (to 39.99 V on 4461) 0 to 199.9 V (to 399.9 V on 4461)	±0.15% of reading, ±1 digit.	Crest-Factor up to 4 for rated accuracy, up to 7 for 1% reading error. Settling Time <1.2 seconds for full-scale step input.
PI 2463/PI 4463 Microvolt Receiver	Any signal source from 1 μV/count to 1 mV/count.	0 to ±1999 counts (on 2463) 0 to ±3999 counts (on 4463)	±0.05% of reading, ±1 digit.	Provides ratiometric 4.5 V bridge-excitation outputs for any 2-wire or 4-wire transducer (e.g., strain gages, load-cells, pressure cells). Internal and/or external gain/offset programming.

NOTES:

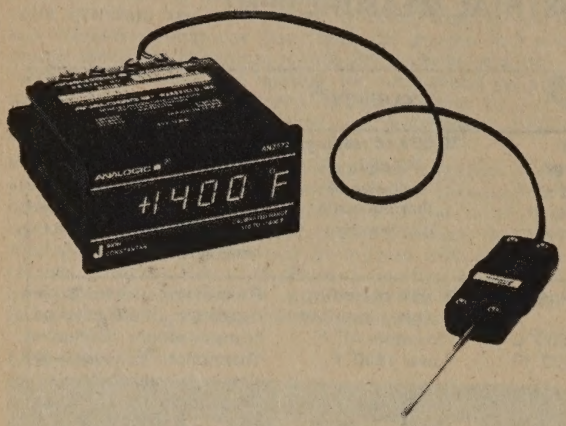
(1) The PI2400 series provides 2000 count (0.05%) resolution and the PI4400 series provides 4000 count (0.025%) resolution.

(2) Many other input signal sources can be accommodated. Check with your nearest Analogic Customer-Interface Center for details on transducers not specifically listed here.

(3) Customer specified ranges are accommodated promptly, on stock instruments, by factory trained technicians, using factory parts, at Analogic Customer-Interface Centers.

(4) Accuracy stated is at 25° C (77° F). Low temperature coefficients support this high order of accuracy over industrial temperature ranges. Consult specific data sheets for T.C. values.

NEW DIGITAL PROCESS INDICATORS

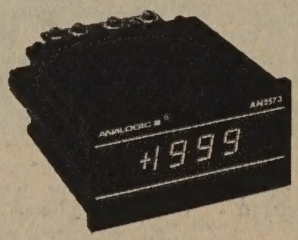


AN2572 — Digital Thermocouple Readout

Features

• Programmable for 14 different temperature ranges in either °C or °F, by simply changing one plug-in passive software module. • Automatic cold-junction compensation. • Both digital and analog outputs for driving variety of control, recording, display and printout equipment. • Automatic linearization for thermocouple, through built-in signal conditioning circuitry. • Solderless screw-terminal connections. • Universal powered: 5 VDC, 8-28 VDC, 110/220 VAC, ±20%.

Price $219



AN2573 — Digital Rate Indicator

Features

• User programmable — by handy front-panel switches — for pulse or sinewave input, full-scale range, totalizer output, data-averaging filter. • Accepts pulse inputs from 1.5 V to 100 V. • Accepts sinewave inputs from 6 mV pp to 300 V pp. • 0.05% accuracy and resolution. • Automatic zero for long-term stability. • Both analog and digital control outputs. • Fully isolated front end withstands 2000 Volts CMV. • High-impact plastic case is UL94 V-0 rated. • CMRR greater than 200 dB. • Built-in data averaging. • Solderless screw-terminal connections. • Universal powering: 5 VDC, 8-28 VDC, 110/220 VAC. ±20%.

Price $214

AN2576 — Precision RTD Readout

Features

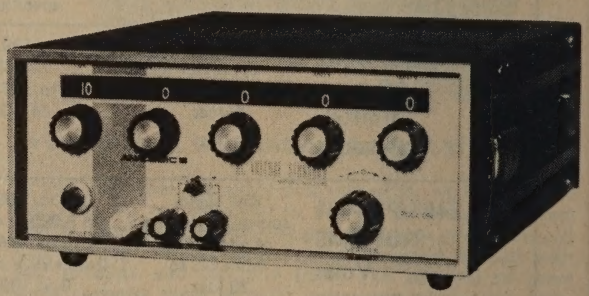
• Measure from −200°C to +800°C (−328°F to +1472°F) with 1°C or 1°F resolution. • Optional high resolution model provides 0.1° resolution over a range of −170.0 to +199.9°C or °F. Switch is readily accessible when unit is mounted in the panel. • Calibration for 100-ohm Platinum RTD sensor (PT 100) per DIN Specification 43760 (α = 0.00385). • 1 mA nominal excitation current for 3-wire or 4-wire configuration. A readily accessible switch conditions the AN2576 for either configuration. • Automatic compensation for external lead resistance of up to 100 ohms maximum. • Linearization to reduce conformity errors to ±1 count maximum, for ±2 count over-all accuracy. • Universal Powering.

Price $230

Unique!
AN3100 DC Voltage Standard

A true secondary standard, with extraordinary linearity, resolution, absolute accuracy, and stability for a modestly priced instrument. Very broad range of applications in laboratory, production, QC and field-checkout work. Every AN3100 is furnished with a four-page test report and a certificate of performance traceable to NBS.

- Five Dialable, Digital Decades of DC Voltage — two simultaneous ranges: 0-11.1110 Volts, and 0-111.110 millivolts. Resolution to 1 μV!
- Current Capability 50 Milliamperes.
- Reversible-Polarity, Isolated Output: Can be floated 500 Volts above or below ground; recovers in 300 milliseconds.



CONDENSED SPECIFICATIONS

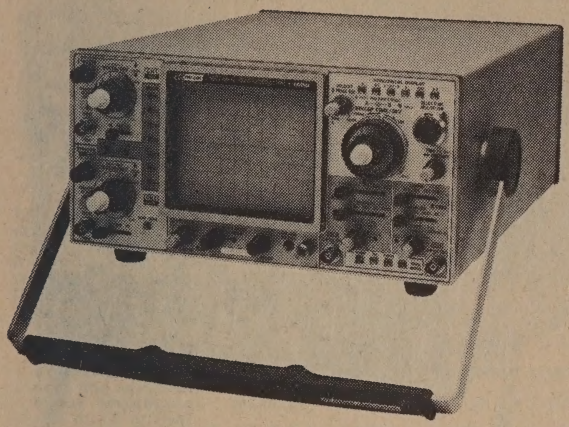
Voltage Range
Main Output: 0 to ±11.110 Volts at front panel terminals.
Auxiliary Output: 0 to ±111.110 millivolts at rear panel terminals.
Absolute Accuracy (at 23°C): 50 PPM of reading, ±50 μV (includes 6-month stability and linearity).
Long-Term Stability: ±15 PPM, 60 days.
Linearity: within ±25 PPM.
Temperature Coefficient: ±2 PPM°C.

Price $798

PRICES LISTED ARE FOR GUIDANCE ONLY

OSCILLOSCOPE AND PULSE GENERATOR

MODEL 1500P 100 MHz, QUAD INPUT, 8-TRACE OSCILLOSCOPE



One of the significant features of Model 1500P is quadruple input operation. A full complement of controls for dual-trace display is featured, plus inputs and controls for two additional vertical inputs, providing four-channel capability, and with delayed sweep, coupled with alternate time base, eight-trace display. The most common application for quad display is to use channels 3 and 4 as a "trigger view" for channels 1 and 2. On many competitive scopes, this trigger-view capability is limited to observing a single channel, giving Model 1500P a distinct advantage. Another useful application of the four channel inputs is to display four digital signals (when operated in the "V-mode", these signals need not be related in frequency). When analyzing a digital circuit, controlled by one time base, digital signals can be observed at four different circuit points simultaneously. Four signals, not related in frequency, can be displayed, in sync, simultaneously. Any of the four channels can be displayed or deleted. For channels 1 and 2, the vertical input attenuator offers ten ranges in the convenient 1-2-5 sequence, with vernier provided. Since channels 3 and 4 are intended for supplemental applications, two-position vertical input attenuators are provided.

VERTICAL AMPLIFIERS:

CH1 and CH2:

Deflection Factor: 5 mV/div. to 5 V/div., ±3%, in 10 ranges in a 1-2-5 sequence with vernier control. LED warning light indicates uncalibrated setting. X5: 1 mV/div. to 1 V/div.
Frequency Response (With or Without X5 Amplifier): DC, DC to 100 MHz (−3 dB); AC, 5 Hz to 100 MH z (−3 dB.) Frequency Response can be limited to approximately 20 MHz by bandwidth limit switch.
Rise Time: 3.5 nsec. or less; with X5 amplifier, 3.5 nsec. or less at both 50 ohms and 1 megohm.
Non-Distorted Max. Amplitude: More than 8 div., DC to 100 MHz.
Max. Input Voltage: 1 megohm, 250 V (DC + AC peak) or 500 V p-p; 50 ohms, 5 V rms, ±5 VDC.
Input Impedance: 1 megohm, ±2%, paralleled by 28 pF, ±3 pF or 50 ohms nominal (switch selectable).

CH3 AND CH4:

Deflection Factor: 100 mV/div. and 1 V/div., ±3%.
Frequency Response: DC, DC to 100 MHz (−3 dB); AC, 5 Hz to 100 MHz (−3 dB).
Rise Time: 3.5 nsec. or less.
Max. Input Voltage: 50 V (DC + AC peak).
Input Impedance: 1 megohm, ±2%; 28 pF, ±3 pF.

CH1, CH2, CH3, AND CH4:

Operating Modes: CH1, CH2, Dual (ALT/CHOP), QUAD (ALT/CHOP), ADD.
Chop Frequency: 2 ranges, 250 kHz nominal and 260 kHz.

SWEEP SYSTEM:

Time Base A: 20 nsec./div. to 5 sec./div.; 1-2-5 sequence; 23 steps.
Time Base B: 20 nsec/div. to 50 msec./div.; 1-2-5 sequence; 20 steps.
Fix: Triggering at center level of the displayed waveform.
Accuracy: ±3%.
Sweep Vernier: Continuously variable between steps; LED warning light indicates uncalibrated setting.
Sweep Magnification: 10X, ±5%.
Linearity: ±3%; 10X, ±5%.
Calibrated Sweep Time Delay: 0.5 sec. to 200 nsec.

TRIGGERING:

Mode: AUTO (free run), NORM, SINGLE/RESET, FIX.
Trigger Sensitivity: See chart below.
Trigger Level Range (Ext. Trig.): 1/1, ±5 V (1 V p-p); 1/10, ± 5 V (10 V p-p).
Slope (A, B): Positive and negative.
Level (A, B): Permits selection of triggering at any point on the positive and negative slope of the displayed waveform.
Jitter: 0.5 nsec. or less at 2 nsec./div., 100 MHz input.

HORIZONTAL AMPLIFIER (Input Through CH2 Input):

Deflection Factor: Same as Vertical CH2.
Frequency Range: DC, DC to 5 MHz (−3 dB); AC, 5 Hz to 5 MHz (−3 dB).
Input Impedance: Same as Vertical CH2.
Max. Input: Same as Vertical CH2.
X-Y Operation: CH2 becomes X axis; CH1 is Y axis.
X-Y Phase Difference: 3° or less at 100 kHz.

Z-AXIS INPUT (Intensity Modulation):

Sensitivity: 5 V (TTL compatible). Positive voltage increases intensity.
Usable Frequency Range: DC to 10 MHz.
Input Impedance: 10,000 ohms.
Max. Input: 50 V (DC + AC peak).
Operating Temperature: 0° C to 50° C (10° C to 35° C full specifications).
Operating Altitude: Up to 5,000 meters at 18 to 20° C.
Humidity: 85%.
CRT: 6 in. diagonal, with 8X10 division internal illuminated graticule (1 div. = 1 cm); P31 phosphor.
Accelerating Voltage: 16 kV.
Calibration Output Voltage: Internal 0.3 V p-p, ±1% (square wave at 1 kHz, ±3%). Current probe, 10 mA p-p, ±2% at 1 kHz.
Gate Outputs: Positive gate output from each time base; available on rear panel. 1.5 V p-p into 500 ohms.
Probes: Two 10:1/direct probes supplied.
Power Required: 90–132 VAC or 180–264 VAC, 50/60 Hz, 56 watts.
Size: 11.2″ w. x 5.4″ h. x 15.75″ d.
Weight: 16.5 lbs.

TRIGGER SENSITIVITY

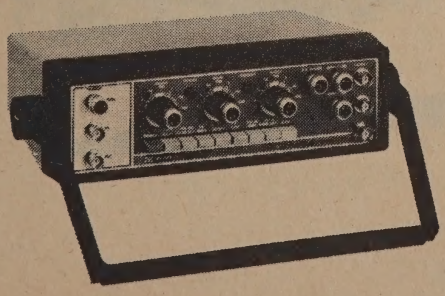
Coupling	Bandwidth	Min Sync. Volts Int. (DC)	Ext.
Normal:	Up to 20 MHz	0.3 Div.	30 mV
	Up to 50 MHz	1.0 Div.	100 mV
	Up to 100 MHz	1.5 Div.	150 mV
Fix:	40 Hz to 20 MHz	0.5 Div.	50 mV
	40 Hz to 80 MHz	1.5 Div.	150 mV
Video:	Frame/Line	0.5 Div.	50 mV
Auto:	Free runs at sweep frequency less than 30 Hz; as above for sweep rates greater than 30 Hz.		
AC:	Requirements increase below 20 Hz.		
LF-Rej.:	Requirements increase below 30 kHz.		
HF-Rej.:	Requirements increase below 20 Hz and above 30 kHz.		

B&K-Precision Model 1500P Oscilloscope—With two 10:1/direct probes. Net Each.....**$2575.00**

ACCESSORIES

Model LC-100 Front Panel Cover—Snaps on; provides protection for field service or storage. Net Each.....**$26.00**
Model LC150 Vinyl Carrying Case—For probes and cables. Net Each.....**$32.00**

MODEL 3300 5 MHz PULSE GENERATOR



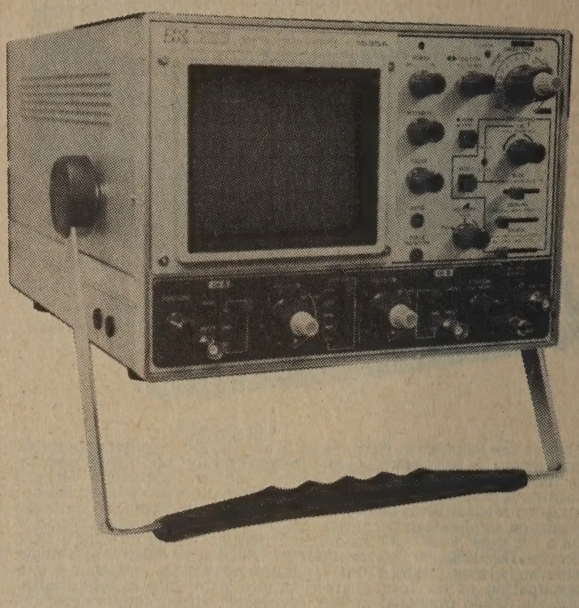
New 5 MHz pulse generator adds adjustable sweep delay to any triggered sweep oscilloscope. Test counter circuits, shift registers. TTL, MOS, CMOS, HiNIL, HTL, RTL and ECL logic families. Adjustable input-trigger level for use with arbitrary waveforms and pulse reconstruction. Pulse-burst capability allows convenient testing of counters and shift registers. CSA listed.

PULSE CHARACTERISTICS:

Pulse Width Range: 100 nsec. to 1 sec. with linear adjustment in 7 decade steps.
Trigger or Pulse Delay: Same as Pulse Width.
Repetition Period Range: 200 nsec. to 1 sec. with linear adjustment in 7 decade steps.
Frequency Response: 5 MHz to 1 Hz.
Trigger Input: Selectable threshold from −18 to +18 V.
Trigger Output: TTL level.
Power Requirements: 105-130 VAC, 60 Hz, 28 watts.
Size: 3.2″ h. x 11.3″ w. x 7.8″ d.
Weight: 3.1 lbs.
B & K Model 3300 Pulse Generator—Net Each.....**$375.00**
Model LC-50 Carrying Case—Net Each.....**$29.50**

B&K PRECISION DYNASCAN CORPORATION Oscilloscopes

MODEL 1535AP 35 MHz, DUAL-TRACE, TRIGGERED SWEEP OSCILLOSCOPE



Guaranteed 35 MHz bandwidth and 2 mV/cm vertical sensitivity; typically down only 3 dB at 40 MHz. Easily triggers on signals beyond 50 MHz. Built-in delay line. Alternate trigger capability. Automatic or manual selection of Chop or Alternate dual-trace displays. Variable hold-off for accurate pulse train display. "Single-sweep" feature for photography or observation of non-repetitive waveforms. Video sync separators standard. Built-in triggering filters. PDA CRT with P31 phosphor. Differential input capability. Two 10:1/direct probes included with unit.

VERTICAL AMPLIFIER (Ch. A and Ch. B):
Deflection Factor: 2 mV/cm to 10 V/cm, ±3% at 10-30° C or ±5% at 0-40° C. in 12 ranges, each with fine adjustment.
Frequency Response: DC, DC to 35 MHz; AC, 5 Hz to 35 MHz, each at −3 dB.
Rise Time: 11.7 nsec. or less.
Overshoot: 3% or less.
Input Impedance: 1 megohm ±2%, 22 pF ±3 pF.

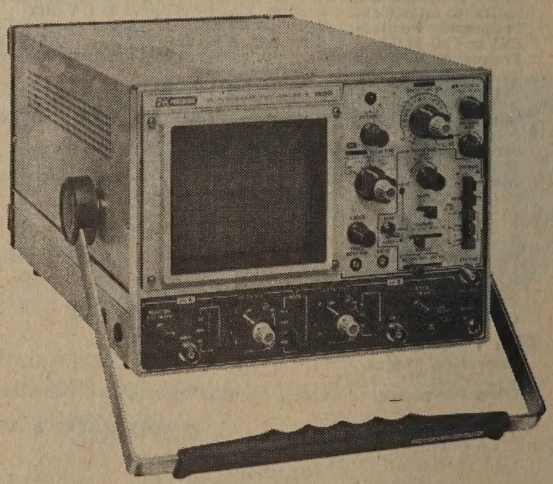
SWEEP SYSTEM (Common to Ch. A and Ch. B):
Type: Automatic, triggered (NORM), single, fixed.
Sweep Time: 0.1 μsec./cm to 0.5 sec./cm, ±3% in 22 calibrated steps in a 1-2-5 sequence, with vernier adjustment.
Sweep Magnification: 5 times, ±5%; extends max. sweep rate to 20 nsec./cm.
Linearity: 3% or better; 10% with 5X magnification.

HORIZONTAL AMPLIFIER—X-AXIS (Input through Ch. B input):
Deflection Factor: 2 mV/cm to 10 V/cm, ±3% in 12 ranges, each with fine adjustment.
Frequency Response: DC, DC to 2 MHz; AC, 5 Hz to 2 MHz, each at −3 dB.
Input Impedance: 1 megohm shunted by 22 pF ±3 pF.

Calibration: Internal 0.1 V p-p square wave at 1 kHz.
Probes: Two 10:1/direct probes supplied with unit.
Power Required: 117/234 VAC, 50/60 Hz, 40 watts.
Size: 7⅜" h. x 10⅛" w. x 14¾" d.
Weight: 22.5 lbs.

B & K Model 1535AP Oscilloscope—With two 10:1/direct probes. Net Each..... **$1240.00**
B & K-Precision Model LC-74 Protective Cover—Net Ea. **$34.75**
B & K-Precision Model LC-133 Carrying Case—Net Ea. **63.00**

MODEL 1530P 30 MHz, DUAL-TRACE, DELAYED-SWEEP OSCILLOSCOPE



Delayed sweep is a major advantage in the evaluation of digital pulse trains and other complex waveforms. A complex digital pulse train can be expanded greatly and individual pulses can be examined. This is particularly useful in locating troublesome "glitches" in microprocessor and digital circuitry. Waveforms up to approximately 25 kHz can be expanded by as much as 1000 times. Minimum expansion at 30 MHz is five times. Either the Ch A or Ch B signal can be viewed on Ch A and the other can be expanded on Ch B. An unusual triggering mode is included. The alternate trigger mode selects the Ch A or Ch B signal as a trigger source on alternate sweeps to permit stable display of two signals that are unrelated in frequency. A video sync separator is also included. For photography of waveforms, the CRT bezel accepts a standard oscilloscope camera. To photograph or observe a single non-repetitive waveform, a touch of the single sweep RESET button will prepare the sweep circuit to display a single sweep only, then blank the screen.

VERTICAL AMPLIFIER (Channel A and B):
Deflection Factor: 5mV/div to 5 V/div, ±3%; 2 mV/div, ±3%.
Attenuator: 10 steps, 5 mV/div to 5 V/div in 1-2-5 sequence, plus 2 mV/div gain change step. Vernier control.
Frequency Response: DC, DC to 30 MHz; AC, 5 Hz to 30 MHz; 2 mV/div gain change step drops upper limit to 20 MHz.
Rise Time: 11.7 nanoseconds or less; 17.5 nanoseconds at 2 mV/div.
Overshoot: 3% or less.
Input Impedance: 1 megohm shunted by 23 pF, ±3 pF.
Non-Distorted Maximum Amplitude: More than 8 divisions, DC to 30 MHz.
Maximum Input Voltage: 300 V (DC + AC peak), 600 V p-p.
Operating Modes: Ch A, Ch B, Dual, ADD, and subtract (using Ch B invert).

HORIZONTAL AMPLIFIER (Input thru Ch B):
Deflection Factor: Same as vertical amplifier.
Input Impedance: Same as vertical amplifier.
Frequency Response: DC, DC to 2 MHz; AC, 5 Hz to 2 MHz.
X-Y Operation: Ch A is Y-axis and Ch B is X-axis; phase difference, 3° or less at 100 kHz.

SWEEP SYSTEM:
Type: Automatic, triggered (norm) and single.
Sweep Time: 0.2 μsec/div to 0.5 sec/div, ±3%, in 20 ranges in 1-2-5 sequence with vernier control.
Sweep Magnification: Five times, ±10%.
Linearity: ±3%; ±10% at 5X magnification.

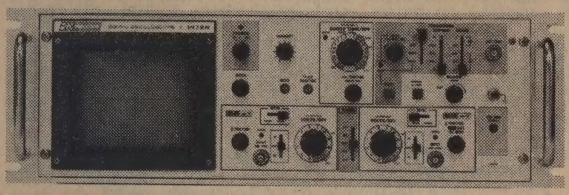
Delay Time Base:
Delay Time: 1 μsec to 100 msec in 5 ranges with vernier adjustment.
Intensity Modulation: INTEN switch allows portion of sweep after delay to be intensified.
Delay Jitter: Less than 1 part in 10,000.

Probes: Two 10:1/direct probes supplied.
Power Required: 117/234 VAC, 50/60 Hz, 28 watts.
Size: 7⅜" h. x 10⅛" w. x 14¾" d.
Weight: 19 lbs.

B & K-Precision Model 1530P Oscilloscope—With two 10:1/direct probes. Net Each..... **$1365.00**
B & K-Precision Model LC-74 Protective Cover—Net Each..... **$34.75**
B & K-Precision Model LC-133 Carrying Case—Net Ea. **63.00**

PRICES LISTED ARE FOR GUIDANCE ONLY

MODEL 1479R 30 MHz, DUAL-TRACE, RACK-MOUNT OSCILLOSCOPE



Ideal for viewing frequency divider waveforms, measurements of propagation delay time, high-speed pulse-rise and characteristics, digital circuit time delay, amplifier distortion, phase shift and frequency, burst circuits, delay line tests, servicing FM receivers, television and stereo amplifiers, and analysis of composite waveforms and sync pulses.

VERTICAL AMPLIFIER (CH1 AND CH2):

Deflection Factor: 2 mV/div. to 10 V/div., ±3% at 10° C to 30° C; ±5% at 0° C to 40° C.
Attenuator: 2 mV/div. to 10 V/div.; 1-2-5 sequence each range with fine adjustment.
Input Impedance: 1 megohm, ±2%; front 24 pF, ±3 pF; rear 80 pF or less.
Frequency Response: DC, DC to 30 MHz (−3 dB), front; DC to 15 MHz (−3 dB), rear; AC, 5 Hz to 30 MHz (−3 dB), front; 5 Hz to 15 MHz (−3 dB), rear.
Rise Time: 11.7 nsec. or less, front; 24 nsec. or less, rear.
Overshoot: Less than 3% at 100 kHz, square wave.
Cross Talk: CH1 and CH2, −66 dB or less; ATL operation, −40 dB or less; CHOP operation (front, rear), −40 dB or less at 1 kHz sine wave.
Operating Modes: CH1, CH2, DUAL, ADD (CH1 and CH2), and X-Y (CH2, X axis; CH1, Y axis).
Dual-Trace Changeover: ALT is effected when TRIG source is ALT or NORM-CHOP is NORM and SWEEP TIME/DIV is 0.5 msec./div. to 0.1 μsec./div. CHOP is effected (about 350 kHz switching) in other modes.
Invert Polarity: CH2 only.
Max. Input Voltage: 500 V p-p or 250 V (DC + AC peak).
Signal Delay Time: Approx. 10 nsec. (on CRT screen).
Max. Undistorted Amplitude: More than 8 div. from 30 MHz.

HORIZONTAL AMPLIFIER (CH2 INPUT):

Operating Modes: X-Y changeover with vertical MODE switch; CH1, Y-axis; CH2, X-axis.
Deflection Factor: Same as vertical amplifier.
Input Impedance: Same as vertical amplifier.
Frequency Response: DC, DC to 2 MHz (−3 dB), 3 MHz (−6 dB); AC, 5 Hz to 2 MHz (−3 dB), 3 MHz (−6 dB).
X-Y Phase Difference: Less than 3° at 100 kHz.

SWEEP CIRCUIT:

Sweep System: SINGLE (single sweep); NORM (triggering sweep); AUTO (triggering sweep and auto free-run sweep without trigger signal); FIX (triggering level is automatically set to the center of the input level).
Sweep Time: 0.1 μsec./div. to 0.5 sec./div., ±3%; 1-2-5 sequence; fine adjustment between all 21 ranges.
Magnification: X5 (five times), ±5%.
Linearity: 3% or better; 10% with X5 magnifier.

TRIGGERING:

Source (Internal): ALT, CH1, CH2, EXT 1/10, EXT 1.
Ext. Triggering Input Voltage: 50 V (DC + AC peak).
Type: SINGLE, NOR, AUTO (manual sync), FIX (auto sync).
Slope: Positive or negative (selectable).
Coupling: AC, LF reject, HF reject, TV, DC video line/frame automatically switched by SWEEP TIME/DIV; LINE coupling: 0.1 μsec./div. to 50 μsec./div.; Frame Coupling, 0.1 msec./div. to 0.5 sec./div.

SENSITIVITY:

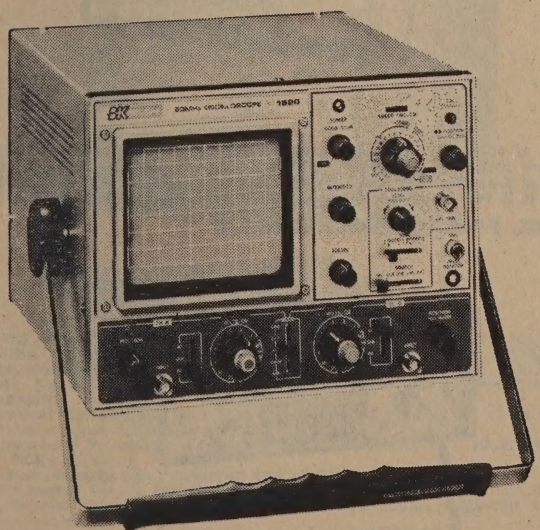
Single/Norm. Triggering		Min. Sync Voltage		
Coupling	**Bandwidth**	**INT**	**EXT 1/10**	**EXT 1**
AC-DC	50 Hz to 15 MHz 10 Hz to 35 MHz	0.5/Div. 0.8/Div.	3 V p-p 3 V p-p	0.3 V p-p 0.3 V p-p
Video	Video	1/Div.	5 V p-p	0.5 V p-p

HF Reject: Attenuates above 100 kHz.
LF Reject: Attenuates below 10 kHz.

Triggering		Min. Sync Voltage		
Coupling	**Bandwidth**	**INT**	**EXT 1/10**	**EXT 1**
AUTO/ FIX	100 Hz to 15 MHz 50 Hz to 30 MHz	0.5/Div. 0.8/Div.	3 V p-p 3 V p-p	0.3 V p-p 0.3 V p-p

Hold Off: NORM-M X (continuously variable from zero to more than ten times).
Gate Out: TTL level, positive polarity, square wave.
Sweep Out: 1 V p-p saw tooth wave; approx. 50 ohms.
Intensity Modulation: Variable at max. sensitivity; TTL (2.5 V p-p) compatible; input impedance, approx. 5,000 ohms; bandwidth, DC to 5 MHz; max. input voltage, 30 V (DC + AC peak).
Power Required: 100–117/220–240 VAC ±10%, 50/60 Hz, 43 watts.
Size: 18⅞" w. x 6⁵⁄₁₆" h. x 17¾" d.
Weight: 34 lbs.
B & K-Precision Model 1479R Oscilloscope—
Net Each..... **$1495.00**

MODEL 1520P 5", 20 MHz, DUAL-TRACE, TRIGGERED SWEEP OSCILLOSCOPE



Applications include design analysis and troubleshooting of minicomputers, microprocessors, computer terminals and other peripheral equipment. Flat response beyond 20 MHz. Triggers on signals to 40 MHz. 5 mV/cm vertical sensitivity. 10X sweep magnification. Front panel X-Y operation. Differential input capability. Five selectable trigger source positions: Ch. A, Ch. B, INT., EXT., LINE. Video sync separator. 19 calibrated sweep ranges. CRT bezel accepts standard scope camera mount. Bright CRT with P31 phosphor. Two slim-body 10:1/direct probes included.

VERTICAL AMPLIFIER (Ch. A and Ch. B)

Deflection Factor: 5 mV/cm to 20 V/cm, ±5% in 12 ranges, each with fine adjustment.
Freq. Response: DC, DC-20 MHz; AC, 2 Hz to 20 MHz; both at −3 dB.
Rise Time: 17.5 nsec. or less.
Overshoot: 3% or less.
Input Impedance: 1 megohm ±2%, 27 pF ±3 pF.

SWEEP SYSTEM (Common to Ch. A and Ch. B):

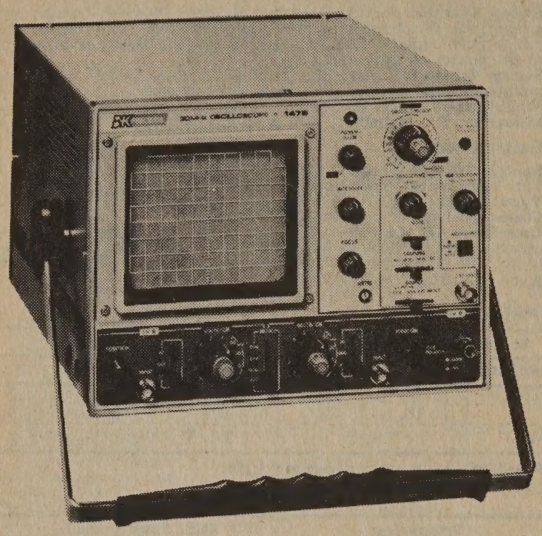
Type: Automatic and triggered.
Sweep Time: 0.5 μsec./cm to 0.5 sec./cm ±5% in 19 calibrated steps in a 1-2-5 sequence, with vernier adjustment.
Sweep Magnification: 10 times, ±5%; extends max. sweep rate to 50 nsec./cm.
Linearity: 3% or better for 0.5 sec./cm to 2 μsec./cm ranges; 5% or less for 1 μsec./cm and 0.5 μsec./cm ranges; 10% with 10X magnification.

HORIZONTAL AMPLIFIER—X-AXIS (Input through Ch. B input):

Deflection Factor: 5 mV/cm to 20 V/cm, ±5% in 12 ranges, each with fine adjustment.
Freq. Response: DC, DC-2 MHz; AC, 2 Hz-2 MHz; each at −3 dB.
Input Impedance: 1 megohm, ±2%, shunted by 27 pF ±3pF.
Operating Modes: Ch. A, Ch. B, Alternate, Chop, Add, Subtract (invert Ch. B), X-Y.
Probes: Two 10:1/direct probes, supplied with unit.
Power Required: 117/234 VAC, 50/60 Hz, 47 watts.
Size: 7⅜" h. x 10⅛" w. x 13⅞" d.
Weight: 20 lbs.
B & K Model 1520P Oscilloscope—With two 10:1/direct probes
Net Each..... **$875.00**
B & K-Precision Model LC-74 Protective Cover—Net Ea. **$34.75**
B & K-Precision Model LC-133 Carrying Case—Net Ea. **63.00**

B&K PRECISION DYNASCAN CORPORATION Oscilloscopes

MODEL 1479BP 30 MHz, DUAL-TRACE, TRIGGERED-SWEEP OSCILLOSCOPE WITH SIGNAL DELAY LINE



A dual-trace, 30 MHz, triggered-sweep oscilloscope applicable to servicing computers, music synthesizers, digital data equipment, CB, etc. A rise time of 11.7 nsec or less and a built-in signal delay line permit viewing of high-frequency, short-rise-time pulses. The dual-trace function allows measurement of propogation delay, phase shift, distortion, etc. The 5" CRT permits an 8 x 10 cm screen with a bright, P31 blue phosphor. Frequencies below 10 kHz or above 30 kHz can be attenuated by switchable filters to allow synchronization on complex waveforms without "jitter."

VERTICAL AMPLIFIER (Ch. A and Ch. B):
Deflection Factor: 5 mV/cm to 5 V/cm, ±3% in 10 ranges with fine adjustment on all ranges.
Frequency Response: DC, from DC to 30 MHz; AC, from 10 Hz to 30 MHz; (both at −3 dB).
Rise Time: 11.7 nanoseconds or less.
Overshoot: 3% or less.
Input Impedance: 1 megohm ±2%, 22 pF.
Operating Modes: Ch A, Ch B, Dual, Add.

SWEEP SYSTEM (Common to Ch. A and Ch. B):
Type: Automatic and triggered (NORM).
Sweep Time: 0.2 μsec/cm to 0.5 sec/cm, ±3% in 20 calibrated steps in a 1–2–5 sequence with vernier adjustment.
Sweep Magnification: Five times ±5%.
Linearity: 3% or better.

HORIZONTAL AMPLIFIER (Input thru Ch. B vertical Input):
Deflection Factor: 5 mV/cm to 5 V/cm, ±5% in 10 ranges with fine adjustment on all ranges.
Frequency Response: From DC to 2 MHz (at −3 dB).

Probes: Two 10:1/direct probes supplied.
Power Required: 117/234 VAC, 50–60 Hz, 25 W.
Size: 7⅜" h. x 10⅛" w. x 14¾" d.
Weight: 19.6 lbs.

B & K-Precision Model 1479BP Oscilloscope—With two 10:1/direct probes. Net Each..... **$1175.00**
B & K-Precision Model LC-74 Protective Cover–Net Ea.. **$34.75**
B & K-Precision Model LC-133 Carrying Case–Net Ea.. **63.00**

MODEL 1477P 5", 15 MHz, DUAL-TRACE, TRIGGERED-SWEEP OSCILLOSCOPE

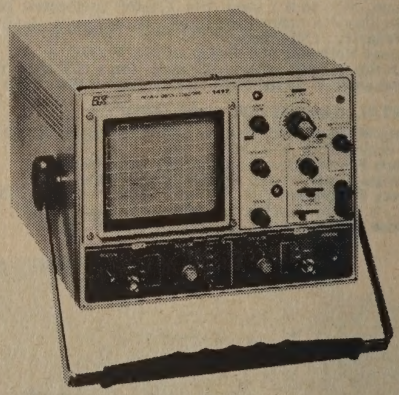
A dual-trace, 15 MHz oscilloscope applicable to logic and digital design and troubleshooting. Measure propogation delays and phase shifts. Use A–B mode to compare amplifier input and output waveforms and display algebraic difference as a distortion curve. Features dual display of waveforms, their sum or difference, for fast, easy comparison. Triggered or automatic sweep. TV sync separator circuit for TV-H and TV-V. Vectorscope capability.

VERTICAL AMPLIFIER (Ch. A and Ch. B):
Deflection Factor: 10 mV/cm to 20 V/cm, ±5% in 11 ranges with fine adjustment on all ranges.
Frequency Response: DC, from DC to 15 MHz; AC, from 2 Hz to 15 MHz; (both at −3 dB).
Risetime: 24 nanoseconds.
Overshoot: 3% or less.
Input Impedance: 1 megohm, 22 pF ±3 pF.
Tilt: 5% or less.

SWEEP SYSTEM (Common to Ch. A and Ch. B):
Type: Automatic or triggered.
Sweep Time: 0.5 μsec/cm to 0.5 sec/cm, ±5% in 19 calibrated steps in a 1–2–5 sequence with vernier adjustment.
Sweep Magnification: 5 times.
Linearity: 3% or less.

HORIZONTAL AMPLIFIER (Input thru Ch. B vertical input):
Deflection Factor: .01 V/cm to 20 V/cm, ±5% in 11 ranges with vernier adjustment.
Frequency Response: From DC to 1 MHz (at −3 dB).

Operating Modes: Ch A, Ch B, Dual, Ch A + Ch B (algebraic sum), Ch A − Ch B (algebraic difference).
Internal Calibration: 1.0 V p-p squarewave at 1 kHz.
Probes: Two 10:1/direct probes supplied.
Power Required: 117/234 VAC, 50–60 Hz, 23 W.
Size: 7⅜" h. x 10⅛" w. x 14¾" d.
Weight: 19.6 lbs.



B & K-Precision Model 1477P Dual-Trace Oscilloscope—With two 10:1/direct probes. Net Each..... **$840.00**
B & K-Precision Model LC-74 Protective Cover–Net Ea.. **$34.75**
B & K-Precision Model LC-133 Carrying Case–Net Ea.. **63.00**

MODEL 1420 15 MHz, DUAL-TRACE, PORTABLE OSCILLOSCOPE

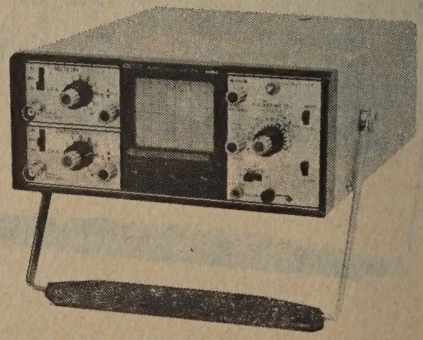
A dual-trace, 15 MHz, portable oscilloscope for self-contained operation on battery power. Up to 2 hour operation per battery charge.

VERTICAL AMPLIFIER:
Deflection Factor: 10 mV/div to 20 V/div in 11 ranges.
Frequency Response: DC, DC to 15 MHz; AC, 10 Hz to 15 MHz.
Rise Time: 24 nanoseconds or less.
Input Impedance: 1 megohm shunted by 22 pF.
Operating Modes: Ch A, Ch B, Dual.

SWEEP SYSTEM (Common to Ch A and Ch B):
Type: Automatic and triggered (norm).
Sweep Time: 1 μsec/div to 0.5 sec/div in 18 ranges in a 1-2-5 sequence with vernier adjustment.
Sweep Magnification: 10 times ±5%.
Linearity: 3% or better.

HORIZONTAL AMPLIFIER (Input thru Ch B vertical input):
Deflection Factor: 10 mV/div to 20 V/div in 11 ranges.
Frequency Response: DC, DC to 1 MHz; AC, 10 Hz to 1 MHz.
X-Y Operation: Ch B input becomes X-axis.

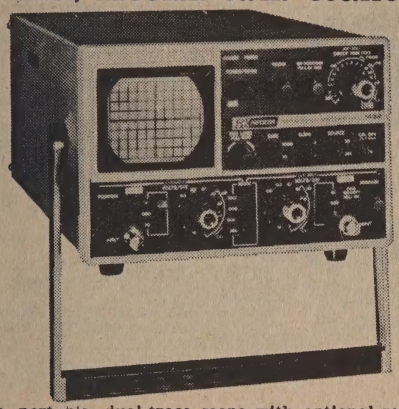
Probes: Two 10:1/direct probes supplied.
Power Required: 117 VAC, 60 Hz or 10–16 VDC at 1 amp. Internal 12 VDC battery is charged during AC operation.
Size: 3¼" h. x 7¾" w. x 10½" lg.
Weight: 7.5 lbs. with battery.



B & K-Precision Model 1420 Oscilloscope—With two 10:1/direct probes. Net Each..... **$825.00**
B & K-Precision Model BP-14 Battery Pak—Net Ea... **$58.00**
B & K-Precision Model CC-20 Cigarette Lighter to DC Plug—Net Each..... **$10.50**
B & K-Precision Model LC-20 Carrying Case—Net Ea.. **$41.00**

PRICES LISTED ARE FOR GUIDANCE ONLY

MODEL 1435P 3″, 15 MHz, PORTABLE DUAL-TRACE, TRIGGERED-SWEEP OSCILLOSCOPE



Compact, portable, dual-trace scope with optional rechargeable battery pack mounted within the case. Built-in universal power supply provides operation on 117 VAC, 234 VAC, 12 VDC or optional internal batteries. High- and Low-voltage power supplies fully regulated. Automatic selection of chopped or alternate mode of display for most efficient operation. Nineteen calibrated sweep ranges cover 0.5 μsec. to 1.5 sec. with ±3% linearity. 5X magnifier extends sweep range to 0.1 μsec. Automatic stability control and front-panel X-Y operation standard. Bright, 3-inch P31 phosphor screen CRT. Z-axis TTL compatible.

Vertical Sensitivity: 2 mV/div. to 10 V/div., ±5%, in 12 ranges, each with fine adjustment.
Frequency Response: DC, DC to 15 MHz; AC, 10 Hz to 15 MHz.
Input Impedance: 1 megohm, shunted by 22 pF ±3 pF.
Sweep Time: 0.5 μsec./div. to 0.5 sec./div. ±5% in 19 calibrated steps, in a 1-2-5 sequence, with vernier adjustment.
Calibration: Internal 1 V p-p, ±3% square wave at 1 kHz, ±5%.
Power Required: 117/234 VAC, 50/60 Hz or 11–15.5 VDC, 30 watts.
Size: 5.5″ h. x 8.25″ w. x 14.3″ d.
Weight: 18.3 lbs., with batteries.
Probes: Two 10:1/direct probes with accessory tips supplied.

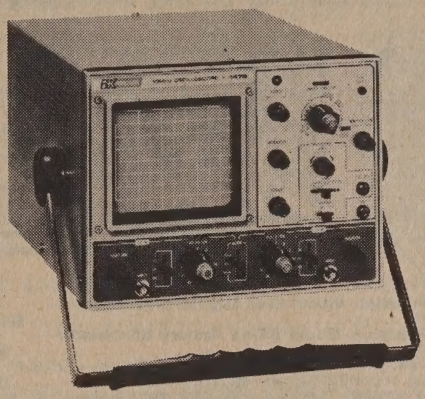
B & K-Precision Model 1435P Oscilloscope—With Probes. Net Each.....**$895.00**
B & K-Precision Model BP-32 Battery Pack—Net Ea. **$63.00**
B & K-Precision Model LC-132 Carrying Case—Net Each.....**$40.50**

MODEL 1466P 5″, 10 MHz TRIGGERED-SWEEP OSCILLOSCOPE

Fully automatic triggered sweep lets you view the entire composite TV signal or any portion thereof. Special sync circuit operates in all sweep positions including TV-H and TV-V. 100% solid state. Fully regulated supply voltages hold calibration constant.
Vertical Sensitivity: 10 mV/cm to 20 V/cm, ±5%, in 11 calibrated ranges, each with fine adjustment.
Frequency Response: DC, from DC to 10 MHz; AC, 10 Hz to 10 MHz (both at −3 dB).
Input Impedance: 1 megohm and 22 pF.
Horizontal Sweep Frequencies: 1 μsec/cm to 0.5 sec/cm in 18 calibrated ranges, each with vernier adjustment, triggered or automatic.
Sweep Magnification: 5 times.
Internal Calibration: 1 V p-p squarewave at line frequency.
Probes: Two 10:1/direct supplied.
Power Required: 117/234 VAC, 50–60 Hz, 20 W.
Size: 7⅛″ h. x 10⅓″ w. x 14¾″ d.
Weight: 17.3 lbs.

B & K-Precision Model 1466P Oscilloscope—With Probe. Net Each.....**$595.00**
B & K-Precision Model LC-74 Protective Cover–Net Ea..**$34.75**
B & K-Precision Model LC-133 Carrying Case–Net Ea..**63.00**

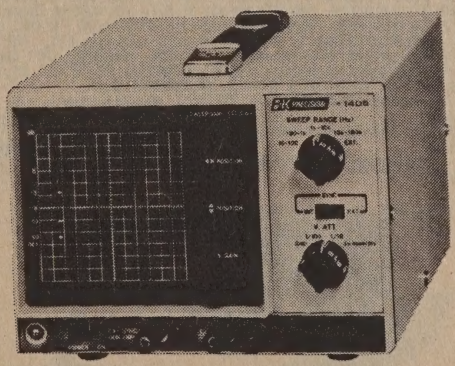
MODEL 1476P 5″, 10 MHz DUAL-TRACE, TRIGGERED-SWEEP OSCILLOSCOPE



Fully automatic triggered sweep lets you view the entire composite TV signal or any portion thereof, including the VITS and back porch. Special sync separator circuit operates in all sweep ranges, including TV-H and TV-V. DC to 10 MHz bandwidth and 10 millivolt sensitivity display smallest signal levels. DC amplifier permits measurement of AC and DC signal components. Front-panel Vectorscope capability. Mylar vector overlay and tilt stand.
Vertical Sensitivity: 10 mV/cm to 20 V/cm in 11 calibrated steps, each with fine adjustment.
Frequency Response: DC, from DC to 10 MHz; AC, from 2 Hz to 10 MHz (both at 3 dB).
Input Impedance: 1 megohm and 22 pF.
Sweep Time: 1 μs/cm to .5 sec./cm in 18 calibrated ranges, each with vernier adjustment.
Sweep Magnification: 5 times.
Internal Calibration: 1 V p-p square wave.
Power Required: 117/234 VAC, 50–60 Hz, 20 W.
Size: 7¼″ h. x 10″ w. x 14¾″ d.
Weight: 19.6 lbs.
Probes: Two 10:1/direct.

B & K-Precision Model 1476P Dual-Trace Oscilloscope—With Probes. Net Each.....**$750.00**
B & K-Precision Model LC-74 Protective Cover–Net Ea..**$34.75**
B & K-Precision Model LC-133 Carrying Case–Net Ea.. **63.00**

MODEL 1405 3″, 5 MHz OSCILLOSCOPE



An all solid-state, highly reliable and ruggedly constructed mini-scope. Compact size for field use. General-purpose unit is ideal for most scope applications, especially monitoring on production lines.
Vertical Sensitivity: 10 mV/cm, or better.
Response: DC, from DC to 5 MHz; AC, 2 Hz to 5 MHz (both at −3 db).
Input Impedance: 1 megohm and 35 pF.
Sweep: Recurrent.
Time Base Ranges: 10–100 Hz; 100–1 kHz; 1–110 kHz, continuously variable between ranges.
Power Required: 117/234 VAC, 50–60 Hz, 16 W.
Size: 6″ h. x 7½″ w. x 12″ d.
Weight: 8.5 lbs.

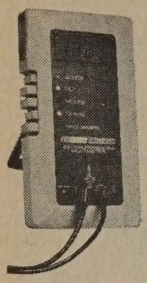
B & K-Precision Model 1405 Oscilloscope—With cable and spare fuse. Net Each.....**$315.00**
B & K-Precision Model LC14 Case—Protective carrying case for Model 1405 "Mini-Scope." Net Each.....**$20.50**

MODEL PR-21

Combination isolation/direct probe. Has switchable 100K resistor to prevent capacitive loading when measuring DC in RF circuits.
B & K-Precision Model PR-21 Probe—Net Each.....**$21.00**

B+K PRECISION DYNASCAN CORPORATION Digital Multimeters

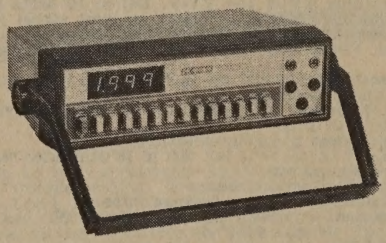
MODEL 2845 MICROCOMPUTER-CONTROLLED, AUTORANGING DIGITAL MULTIMETER



Portable, microcomputer-controlled, digital multimeter with 3½ digit, 0.5″ high contrast LCD display. Features include Auto Skip, in which the meter immediately jumps to the 200 V range when input exceeds 30 V; Range Lock, enabling the user to lock into any range of any function; and Continuity buzzer, providing audible tone when circuit resistance measures 179 ohms or less. **Voltage:** 0–2, 20, 200 and 1000 volts, AC or DC. **Current:** 0–2, 20, 200 and 2000 milliamperes, AC or DC. **Resistance:** 0–2K, 20K, 200K, 2 megohms and 20 megohms. **Accuracy:** ±0.1%. **Power Required:** One 9-volt battery or optional AC adapter. **Weight:** 1 lb.

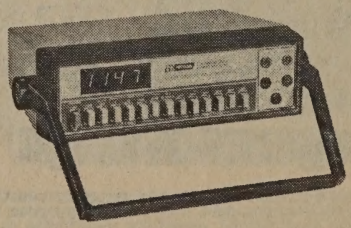
B & K-Precision Model 2845 Digital Multimeter—Net Each.....**$175.00**
B & K-Precision Model BE-16 Battery Eliminator—Net Each.....**$25.00**
B & K-Precision Model ES-28 Current Shunt—Extends current-measuring capability to 10 amps. Net Each.....**$23.00**
B & K-Precision Model LC-45 Carrying Case—Soft vinyl case includes storage area for test leads. Net Each.....**$20.50**

MODEL 2830 DIGITAL MULTIMETER



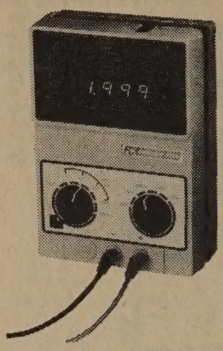
The bright, 0.43″ high LED display is visible under virtually all types of lighting conditions and allows for fast, easy reading. For added efficiency, 100% over-ranging reduces the need for frequent range changes. All ranges and functions are protected against the accidental application of +1000 and −450 VDC or 300 VAC. Current ranges are protected by diodes and fuses. **DC Volts:** 0–0.1, 1, 10, 100 and 1000 VDC. **AC Volts:** 0–0.1, 1, 10, 100 and 1000 volts. **DC Current:** 0–0.1, 1, 10, 100 milliamperes; 0–1 and 10 amperes. **AC Current:** 0–0.1, 10, 100 milliamperes; 0–1 and 10 amperes. **Resistance:** 0–10, 100, 10K, 100K, 1000K and 10 megohms. High or low power selectable on 1K, 10K, 100K and 1000K ranges. **Accuracy:** DC Volts, ±0.1%; DC Current, ±1%. **Power Requirements:** 105–130 VAC or 230 VAC, 50/60 Hz. **Size:** 3.25″ h. x 11.6″ w. x 7.5″ d. **Weight:** 3 lbs.
B & K-Precision Model 2830 Digital Multimeter—Net Each.....**$210.00**
B & K-Precision Model BP-30 Optional Battery Pack—Net Each.....**$52.50**

MODEL 2831 DIGITAL MULTIMETER



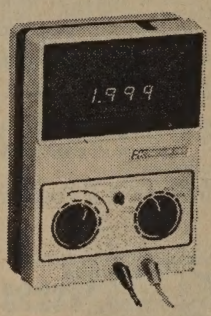
A built-in, 10 amp current range permits measurement of current up to 20 amps (with overrange) without the need of an external plug-in shunt. Seven ohms ranges provide measurement capability from 0.01 ohm to 20 megohms. For field use, available options include the LC-50 carrying case and BP-30 battery pack. All ranges and functions of the Model 2831 are well protected against the accidental application of 1000 VDC, −450 VDC or 300 VAC. Current ranges have the double protection of diodes and high-voltage fusing. **DC Volts:** 0–0.1, 1, 10, 100 and 1000 VDC. **AC Volts:** 0–0.1, 1, 10 100 and 1000 VAC. **DC Current:** 0–0.1, 1, 10 and 100 milliamperes; 0–1 and 10 amperes. **AC Current:** 0–0.1, 1, 10 and 100 milliamperes; 1 and 10 amperes. **Resistance:** 0–10, 100, 1K, 10K, 100K, 1 megohm and 10 megohms. High or low power selectable on 1K, 10K, 100K and 1 megohm ranges. **Accuracy:** DC Volts, ±0.1%; DC Current, ±1%. **Power Requirements:** 105–130/210–260 VAC, 50/60 Hz. **Size:** 3.25″ h. x 11.6″ w. x 7.5″ d. **Weight:** 3 lbs.
B & K-Precision Model 2831 Digital Multimeter—Net Each.....**$255.00**
B & K-Precision Model BP-30 Rechargeable Battery Pack—Net Each.....**$52.50**
B & K-Precision Model LC-50 Leatherette Carrying Case—Net Each.....**$29.50**
B & K-Precision Model PR-21 Isolation/Direct Probe—Net Each.....**$21.00**

MODEL 2800 DIGITAL MULTIMETER



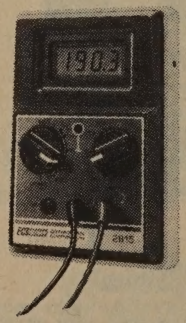
Digital multimeter features bright, easy-to-read, 3½-digit, 0.3″ LED display. Auto-polarity and auto-zero standard; 100% overange. All ranges protected to 1,000 V. Powered by 4 C cells, rechargeable batteries or optional AC charger/adapter. Alternating high/low power ohms ranges permit analysis of semiconductor circuitry with or without biasing the junctions. Comes with test leads, spare fuse and operating manual.
Ranges:
AC/DC Volts: 0–1, 10, 100, 1,000 volts.
AC/DC Current: 0–1, 10, 100, 1,000 mA.
Resistance: 0–100, 1K, 10K, 100K, 1000K, 10M ohms.
Typical Accuracy: 1%.
Size: 6.4″ h. x 4.4″ w. x 2″ d.
Weight: 2 lbs.
Optional Accessories: See below.
B & K-Precision Model 2800 DMM—Net Each.....**$100.00**

MODEL 2810 DIGITAL MULTIMETER



Portable, digital multimeter with 3½-digit, 0.3″ LED display. Auto-zeroing on all but the 10-ohm range. Auto polarity; 100% overranging capability. 0.01-ohm resolution on 10-ohm range; front-panel zero control. High/low power ohms switch, operated independently of the range switch, allows high/low selection on four ranges. Protected against overload and RF interference on all ranges.
Ranges:
AC/DC Volts: 0–0.1, 1, 10, 100, 1,000 V.
AC/DC Current: 0–1, 10, 100, 1,000 mA.
Resistance: 0–10, 100, 1K, 10K, 100K, 1000K, 10M ohms; both high and low power.
Typical Accuracy: 0.5%.
Power Required: Four C size batteries (Ni-Cad, alkaline or carbon-zinc) with provisions for recharging Ni-Cad batteries (batteries and charger not included).
Size: 6.4″ h. x 4.4″ w. x 2″ d.
Weight: 2 lbs.
B & K-Precision Model 2810 DMM—Net Each.....**$149.00**

MODEL 2815 LCD DIGITAL MULTIMETER



Portable digital multimeter with large, 3½-digit, 0.5″ LCD display. 100% overrange auto-polarity and auto-zero (except 10-ohm range). Retains accuracy in RF fields. Powered by 9-volt alkaline battery. Automatic low-battery indicator standard. Alternating high/low power ohms ranges permit analysis of solid-state circuitry, with or without forward biasing semiconductor junctions. Protected against overloads on all ranges. Ohms circuit withstands momentary overloads of up to 1,000 volts. Current ranges protected by both diodes and a fuse. Comes complete with test leads, two spare fuses and instruction manual.
Ranges:
AC/DC Volts: 0–100 mV, 0–1, 10, 100, 1,000 V.
AC/DC Current: 0–100 uA, 0–1, 10, 100, 1,000 mA
Resistance: 0–10, 100, 10K, 1,000K, low power; 0–1K, 100K, 10M ohms, high power.
Size: 6.1″ h. x 4.2″ w. x 1.6″ d.
Weight: 1 lb.
B & K-Precision Model 2815 DMM—Net Each.....**$165.00**

ACCESSORIES

B & K Precision Model	Description	Net Each
BC-28	AC charger/adapter	$16.00
BE-15	Battery eliminator	26.00
BP-28	Rechargeable battery	38.00
ES-28	10-amp current shunt	23.00
LC-28	Carrying case	14.00
MS-28	Wire tilt stand	4.00
PR-21	Isolation/direct probe	21.00
PR-23	RF demodulator probe	23.00
PR-28	H.V. probe	33.50
TP-28	Temperature probe	95.00

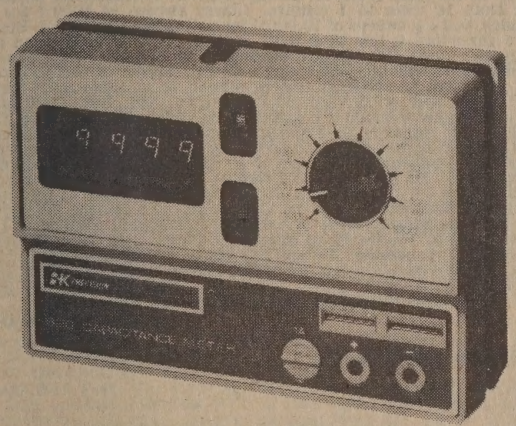
PRICES LISTED ARE FOR GUIDANCE ONLY

MODEL 830 AUTORANGING DIGITAL CAPACITANCE METER

The Model 830 is an economical, multirange capacitance meter that features digital accuracy, simplified use and full portability. Ten internal ranges provide automatic, accurate measurement of capacitance, without manual range switching. Because the accuracy of this unit exceeds the tolerance of most capacitors, required values can be hand selected. If capacitors to be measured are limited to a narrow value range, the Range Hold switch can "freeze" the unit into one range. **Range:** 199.9 pF to 199.9 MF. **Accuracy:** ±0.2%. **Power Required:** Four C cells, any type (not supplied). Provisions for optional AC charger are built-in. **Size:** 6.4″ w. x 4.4″ h. x 2.4″ d. **Weight:** 1.6 lbs.

B & K-Precision Model 830 Digital Capacitance Meter—Net Each.....**$229.00**
B & K-Precision Model LC-28 Carrying Case–Net Ea..**$14.00**
B & K-Precision Model BP-28 Battery Pak–Net Each..**$38.00**
B & K-Precision Model BC-28 Battery Charger–Net Ea..**$16.00**

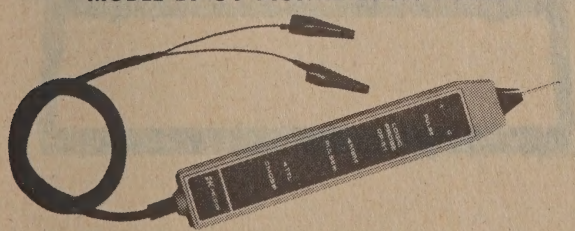
MODEL 820 DIGITAL CAPACITANCE METER



The Model 820 measures capacitors from 0.1 pF to 999,900 μF. Digital circuitry provides resolution to 0.1 pF. Unit has banana jacks for test leads and unique linear type, component lead insertion jacks. Tilt stand, instruction manual and spare fuse are included with the unit. **Size:** 6.4″ w. x 4.4″ h. x 2⅜″ d. **Weight:** 1.51 lbs. with batteries. **Power Required:** Four C cells, any type, (not supplied). Provisions for AC charger are included.

B & K-Precision Model 820 Capacitance Meter—Net Each.....**$185.00**
B & K-Precision Model LC-28 Carrying Case–Net Ea..**$14.00**
B & K-Precision Model BP-28 Battery Pak–Net Ea...**$38.00**
B & K-Precision Model BC-28 Battery Charger–Net Ea..**$16.00**

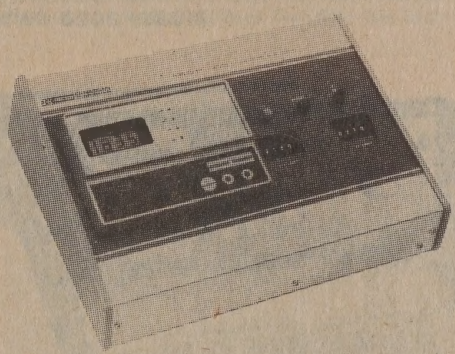
MODEL DP-51 DIGITAL LOGIC PROBE



Simplifies and speeds debugging of digital circuits. The DP-51 is a multi-family device compatible with TTL, DTL, RTL, HTL, CMOS, MOS and HiNIL. Three bright LED's indicate 0, 1 or pulses. Useable to 50 MHz. Slide switch selects Memory or Pulse operation. In Memory mode, high speed pulses are "frozen" stored. In Pulse mode, short pulses as low as 10 nsec. are "stretched" for a clear visual indication. **Frequency Response:** DC to 50 MHz. **Min. Detectable Pulse Width:** 20 nsec. (10 nsec. typ.). **Duty Cycle:** LED intensity directly proportional to duty cycle up to 50 MHz and up to 10:1 ratio. **Pulse Mode:** Will detect and stretch any threshold crossing. **Memory Mode:** Will detect and latch any threshold crossing. **Impedance:** 2 megohms min., all modes. **Logic Threshold:** TTL, logic 1—2.4 V, logic 0—0.8 V; CMOS, logic 1—70% of supply voltage, logic 0—30% of supply voltage. **Oper. Temperature:** 0° C to 50° C. **Power Required:** 5–18 VDC. **Size:** 7.275″ h. x 1.2″ w. x 0.825″ d. **Weight:** 3.5 oz.

B & K-Precision Model DP-51 Digital Probe—Net Each.....**$70.00**

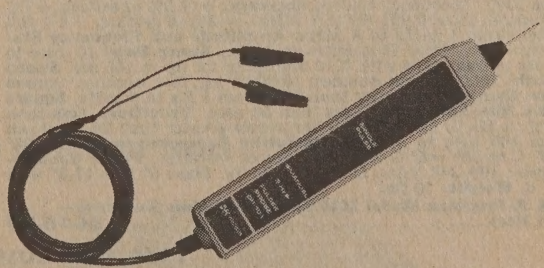
MODEL 835 DIGITAL CAPACITANCE COMPARATOR



Selects capacitance limits from 0.1 pF to 200 μF. Fast Good, High, Low visual indication. 0.2% basic accuracy. Completely self-contained. Built-in autoranging C-meter. Ten internal ranges for high resolution. Range hold switch provided. Designed expressly for rapid component sorting. Once the operator has programmed-in the acceptable low and high capacitance limits, and locked-in the proper capacitance range, Model 835 gives a clear go/no-go indication for the capacitor under test. 3½-digit LCD display. **Range:** 10 automatically selected ranges with full scale value from 199.9 pF to 199.9 μF. **Accuracy:** 0.2% of reading, ±0.5 pF, ±1 digit to 19.99 μF; 1% of reading, ±1 digit from 20 μF to 199.9 μF. **Resolution:** 0.1 pF on lowest range; all other ranges, 0.05% of full scale. **Reading Time:** 0.4–1.0 sec. at 0.20 μF, increasing to 6 sec. at 200 μF. **Power Required:** 117/234 VAC, 50/60 Hz. **Oper. Temp.:** +15° C to +35° C. **Size:** 4½″ h. x, 13½″ w. x 10¼″ d. **Weight:** 5 lbs.

B & K-Precision Model 835 Digital Capacitance Comparator—Net Each.....**$675.00**
B & K-Precision Model CF-10 Test Fixture—For use with Model 835. Net Each.....**$90.00**

MODEL DP-101 DIGITAL PULSER PROBE

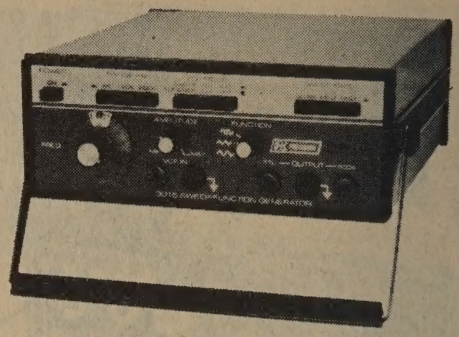


Generates "one-shot" pulse or 5 Hz pulse train. Automatically senses logic state and changes state to its complement. Multi-family: compatible with TTL, DTL, RTL, HTL, HiNiL, MOS and CMOS. High current drive of up to 1 A pulses will pull shorted logic outputs high or low. Short duty cycle pulse will not damage circuitry under test. Fully overload protected. Companion to DP-51 Digital Probe. **Input Voltage Range:** 5 to 15 VDC. **Input Current:** 1 mA at 5 V; 20 mA at 15 V. **Supply Voltage:** 5 volts will pull up 3.3 ohms to 2.4 V; will pull down 10 ohms to 1 V or 33 ohms to 0.8 V; 15 volts will pull up 15 ohms to 10.5 V (70% of supply) or pull down 5.6 ohms to 4.5 V (30% of supply). **Typ. Pulse Width:** 1 μsec. **Operating Modes:** 5 Hz continuous or single pulse. **Size:** 7.63″ h. x 1.18″ w. x 0.83″ d. **Weight:** 3.5 oz.

B & K-Precision Model DP-101 Digital Pulser Probe—Net Each.....**$100.00**

B+K PRECISION DYNASCAN CORPORATION Generators

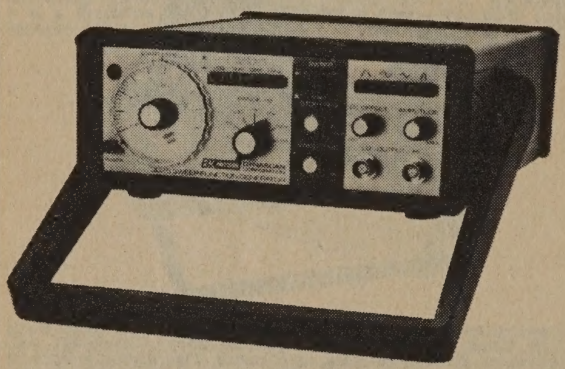
MODEL 3015 SWEEP/FUNCTION GENERATOR



The Model 3015 Sweep/Function Generator produces sine, square, and triangle waveforms from 2 Hz to 200 kHz in three ranges with each providing 1000:1 frequency control. Built-in linear and log sweep capabilities are selected by pushbuttons at three different sweep rates. The sweep rate may be increased by adding an external ramp timing capacitor to rear panel terminals. The sweep rate may also be controlled by an external signal of 0 to 1 volt. An output terminal is also provided for the internally generated sweep ramp voltage. Outputs are provided at a fixed TTL level and a variable amplitude 600-ohm level. Variable output is controllable on sine, triangle, or square-wave signals up to 15 V p-p open circuit or 7.5 V p-p into 600 ohms. Sinewave distortion is rated at less than 1% from 2 Hz to 20 kHz. Triangle wave and square wave symmetry is greater than 99% at 100 kHz. **Accuracy:** ±5% full scale to 20 kHz. **Attenuation:** 0 to 30 dB, continuously variable. **Internal Sweep:** Linear, 1000:1; Log, 1000:1. **Sweep Rate:** Slow, 25 sec; medium, 250 msec; fast, 2.5 msec. **Operating Temperature Range:** 0° to 50° C. **Power Requirements:** 120 VAC with adapter. **Size:** 2⅞″ h. x 8½″ w. x 7⅜″ d. **Weight:** 2 lbs.

B & K-Precision Model 3015 Sweep/Function Generator—
Net Each..... **$270.00**

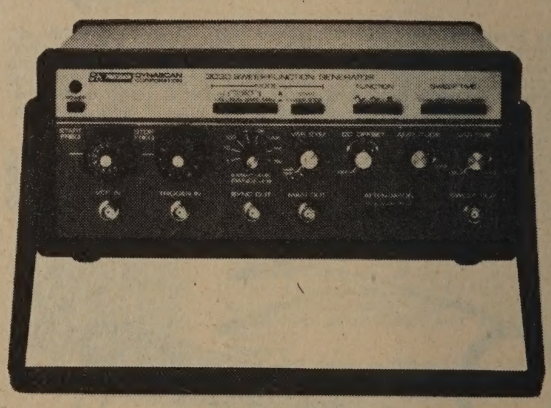
MODEL 3025 SWEEP/FUNCTION GENERATOR



The Model 3025 Sweep/Function Generator produces sine, square, triangle, haversine, TTL, and tone burst signals. Linear and log sweep capabilities are selected by front panel pushbuttons. Start and stop frequency limits for sweep range may be set independently as the need requires. Sweep rates are continuously adjustable from 10 msec to 1 minute. Linear sweeps of 1000:1 for 3 decades, and log sweeps of 10,000:1 for 4 decades may be set. Sinewave distortion is less than 0.5% from 1 Hz to 100 kHz, and all harmonics above 100 kHz are suppressed by at least 30 dB. Sweep voltages are available for driving a chart recorder or oscilloscope. DC offset can be added to output signals in an open state from ±10 VDC; and ±7.5 VDC into a 50-ohm load. Both high and low level signal outputs are available on the front panel. The low level output signal is 20 dB down from the high output signal; thus, when used in conjunction with the 20 dB amplitude control, a maximum output attenuation of 40 dB is available. **Frequency Range:** 0.005 Hz to 5 MHz in 7 ranges, 1000:1 frequency control. **Accuracy:** ±5% of full scale. **Stability:** 0.25% after 15 minutes operation. **Output Voltage:** 20 V p-p into open circuit, 10 V p-p into 50 ohms. **Square Wave Symmetry:** Better than 99% from 1 1 Hz to 5 MHz. **Square Wave Rise/Fall Time:** Less than 50 nsec. **Operating Temperature Range:** For stated accuracy—25° ±5° C. after 30 minutes operation. **Power Requirements:** 100–240 VAC, 50/60 Hz, 25 W. **Size:** 3.5″ h. x 8½″ w. x 7⅜″ d. **Weight:** 5 lbs.

B & K-Precision Model 3025 Sweep/Function Generator—
Net Each..... **$450.00**

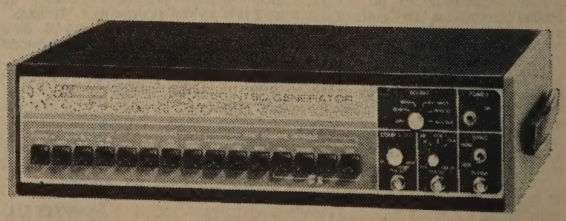
MODEL 3030 SWEEP/FUNCTION GENERATOR



Model 3030 is a high performance Sweep/Function Generator which produces seven waveforms; sine, square, triangle, positive and negative square, and positive and negative ramp. High accuracy dividers are used as start and stop controls to set high and low end limits of the desired sweep frequency. Sweep times are selectable from 10 msec to 100 msec. Linear and log sweep operation is provided. The 3030 may be externally swept by applying a 5-volt ramp signal to the VCF input. The shape of the waveform can be altered by the Symmetry control, continuously variable from 5% to 95% of the duty cycle; thus, the square wave can be altered to generate rectangular waves or pulses. The triangle wave can be reshaped into a sawtooth or ramp. Open circuit output is 20 V p-p, or 10 V p-p into a 50-ohm load. Attenuation is provided to 60 dB in 10 dB steps. An output amplitude control provides continuously variable attenuation up to 20 dB. Tone burst signals are produced for speaker tests. Variable DC offset is provided with a maximum open circuit range of ±10 VDC, and ±5 VDC into 50 ohms. **Frequency Range:** 0.001 Hz to 5 MHz in 8 ranges with 1000:1 frequency control. **Accuracy:** ±(1.5% of setting, +1% full scale), from 0.001 Hz to 1 MHz; ±(2% of setting, +2% full scale), from 1 MHz to 5 MHz. **Amplitude and Frequency Stability:** 0.25% after 15 minutes operation. **Sweep Rate:** 10 msec to 10 sec in four steps with X10 multiplier for up to 100 sec. **Sweep Width:** 1000:1, three decades; 10,000:1 log, four decades. **Square Wave Symmetry:** Better than 99% from 1 Hz to 5 MHz. **Square Wave Rise/Fall Time:** Less than 50 nsec. **Distortion:** Less than 0.5%, 1 Hz to 100 kHz; all harmonics greater than 30 dB down from 100 kHz to 5 MHz. **Operating Temperature Range:** 25° ±5° C to 50° ±5° C after 30 minutes operation. **Power Requirements:** 100–240 VAC, 50/60 Hz, 30 W. **Size:** 5″ h. x 12.5″ w. x 11″ d. **Weight:** 10 lbs.

B & K-Precision Model 3030 Sweep/Function Generator—
Net Each..... **$645.00**

1250 NTSC COLOR-BAR GENERATOR



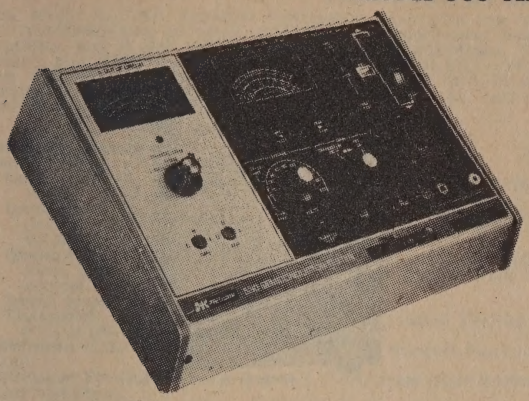
A cost-effective instrument, designed for broadcast, CATV and industrial TV applications. Accurately generates NTSC color bars, with or without -IWQ signal. Generates 5-step linear staircase with selectable chroma levels. External video input modulates RF and IF carrier outputs. Crystal controlled RF, IF and NTSC sync.; 4.5 MHz audio intercarrier modulation; selectable 1 kHz, 3 kHz or external audio input. Dot, dot-hatch, cross-hatch, center-cross and color raster for convergence checks. Raster color selection: red, blue, green, yellow, cyan, magenta, white and black raster. RF outputs on Ch. 3, Ch. 4 or standard TV IF frequency. 3.579545 MHz subcarrier output. Selectable vertical and horizontal sync output. Selectable on-off for chroma. CSA approved. **Power Required:** VAC, 18 watts. **Size:** 4½″ h. x 18″ w. x 12″ d. **Weight:** 11 lbs.

B & K-Precision Model 1250 NTSC Color Bar Generator—
Net Each..... **$849.00**

B & K-Precision Model RM-12 Rack Mounting kit—
Net Each..... **$28.00**

PRICES LISTED ARE FOR GUIDANCE ONLY

MODEL 530 SEMICONDUCTOR TESTER



Patented Dynapeak™ circuitry allows in-circuit testing and lead identification of diodes, transistors, FET's and SCR's, even in low impedance circuits. Low duty cycle, high drive currents permit reliable testing of power transistors in circuit. Even the new power VFET's can be tested. Bright LED's identify whether a transistor is good and whether it is an NPN, PNP, or N or P channel FET. An audible tone also signals that the transistor under test is good. In out-of-circuit tests, the Model 530 measures beta from 20 to 600, gm from 0.4 to 400 millimhos. Measures Ft (gain bandwidth product) to 1500 MHz. BV_{CES} and PIV to 100 volts and I_{CES} and I_{DSS} from 0.5 μA to 5 mA.

Power Required: 105–125 VAC, 60 Hz, 10 W.

Size: 7″ h. x 13″ w. x 3½″ d.

Weight: 5 lbs.

B & K-Precision Model 530 Semiconductor Tester—Net Each..... **$455.00**

B & K-Precision Model FP-5 Three Tip Probe—Net Ea.. **$24.50**

B & K-Precision Model FP-6 Repl. Lead Set—Net Each. **$14.00**

MODEL 520B AUTOMATIC TRANSISTOR TESTER

The Dynapeak™ circuit applies high current, low duty cycle pulses to test semiconductors even when shunted by resistances as low as 10 ohms and capacitances up to 15 μF. The 520B is fast, too. A complete test can take less than nine seconds. With the tester set to LO drive, just connect the test clips in any order to the leads of the device to be tested. Move the test switch thru its six positions until you hear a pulsating audio tone, which indicates a good semiconductor. All three leads are identified automatically. If you do not hear a tone, switch to HI drive and operate the test switch again. Now, a tone indicates a good semiconductor and identifies the base or gate lead. Each transistor testing as good also is identified as NPN or PNP. Leakage current measurements are made on devices out-of-circuit. The device is automatically identified as silicon or germanium and acceptable leakage limits are indicated for each on the meter panel.

IN-CIRCUIT TESTS:
Good/Bad Test: For PNP and NPN transistors, FET's and SCR's. Identifies NPN or PNP.

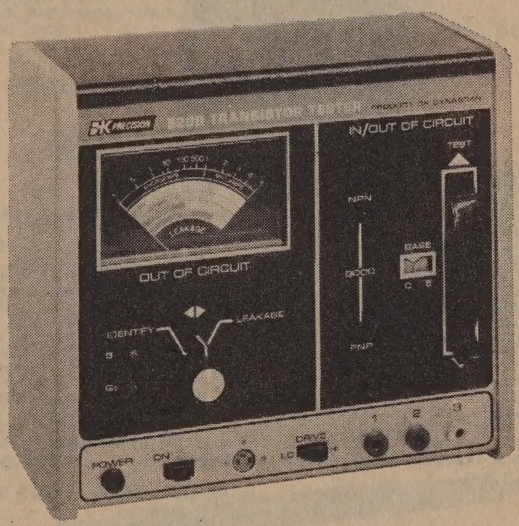
OUT-OF-CIRCUIT TESTS:
Good/Bad Test: For PNP and NPN transistors, FET's, SCR's, leakage and loss. Identifies NPN or PNP and silicon or germanium transistors. Measures reverse leakage from 0.1 μA to 5 mA.

APPLIED TEST CURRENTS:
Collector: 250 mA at 5% duty cycle.
Base: 125 mA at 5% duty cycle.
Test Repetition Rate: 10 per second.
Leakage Test Reverse Voltage: 2.0 V.
Power Required: 105–125 VAC, 50–60 Hz.
Size: 8″ h. x 7″ w. x 3½″ d.
Weight: 5 lbs.

B & K-Precision Model 520B Transistor Tester—With test leads and instruction manual. Net Each..... **$239.00**

B & K-Precision Model FP-5 "Dynaflex" Probe—Adjustable 3-prong probe for easy one-hand testing. Net Each..... **$24.50**

B & K-Precision Model FP-6 Replacement Lead Set—Flexible leads with mini lock clips. Net Each..... **$14.00**



MODEL 510 PORTABLE TRANSISTOR TESTER

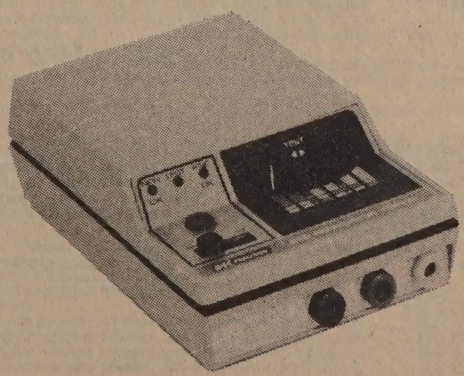
The Model 510 uses high current, low duty cycle testing technique to test semiconductors even with resistive and capacitive shunt impedances. In LO drive, you get positive GOOD/BAD indication, polarity and lead identification. In HI drive, you get GOOD/BAD indication, polarity and base lead identification. Also tests FET's and SCR's.

Power Required: Four "AA" cells give over 100 hours use.

Size: 3¼″ w. x 6⅜″ h. x 1¼″ d.

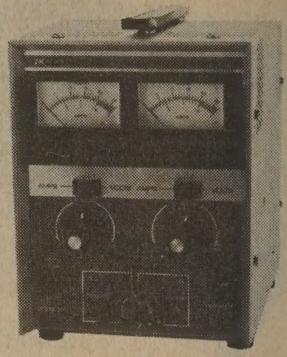
Weight: 1 lb.

B & K-Precision Model 510 Transistor Tester—With test leads and carrying case. Net Each..... **$135.00**



B&K PRECISION DYNASCAN CORPORATION Power Supplies

MODEL 1652 DUAL-OUTPUT POWER SUPPLY

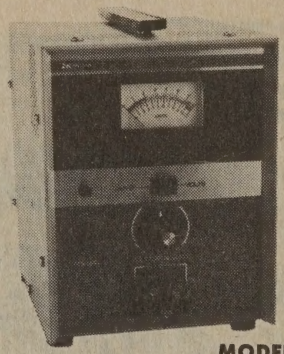


Provides two variable 0–25 V outputs at 0 to 1.5 amps each. Particularly suited for powering both analog and MOS digital circuits. Supplies can be operated independently or in a tracking mode. In tracking mode, the B supply can be preset to any percentage of the A supply voltage from zero to 100%. Excellent regulation and tracking accuracy. Low ripple voltage. Current limiting overload protection. Built-in metering and vernier control for each supply. **Output Voltage:** A supply, 0 to 25 VDC at 0 to 1.5 amps, continuously variable; B supply, same as A supply in independent mode; 0 to 100% of A supply at 0 to 1.5 amps in tracking mode. **Tracking Error:** Within ±1%, +250 mV when supplies are operated in the 2-to-23 volt range. **Ripple Voltage:** Less than 2.5 mV rms. **Load Regulation:** Within ±0.1% or 20 mV, whichever is greater, from no load to full rated load. **Output Regulation:** +0.1% for line voltage variation of ±10%. **Meter Accuracy:** ±5% of full scale. **Operating Temperature:** 0° C to +40° C at full rated load. **Input Power:** 100, 120, 220, or 240 VAC, ±10%, 50/60 Hz, 130 watts. **Size:** 8⅝" h. x 6⅜" w. x 9½" d. **Weight:** 12¾ lbs.

B & K-Precision Model 1652 Dual-Output Power Supply—Net Each.....**$465.00**

B & K-Precision Model RM-16 Rack Mount Kit—Adapts Models 1652 and 1654 for panel mounting in standard 19" relay rack. Accepts one Model 1652, two 1652s, or one 1652 and one 1654 Power Supply. Supplied with all mounting hardware and installation instructions. Net Each.....**$54.00**

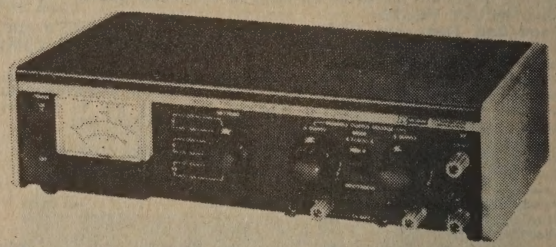
MODEL 1654 POWER SUPPLY



Provides a variable 2-6 V output at 0 to 10 amps. Particularly suited for TTL logic circuits and analog applications. Excellent regulation, employing pulse width modulation, controlled by a TL494 IC. The same IC provides current limiting overload protection. Floating output provides flexibility of output connections. Remote output sensing terminals eliminate the effects of voltage drops due to connection cables and contact resistance. Built-in meter; switchable for current or voltage measurements. Vernier voltage control. Universal line voltage capability. **Output Voltage:** 2 to 6 VDC typical at 0 to 10 amps; continuously variable with coarse and vernier controls. **Noise and Ripple:** Less than 15 mV rms or 60 mV p-p. **Load Regulation:** 0.5% no load to full rated load. **Output Regulation:** 0.4% for line voltage variation of ±10% from 120 VAC. **Meter Accuracy:** ±5% of full scale. **Operating Temperature:** 0° C to +40° C at full rated load. **Input Power Requirements:** 100–120 or 220–240 VAC, ±10%, 50/60 Hz, 140 watts. **Size:** 8⅝" h. x 6⅜" w. x 9½" d. **Weight:** 12¾ lbs.

B & K-Precision Model 1654 Power Supply—Net Ea..**$395.00**

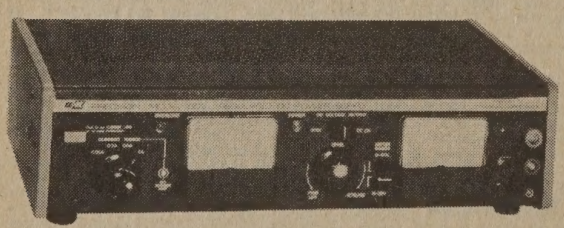
MODEL 1650 MULTIPLE-OUTPUT POWER SUPPLY



One power supply functions as three separate supplies. All outputs are current limited and short-circuit protected. Outputs A and B are 0–25 VDC at 0.5A. Output C is 5 VDC at 5A overvoltage protection at 7 V. The TRACK mode of operation permits output B to be controlled by output A; in this mode, the setting of the B output control determines the ratio of control. If B output control is set at 100%, B output will be the same as A. At 50% setting, B output will be 50% of A. In INDEPENDENT mode, A and B outputs are individually controlled. **Output Voltages:** A, 0–25 VDC at 0.5 A; B, 0–25 VDC at 0.5 A; C, 0–5 VDC at 5 A. **Input Voltage:** 105–125 VAC, 60 Hz. **Regulation:** A and B, less than 0.1% variation from no load to full load; C, less than 3% variation from no load to full load. **Ripple:** Less than 5 mV rms. **Size:** 3.88" h. x 14.13" w. x 10" d. **Weight:** 22 lbs.

B & K-Precision Model 1650 Power Supply—Net....**$375.00**

MODEL 1601/1602 REGULATED POWER SUPPLY



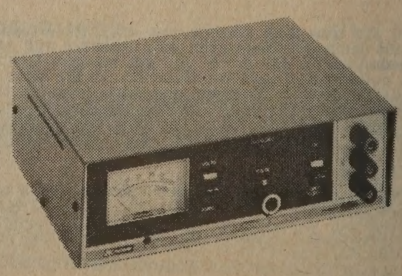
Fail-safe overload protection automatically shuts power supply down whenever current exceeds the preset level, and overload indicator on front panel lights up. STANDBY switch disconnects load for safe, quick adjustments without disturbing adjustments. Current limit level can be set without shorting output terminals.

Output Voltage: 0 to 50 V at 0 to 2 A; **Regulation:** Load, 0.07% typical; Line, 0.02% typical. **Ripple:** 5 mV p-p. **Power Required:** 105–125 VAC, 50–60 Hz. **Size:** 14.13" l. x 10" w. x 3.88" d. **Weight:** 11 lbs.

B & K-Precision Model 1601 DC Power Supply—Net Each.....**$345.00**

B & K-Precision Model 1602 DC Power Supply—0–400 VDC; 0–200 mA. Net Each.....**$365.00**

MODEL 1640 REGULATED POWER SUPPLY



The Model 1640 is designed specifically for servicing mobile equipment. The adjustable output allows you to evaluate transceiver performance over the full range of voltages encountered in 12-volt automotive systems. **Output:** 11–15 VDC at 0 to 3 A. Both voltage and current are metered. **Ripple:** Under 10 mV. **Size:** 3.75" h. x 10.38" w. x 9" d. **Weight:** 9 lbs.

B & K-Precision Model 1640 Power Supply—Net Each.....**$150.00**

PRICES LISTED ARE FOR GUIDANCE ONLY

MODEL SA-1010 SIGNATURE ANALYZER

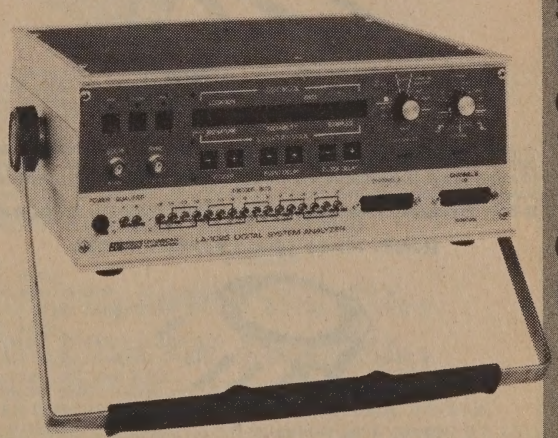
The Model SA-1010 Signature Analyzer is a powerful new tool for troubleshooting advanced digital and microprocessor based products, and is well suited for field service applications. The control pod, data probe, cables, and power cord fit into a vinyl case attached to the top of the instrument. The SA-1010 can translate a myriad of complex digital data into an easy-to-understand, four-digit hexadecimal display.

SPECIFICATIONS

Characters Displayed: 0-9, A, C, F, H, P, U.
Control Probe:
Leads: Ground—Black; Start—Green; Stop—Red; Clock—White; Vcc—Brown.
Controls: TTL/CMOS switch—TTL selects thresholds. Vcc does not have to be connected. CMOS selects Vcc to be voltage reference.
Rising/Falling Edge Controls: Individual switches for Start, Stop, and Clock. Enables user to select desired edge for control.
Input Impedance: 50K ohms.
Threshold: TTL Position—1.4 V ±.4 V. CMOS Position—30% ±5% of Vcc.
Minimum Gate Length: 1 Clock cycle (time between Start and Stop).
Minimum Timing Between Gates: 1 Clock cycle (time between Start and Stop).
Start, Stop Inputs: Setup time, 10 nsec; Hold time, 0 nsec.
Maximum Vcc: +15 VDC.
Clock Input: Maximum frequency—20 MHz. Minimum time in high or low state—25 nsec.
Voltage Overload Protection: ±100 VDC.
Input Impedance: 50 K ohms.
Data Probe:
Thresholds: TTL—"0", .8 V ±.3 V; TTL "1", 2 V ±.4 V. CMOS—"0", 30% −5% of Vcc; CMOS "1", 70% −5% of Vcc.
Setup Time: 10 nsec.
Hold Time: 0 nsec.
Clock Output: 1 MHz, TTL square wave.
Power Requirements: 100, 120, 220, 240 VAC; Switch selectable.
Size: 3.5″ h. x 10″ w. x 7″ d.
Weight: 5 lbs.
B & K-Precision Model SA-1010 Signature Analyzer—Net Each..... **$825.00**

MODEL LA-1025 DIGITAL SYSTEM ANALYZER

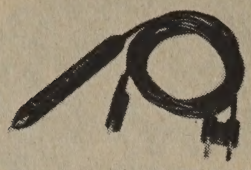
The Model LA-1025 Digital Syatem Analyzer monitors logic activity on 16 channels in both state and time domains. Signature analysis is also available. State data is formatted in binary, octal, decimal, or hexidecimal on a 12-digit display. Timing diagrams of 16 channels by 16 words can be displayed on most oscilloscopes.



SPECIFICATIONS

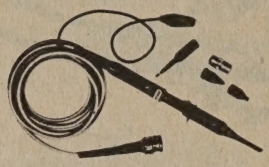
LOGIC ANALYSIS
Data Lines: 16.
Synchronous Clock: One, selectable via A or B input.
Qualifiers: Two, selectable via A and/or B input.
PROBES:
LP-1 TTL Data Probe (Set of Two)—Used via Channel A or Channel B.
Connection: Via DB-25, flat cable and clip leads.
Probe Connection Clips: Eight data clips, one ground clip, one clock clip, and one qualifier clip.
Circuit Loading Input Impedance: 10 K ohms minimum.
Input Capacitance: 30 pf maximum.
Input Protection: Diode protected to ±10 V.
Minimum Pulse Width, All Inputs: 20 nsec at threshold levels.
Threshold Levels: Logic One, 2.0 V ±0. 2V; Logic Zero, 0.8 V ±0.2 V.
LP-2 CMOS Data Probe (Set of Two)—Used via Channel A and Channel B.
Probe Connection Clips: Eight data clips, one ground clip, one clock clip, and qualifier clip.
Circuit Loading Input Impedance: 50 K ohms minimum.
Input Capacitance: 15 pF maximum.
Input Protection: Current limiting.
Minimum Pulse Width, All Inputs: 100 nsec at threshold levels.
Threshold Levels: Logic One, Greater than 3 V; Logic Zero, Less than 3 V.
GENERAL
Memory: 250 bytes (16 x 250)
Clock Rate: Synchronous—DC to 20 MHz; Asynchronous—1, 10, 100, 1 kHz, 10 kHz, 100 kHz, 1 MHz, 10 MHz.
Clock Modes: Synchronous—Pod A or B; Positive or negative edge trigger. Asynchronous—Rate selectable.
Qualifiers: 16 bits plus two independent qualifiers. Selectable to "1" "0", or "don't care" detection states.
Clock Delay: Programmable 0–999 clock delays.
Event Delays: Programmable 0–999 event delays.
Trigger Position: Programmable 0–249 words.
Sequence: Event delay and/or clock delay and/or trigger position.
Display: 12 digit LED.
Data Formats: Binary—selectable to high or low byte. Octal—6 digits. Decimal—5 digits.
Oscilloscope Output Data: Displays 16 channels of 16 words in time domain display. A reference cursor and clock ticks are shown.
Manual Controls: Arm, Trigger, Complete.
Size: 5½″ h. x 14½″ w. x 14½″ d.
Power Requirements: 90–130 VAC or 180–260 VAC, 47–440 Hz.
Weight: 12 lbs.
SIGNATURE ANALYSIS
Characters Displayed: 0–9, A, C, F, H, P, U.
SP-1 Assembly:
SP-1 Probe Data
Indicators: Three LED's indicate logic Hi, Low, or Pulse State. Minimum pulse width 10 nsec, increased to 50 nsec.
Input Impedance: Approximately 50 K ohms.
Thresholds: TTL—Logic "1", 2 V ±.3 V; Logic "0", .8 V ±.3 V. CMOS—Logic "1", 70% of Vcc ±10%; Logic "0", 30% of Vcc ±10%.
Setup Time: 10 nsec.
Hold Time: 0 nsec.
SP-1 Control Pod
Leads: Ground—Black; Start—Green; Stop—Red; Clock—White; Vcc—Brown.
Controls: TTL/CMOS switch—TTL selects +5 volt reference, Vcc not connected. CMOS selects Vcc as reference.
Switches: Individual switches for Start, Stop, and Clock. Enables user to select desired edge for control.
Input Impedance: Approximately 50 K ohms.
Threshold: TTL—1.4 V ±.4 V; CMOS—50% of Vcc ±10%.
Maximum Vcc: 15 VDC.
Start, Stop Inputs: Set Up Time—5 nsec; Hold Time—0 nsec.
Voltage Overload Protection: All inputs ±50 VDC continuous.
MODES:
Signature Hold: Will capture and hold one signature until reset by switch on SP-1 Data Probe.
Signature Instability: Displays signatures captured, and counts each signature obtained. When new signature does not compare with previous signature, an error is generated. The error count, signature count, and signature are displayed.
Probe Options:
One of the following probe set options must be ordered when ordering. The LA-1025: **Option 1**—Two Lp-1 probes and one Sp-1 probe. **Option 2**—Two Lp-2 probes and one Sp-1 probe. **Option 3**—one Lp-1, one Lp-2, one Sp-1 probe.
Optional Accessory: Lp-3 Trigger expander probe.
B & K-Precision Model LA-1025 Digital System Analyzer—Net Each..... **$2475.00**
B & K-Precision Model LP-1 Probe—Net Each..... **$350.00**
B & K-Precision Model LP-2 Probe—Net Each..... **$350.00**
B & K-Precision Model LP-3 Probe—Net Each..... **$495.00**
B & K-Precision Model SP-1 Probe—Net Each..... **$225.00**

OSCILLOSCOPE PROBES
MODEL PR-21



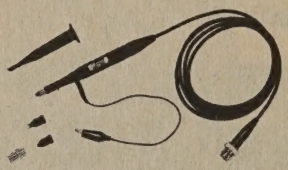
Combination isolation/direct probe. Has switchable 100K resistor to prevent capacitive loading when measuring DC in RF circuits. Use with Model 1403A scope.
B & K-Precision Model PR-21 Probe—Net Each.....**$21.00**

MODEL PR-37



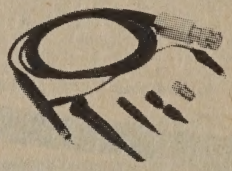
Deluxe 10:1/Direct probe designed for oscilloscopes and frequency counters to 100 MHz. Includes spring-loaded retractable tip cover, insulating tip, BNC tip, IC tip and compensation-capacitor adjusting tool. Has BNC connector.
B & K-Precision Model PR-37 Low Capacity Probe—
Net Each.....**$43.00**

MODEL PR-40



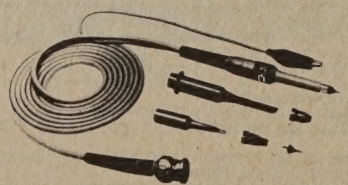
A combination Direct/Reference/10:1 probe for oscilloscopes having 15–40 pF input capacity. In the reference position, the oscilloscope input is grounded, allowing measurement of the reference level.
B & K-Precision Model PR-40 Probe—Net Each.....**$38.00**

MODEL PR-45 LOW CAPACITY PROBE



Attenuator: 1/10, ±1% at scope impedance of 1 megohm, ±1%. **Input Impedance:** 10 megohms, ±1%. **Input Capacity:** Less than 18 pF. **Bandwidth:** 100 MHz. **Rise Time:** 3.5 nsec. **Max. Input Voltage:** 500 V p-p or 250 V (DC + AC peak).
B & K-Precision Model PR-45 Low Capacity Probe—
Net Each.....**$55.00**

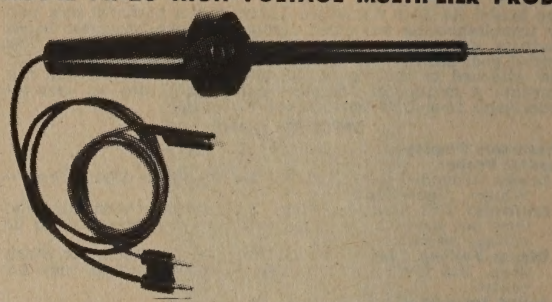
MODEL PR-47 GENERAL PURPOSE X10 PROBE



Bandwidth: 100 MHz. **Rise Time:** 3.5 nsec. **Input Resistance:** 10 megohms when used with scope with 1 megohm input. **Input Capacity:** 17 pF when used with scope with 30 pF input capacity. **Compensation Range:** 10–60 pF. **Working Voltage:** 600 V (DC + AC peak). **Cable Length:** 60″.
B & K-Precision Model PR-47 X10 Probe—Net Each..**$30.00**

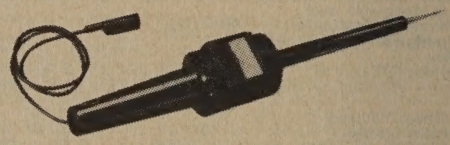
RACK MOUNTING KIT
Model RM-14 Rack Mounting Kit includes everything needed to mount Model 1479, 1477, 1476 or 1466 oscilloscope in a standard 19″ rack. Panel, hardware and complete instructions are provided.
B & K-Precision Model RM-14 Rack Mounting Kit—
Net Each.....**$52.50**

MODEL PR-28 HIGH-VOLTAGE MULTIPLIER PROBE



Extends voltmeter range to 40,000 VDC or 20,000 VAC. The PR-28 can be used with B & K-Precision Models 277, 280, 281, 282, 283 and 290 or with any other instrument having 10 megohm input impedance or greater.
B & K-Precision Model PR-28 High Voltage Probe—
Net Each.....**$33.50**

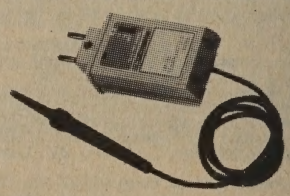
MODEL HV-44 DIRECT-READING 40 KV PROBE



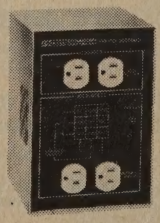
The Model HV-44 is factory calibrated at 25 KV and should never need recalibration. Accuracy at 25 KV is ±2% and ±3% at full scale. Supplied with two interchangeable tips: one conventional round tip and one specially designed flat spring type for easy access to CRT anode.
B & K-Precision Model HV-44 Direct-Reading HV Probe—
Net Each.....**$58.00**

PROBE CARRYING CASE
Optional vinyl case to carry PR-28, HV40 or HV-44 probe.
B & K-Precision Model LC-32 Carrying Case—
Net Each.....**$14.00**

MODEL TP-28 TEMPERATURE PROBE



The all solid-state Model TP-28 measures the temperature of any surface, liquid or gas. It connects to any voltmeter with a 3 V range and an input impedance of 10K ohms. **Temperature Range:** −58° to +302° Fahrenheit; −50° to +150° Celsius. **Sensitivity:** 10 mV per degree. **Resolution:** 0.01°. **Accuracy:** ±1.7° C or ±3° F. **Power Required:** One 9 volt battery. **Size:** 3½″ x 2″ x 1⅛″. **Weight:** 5 ozs.
B & K-Precision Model TP-28 Temperature Probe—
Net Each.....**$95.00**



MODEL TR-110 ISOPAK ISOLATION TRANSFORMER

Ruggedly constructed and designed for heavy use in industrial and educational environments. All metal case. Three-wire grounded AC outlets and line cord. Dual isolated outputs permit safe testing of "hot chassis" transformerless equipment. Can be used to vary line voltage applied to electrical devices or instruments under test. Isolated outputs rated 350 VA continuous; 500 VA intermittant; adjustable from 90 to 140 VAC in 9 steps. Direct outputs rated 500 VA continuous. Fuse protected. **Power Input:** 105–130 VAC, 60 Hz. Isolation complies with UL standard 1012, May 1977. **Size:** 5½″ h. x 5⅛″ w. x 8″ d. **Weight:** 11 lbs.
B & K-Precision Model TR-110 Isolation Transformer—
Net Each.....**$85.00**

BECKMAN DIGITAL MULTIMETERS

MODELS 3000, 3010, 3010UL, 3020, 3020B & RMS 3030
3 ½-DIGIT DIGITAL MULTIMETERS

Features:

- **Bright, 0.5-Inch LCD Display.**
- **29 Ranges—7 Functions.**
- **Continuity Test Function.**
- **10-Amp Current Ranges.**
- **True RMS Measurement Capability to 20 KHz (RMS 3030).**
- **22 Megohm Input Resistance On All DCV Ranges.**
- **1500 V Overload And 6 kV Transient Protection.**
- **Up To 2,000 Hours Continuous Operation From Common 9 V Battery.**
- **Low-Power Ohms In All Ohms Ranges For In-Circuit Resistance Measurements.**
- **Diode/Transistor Test Function With In-Circuit Junction Test Capability.**
- **Rugged Design—Survives Even A 6-Foot Drop.**
- **Complete With Battery, Spare Fuse, Manual And Safety-Designed Test Leads.**
- **Model 3020B has an audible/visible continuity indicator.**

Recessed display and single rotary switch prevent damage while in the tool box or on the job. Case keeps out fluids, dirt and other contaminants. Insta-Ohms™ Continuity Function makes electrical continuity checks with the speed and ease of an analog meter, but with no needle movement to break. In any resistance range, an ohm symbol appears in the display the instant continuity is established with the test leads (all models except 3000) and, on Model 3020B, an audible "beep" note sounds the instant continuity is established. Model RMS 3030 measures both AC voltage and AC current in true RMS (AC + DC). Signals with high harmonic content and complex waveforms such as switching power supplies and SCR regulators can be measured easily and accurately. All models, except 3000, measure up to 10 amps AC or DC without adding special adapters. 22-megohm input resistance on all DCV ranges reduces reading errors caused by circuit loading. Custom CMOS LSI circuit replaces most discrete components. Since most active multimeter functions are performed by this one integrated circuit. Reliability is further enhanced by 100% burn-in of each instrument and complete factory test of every function and range. Long term accuracy is assured, using a highly stable band-gap reference element and thin-film resistor networks. Specific accuracies are guaranteed for a full year before recalibration may be needed. When calibration is required, only one adjustment is needed on Models 3010 and 3020; four on Model RMS 3030. All voltage inputs protected against inputs above 1500 VDC or 1000 V rms. All resistance ranges protected to 500 VDC or V rms. All voltage and resistance ranges protected against transient voltages up to 6 kV. The 2-amp current input is protected by an easy-to-replace fuse. All models are rated for up to 20 amps for 30 seconds on the 10-amp current input. Common 9 V transistor battery provides up to 2,000 hours of continuous operation. Decimal point blinks during last 200 hours battery life. Low-power ohms in all resistance ranges permits accurate measurements of resistors in or out of circuit. Low test voltage ignores common diode and transistor junctions for in-circuit measurements. A dedicated diode test function allows accurate measurements of forward voltage drops across diode and transistor junctions. Semiconductor junctions can also be measured while in-circuit with as little as 500 ohms shunt resistance.

A single center switch makes the instrument easier to use and more reliable than pushbutton digital multimeters. Test leads are safety-designed to protect operator from accidental shock hazards. Units weigh only 16 oz. Fit easily into tool kit or attache case. Convenient, built-in tilt-bail snaps open for hanging or bench use. Anti-skid pads keep instrument solidly in place when in use. Choice of three models. Model 3000 has 7 functions and 27 ranges. All other models have 7 functions and 29 ranges. All Beckman multimeters come ready for use and are equipped with a 9 V battery, a spare fuse, safety-designed test leads and instruction manual.

RANGES

DC Volts:
Model 3010UL: 0–200 mV; 0-2/20/200/750 V.
All Other Models: 0–200 mV; 0-2/20/200/1500 V.

AC Volts:
Model 3010UL: 0–200 mV; 0-2/20/200/500 V.
All Other Models: 0–200 mV; 0-2/20/200/1000 V.

Current (AC and DC):
Model 3000: 0–200 μA; 0-2/20/200 mA; 0-2 A.
All Other Models: 0–200 μA; 0-2/20/200 mA; 0-2/10 A.

Resistance: 200 ohms to 20 megohms in 6 ranges; 0.1 ohm resolution.

Diode Test: 0-2 V, 1 range; 1 mV resolution.

ACCURACY

Guaranteed Accuracy Specifications: ±(% of reading + no. of digits) for 1 year at 25° C ±5° C.

	3000	301-/UL	3020/B	RMS 3030
DC Volts	(0.5%+1)	(0.25%+1)	(0.1%+1)	(0.1%+1)
AC Volts*	(1.5%+4)	(0.75%+3)	(0.6%+3)	(0.6%+)
DC Cur.♦	(1.0%+1)	(0.75%+1)	(0.35%+1)	(0.35%+1)
AC Cur.*	(2.0%+4)	(1.5%+3)‡	(0.9%+3)†	(0.9%+3)†
Resistance	(0.75%+1)‡	(0.5%+1)‡	(0.2%+1)▲	(0.2%+1)▲
Diode Test	(0.5%+2)	(0.25%+2)	(0.1%+2)	(0.1%+2)

*45 Hz to 2 kHz. ♦Except 10 A range. §Except 10 A range, (2% + 3) 45-400 Hz only. †Except 10 A range, (1.5% + 3) 45-400 Hz only. ‡Except 20 megohm range, (1.5% + 1). ▲Except 20 megohm range, (1.0% + 1).

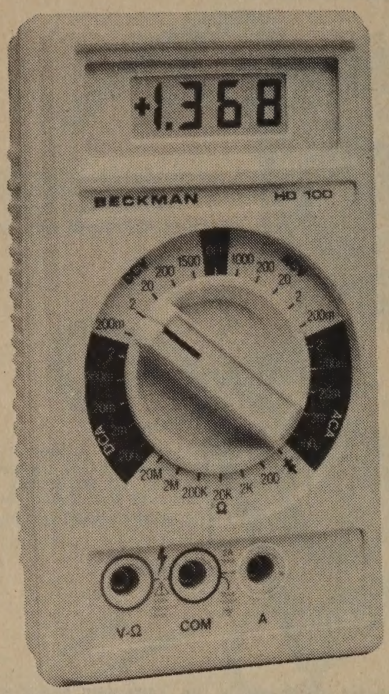
GENERAL SPECIFICATIONS

Operating Temperature Range: 0° C to +50° C.
Temperature Coefficient: Less than 15% of applicable accuracy specification per °C (0° C to 20° C, 30° C to 50° C).
Battery Life (9 V Alkaline): 2,000 hrs. continuous typical.
Size: 1.8" h. × 3.65" w. × 6.85" l.
Weight: 16 oz. with battery.

Beckman Model 3000 Digital Multimeter—Net Each ... **$155.00**
Beckman Model 3010 Digital Multimeter—Net Each **$145.00**
Beckman Model 3010UL Digital Multimeter—Net Each **$155.00**
Beckman Model 3020 Digital Multimeter—Net Each **$179.00**
Beckman Model 3020B Digital Multimeter—Net Each .. **$189.00**
Beckman Model RMS 3030 True RMS Digital Multimeter—Net Each **$219.00**

BECKMAN HEAVY DUTY DIGITAL MULTIMETER

MODEL HD-100 PORTABLE DIGITAL MULTIMETER



A rugged, heavy duty meter for use outdoors in dirty, greasy surroundings or where the meter may be dropped or accidentally overloaded.

FEATURES

- **Will withstand a ten-foot drop or more**—This meter will continue to work. The case walls are extra thick so as not to crack or chip; the display and the electronic module are shock-mounted, and the battery is mounted in such a manner to prevent disconnection upon impact.
- **Dirt, grime, and liquids are locked out**—The case is so tightly sealed that a meter submerged in five feet of water remains dry inside. An ultrasonically welded display window and O-rings located at key points assure this fact.
- **High Overload Protection**—The meter can withstand overloads of 600 V rms without failure on all the resistance ranges. The voltage ranges can withstand 1500 VDC or 1000 V rms, and the current ranges are protected by a 2 A/250 V fuse; 6 kV transients for 10 microseconds are absorbed by the MOV input protection.
- **A 2000-Hour Operational Life Between Battery Changes**—Users want to spend their time working, not changing batteries. A single 9 V transistor battery provides a long operational life.
- **International High-Visibility Yellow Case**—The yellow meter case makes the meter easy to spot, which saves time lost searching.
- **0.25% Basic Accuracy**—Four to eight times the accuracy available from the best analog VOM's.
- **Continuity Indicator**—With the Insta-Ohms™ continuity indicator, an analog meter is no longer needed for fast continuity checking. In any resistance range, an Ohm symbol appears in the display the instant continuity is established with the test leads.
- **In-Circuit Resistance Measurements**—Low power ohms in all resistance ranges permits accurate measurement of resistors whether in or out of circuit.
- **Dedicated Diode-Test Function**—Other meters require you to search for an appropriate resistance range to check a diode or transistor junction. How much test current is generated by the meter? Will it be sufficient to force the junction to conduct while in a circuit with parallel resistance paths? In the Model HD-100, a constant-current source forces 2 mA into the junction, and the meter displays the actual voltage drop across the junction. This versatile function can even check an LED.
- **Complete RF Shielding**—a conductive foil shield totally surrounds the electronic module in the same way that metal shields protect larger instruments from stray radio frequency fields.
- **Fire-Resistance Case Materials**—The plastics used in the Model HD-100 are fire-retardant, in keeping with the requirements of UL 1244 Standard for Electrical and Electronic Measuring and Testing Equipment.
- **Safety Designed Test Leads**—Also in keeping with the UL 1244 standard, the test leads were specially designed to reduce the chances of operator injury due to electrical shocks.
- **Tilt-Bail**—A convenient, built-in tilt bail snaps open for use on a bench and reverses to form a hanging loop.
- **Spare Current Fuse**—Each meter comes complete with a spare current fuse attached to the inside rear cover.

RANGES

DC Volts: 0.2 to 1500 V in 5 ranges; 100 μV resolution.
AC Volts: 0.2 to 1000 V in 5 ranges; 100 μV resolution.
Resistance: 200 Ohms to 20 megohms in 6 ranges; 0.1 Ohm resolution.
Diode Test: 0 to 2 V; 1 mV resolution.
DC Current: 200 μA to 2 A in 5 ranges; 100 nA resolution on the 200 μA range.
AC Current: 200 μA to 2 A in 5 ranges; 100 nA resolution on the 200 μA range.

ACCURACY

DC Volts: 0.25% of reading +1 digit.
AC Volts: 0.75% of reading +3 digits from 45 Hz to 2 kHz; 1.5% + 5 digits from 2 kHz to 5 kHz; 2.5% + 9 digits from 5 kHz to 10 kHz.
Resistance: 0.5% of reading + 1 digit 5 lowest ranges; 1.5% + 1 digit on the 20 megohm range.
Diode Test: 0.25% of reading + 2 digits.
DC Current: 0.75% of reading + 1 digit.
AC Current: 1.5% of reading + 3 digits.

GENERAL SPECIFICATIONS

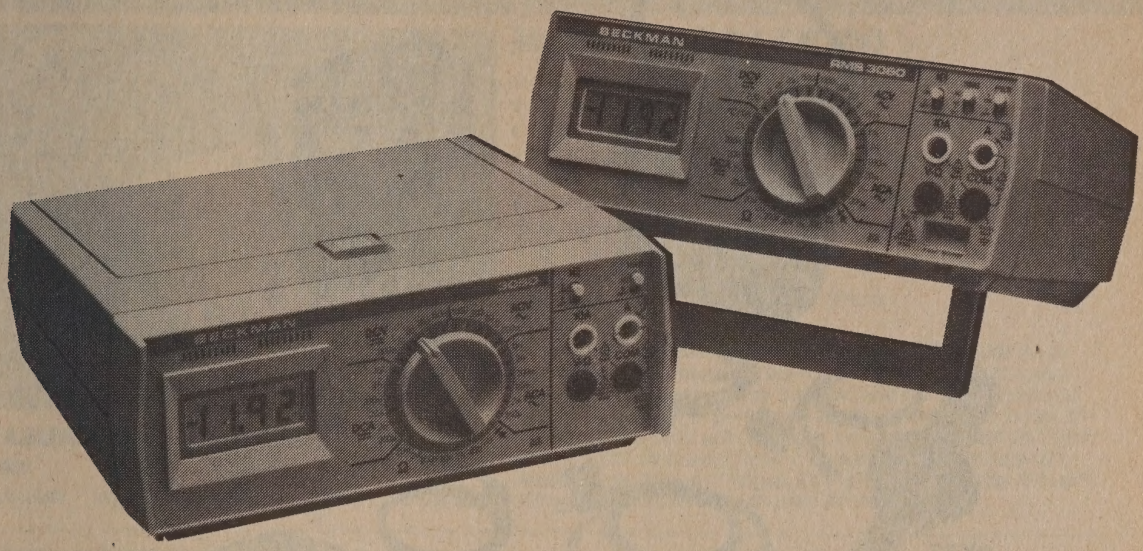
Operating Temperature Range: 0° C to +50° C.
Max. Common Mode Voltage: 1500 V DC or peak AC.
Display: 0.5", 3 1/2 digit LCD.
Power Required: Single 9 V transistor battery.
Battery Life: Alkaline, 2000 continuous hours; zinc-carbon, 1600 continuous hours.
Low Battery Indicator: Decimal point blinks during last 200 hours of battery life.
Temperature Coefficient: Less than 15% of applicable accuracy specifications per °C from 0° C to 20° C and from 30° C to 50° C
Size: 7.2" lg. × 3.9" w. × 2.0" h.
Weight: 18 ozs., including battery.
Calibration: Accuracy guaranteed for one year; one adjustment required.
Measurement Rate: Four per second.
Beckman Model HD-100 Digital Multimeter—Net Each **$169.00**

OUR STOCKS ARE FULLY UP TO DATE WITH ALL THE LATEST PRODUCTS.
ASK ABOUT NEW OR UNLISTED ITEMS.

PRICES LISTED ARE FOR GUIDANCE ONLY

BECKMAN DIGITAL MULTIMETERS

MODELS 3050 AND RMS 3060 3 1/2 DIGIT DIGITAL MULTIMETERS



Features:

- **Bright, 0.5-inch LCD display**
- **Single, easy-to-use switch**
- **Separate diode test function**
- **Low-power resistance ranges**
- **22 megohms input resistance**
- **Complete RF shielding**
- **12,000-hour battery life (typical)**
- **1/100-ohm resolution**
- **Temperature measurement capability (Model 3060)**
- **True rms (AC + DC) or AC only measurement capability (Model 3060)**
- **Continuity "beep" tone and visual indicator on display**
- **1500 V overload and 6 kV transient protection**
- **Safety test leads**
- **Integral storage compartment for leads and manual**

Models 3050 and RMS 3060 contain the basic features and benefits that have made the Series 3000 hand-held digital multimeters so popular plus many new features and benefits. An unprecedented 12,000-hour continuous battery life provides the ultimate in ease of operation. In addition, battery operation eliminates ground-loop errors. When the batteries finally become low, the display decimal point blinks on and off to allow several weeks for battery replacement. A low, 20-ohm full-scale range offers resolution down to .01 ohm. A separate diode test range is included. A real time-saver for short-circuit and continuity checks is the aural/visual continuity indicators. An audible "beep" tone signals the instant continuity is established. At the same time, a visible ohms-sign indicator appears on the display. High overload protection prevents meter down time, so all voltage ranges are protected for inputs up to 1500 VDC or 1000 V rms. Both models are equipped with MOV's to protect against voltage transients up to 6 kV for 10 microseconds. All resistance ranges are protected for inputs up to 440 VDC or AC. Current ranges are doubly protected against overloads by a 2 A/250 V front panel fuse and an internal 3 A/600 V fuse. Special safety test leads ensure maximum protection against shock hazards. A sheath encased banana plug and safety grip finger guards prevent the operator from making accidental contact with circuit voltages. Model RMS 3060 has an input jack for a standard K-type thermocouple, enabling the user to measure temperatures from −20° C to +1265° C. The RMS 3060 also has switch selectable measurement of true rms (AC + DC) or AC only voltages and currents.

RANGES

DC Volts: 0.2 to 1500 Volts in 5 ranges; 100 μV resolution.
AC Volts: 0.2 to 1000 Volts in 5 ranges; 100 μV resolution.
DC Current: 0.2 μA to 10 A in 6 ranges; 100 nA resolution.
AC Current: 0.2 μA to 10 A in 6 ranges; 100 nA resolution.
Resistance: 20 Ohms to 20 megohms full range in 7 ranges; 0.01 ohm resolution.
Diode Test: 0 to 1 Volts, 1 range; 1 mV resolution.
Temperature: −20° C to +1265° C; 1 range; 1° resolution.

ACCURACY

Guaranteed Accuracy Specifications: ±(% of reading + no. of digits) for 1 year at 25° C ±5° C (see table below).

Function	3050	RMS 3060
DC Volts	0.1% + 1	0.1% + 1
AC Volts		
45 Hz to 2 kHz	0.6% + 3	0.6% + 3
2 kHz to 5 kHz	1.0% + 5	1.0% + 4
5 kHz to 10 kHz	2.0% + 9	1.5% + 5
10 kHz to 20 kHz	.....	2.0% + 7
DC Current		
200 μA to 2 A	0.35% + 1	0.35% + 1
10 A	1.0% + 1	1.0% + 1
AC Current		
45 Hz to 2 kHz*	0.9% + 3	0.9% + 3
2 kHz to 5 kHz†	.....	1.5% + 3
Resistance		
20 Ohm range	0.5% + 1	0.5% + 1
200 Ohms to 2 megohm ranges	0.2% + 1	0.2% + 1
20 megohm range	1.0% + 1	1.0% + 1
Diode Test	0.1% + 2	0.1% + 2
Temperature	.....	±4° C‡

*Except 10 A range. †Except 2 and 10 A ranges. ‡From −20° C to +300° C.

GENERAL SPECIFICATIONS

Operating Temperature Range: 0°C to +50° C.
Temperature Coefficient: Less than 15% of applicable accuracy specification per °C (0° C to 20° C, 30° C to 50° C).
Battery Life (six "D" cells): 12,000 hours of continuous use.
Size: 7" lg. × 8.5" w. × 3.4" h.
Weight: 32 ozs. including batteries.
Beckman Model 3050 Digital Multimeter—Net Each . . . **$229.00**
Beckman Model RMS 3060 Digital Multimeter—Net Ea. **$289.00**

BECKMAN DIGITAL MULTIMETER ACCESSORIES

VINYL CARRYING CASE

Constructed of durable, padded vinyl. Will accommodate any Beckman multimeter. Case has room for the meter, instruction manual and test leads, without adding unnecessary bulk. Handy belt loop on back of case.

Beckman Model VC-201 Vinyl Carrying Case—Net Each . . **$10.00**

DELUXE CARRYING CASE

Handsome, rugged case offers maximum protection for any Beckman multimeter. Constructed of rigid, leather-grained vinyl. Has inside compartments for storing the instrument, test leads and instruction manual.

Beckman Model DC-205 Deluxe Carrying Case—Net Ea. **$24.00**

50 kV HIGH VOLTAGE PROBE

Extends the DC voltage measurement capability of any Beckman multimeter to 50 kV. Essential for television and CRT terminal service where second anode voltages must be measured. Contains a precision 1000:1 resistor divider that scales high voltages down to a level that the multimeter can handle safely. High input impedance of probe minimizes circuit loading and assures accurate measurements.

Voltage Range: 0 to 50 kVDC.
Input Resistance: 1,000 megohms.
Accuracy (22 megohm meter load): ±2% at 25 kHz; changes linearly to 8% down to 1 kV and up to 50 kV.
Maximum Input: ±50 kV DC or AC peak.

Beckman Model HV-211 High Voltage Probe—Net Ea. **$40.00**

200 MHz RF PROBE

Peak detecting probe extends AC voltage measuring capability of any Beckman multimeter to 200 MHz. Provides a DC voltage that is calibrated to equal the rms value of a sine wave.

Frequency Range: 2 kHz to 200 MHz.
Accuracy: 2 kHz to 10 MHz, ±(1.0% input + 50 mV); 10-100 MHz, ±1 dB; 100-200 MHz, ±6 dB.
Max. Reading: 25 V rms.
Input Impedance: 1.5 megohms, 7 pF.
Overvoltage Protection: 130 V rms at 60 Hz or 250 VDC.

Beckman Model RF-221 200 MHz RF Probe—Net Each . . **$35.00**

150 AMP AC CURRENT CLAMP

Extends AC current measurement capability of any Beckman multimeter to 150 amperes without breaking the circuit under test. The 1000:1 current transformer allows direct reading in amperes when used with the 200 mA AC current range of the multimeter.

Range: 10-150 amps AC rms.
Frequency Range: 30 Hz to 1 kHz.
Accuracy: ±3% (50 Hz to 150 Hz); ±4% (150 Hz to 1000 Hz); ±6% (30-50 Hz).
Circuit-To-Ground Voltage: 1,000 V rms.
Maximum Conductor Size: 0.45 inches dia.

Beckman Model CT-231 150 A AC Current Clamp—Net Each **$59.00**

1000 AMP AC CURRENT CLAMP

Extends AC current measurement capability of any Beckman multimeter to 1000 amperes by use of a 1000:1 current transformer. Clamp-on design permits AC current measurements without breaking the circuit under test. Clamp accuracy is not affected by the position of the conductor in the clamp jaws.

Range: 10-1000 amps AC rms.
Frequency Range: 30-1000 Hz.
Accuracy: ±1% (60 Hz); ±2% (30 Hz to 1 kHz).
Circuit-To-Ground Voltage: 1000 V rms max.
Max. Conductor Size: 2.125 incres dia.

Beckman Model CT-232 1000 A AC Current Clamp—Net Each **$169.00**

DELUXE TEST LEAD KIT

Specially designed Beckman deluxe test lead kit comes in a handy vinyl case. Kit includes safety-designed test leads and a complete assortment of probe tips for every measurement application; alligator clips, spade lugs, banana tips, phone tips and needle tips. All screw into the test leads.

Beckman Model DL-241 Deluxe Test Lead Kit—Net Ea. **$12.00**

TEST LEAD SET

Made of fire-retardant ABS plastic. Incorporates finger-guards to protect operator from accidental shock.

Beckman Model TL-242 Test Lead Set—Net Each **$6.00**

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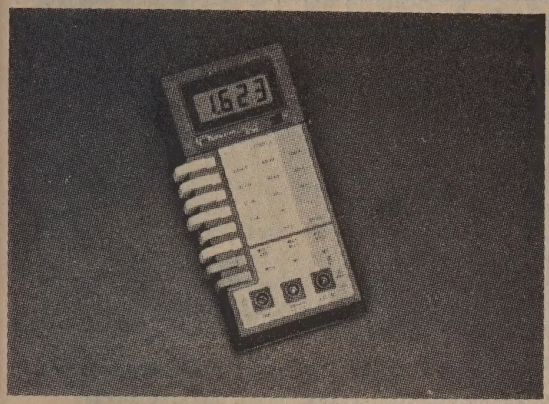
DATA PRECISION®
DIVISION OF ANALOGIC CORPORATION

HAND-HELD PORTABLE MULTIMETERS



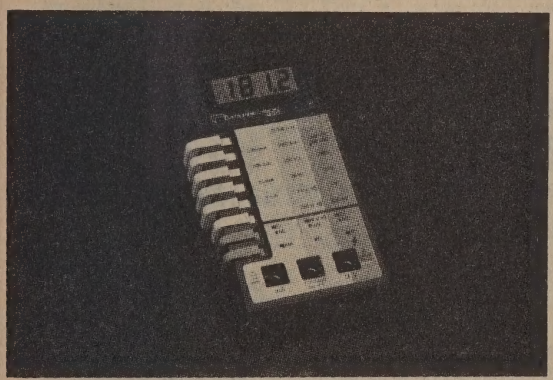
Model 935 $155.00

- 29 ranges and full function multimeter
- 0.1% basic DC accuracy
- hi/lo excitation for resistance measurement
- 200 hour 9V transistor battery operation—battery eliminator optional
- 6kV spike protection
- AC frequency response 30Hz to 500Hz
- .5″ LCD display
- two year full warranty
- size: 3½″ x 6¾″ x 1½″, weight: 9½ oz.

Pick up a 935. Feel how light it is. Try the simple one-handed switch operation. You'll be amazed at how Data Precision has packaged a full-function, high performance, 3½ digit DMM into such a small, convenient, "go-anywhere" package. You'll also be amazed at the specifications of this low cost unit: 29 ranges, including switchable ohms excitation high at 2.8V, low at 250mV, 0.1% basic accuracy, outstanding electrical protection on all ranges, a full ½″ high LCD display, and up to 200 hours operation from a standard 9V battery.

MEASUREMENT FUNCTIONS & RANGES

DCV	ACV	DCI	ACI	Ω
100μV-1000V	100μV-700V	1μA-2A	1μA-2A	100mΩ-20MΩ



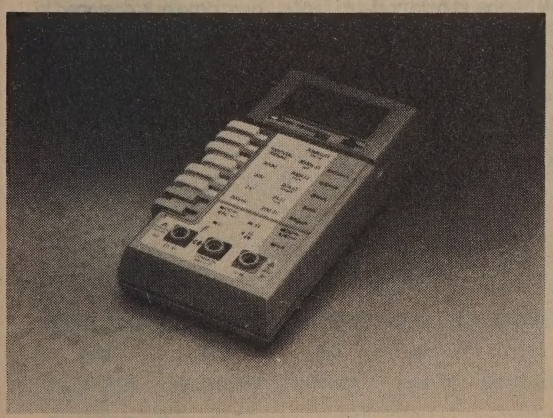
Model 936 $165.00

- audible beeper for continuity and low resistance measurement
- 29 ranges and full function multimeter
- 0.1% basic DC accuracy
- hi/lo excitation for resistance measurement
- 6kV spike protection
- AC frequency response 30Hz to 500Hz
- .5″ LCD display
- 200 hour 9V transistor battery operation—battery eliminator optional
- two year full warranty
- size: 3½″ x 6¾″ x 1½″, weight: 9½ oz.

The Model 936 includes all the functions and features of Data Precision's Model 935 plus it operates as a rapid continuity checker—an audible beep when connected to low resistance circuits. It also emits an audible tone for negative DC or AC voltage overloads.

MEASUREMENT FUNCTIONS & RANGES

DCV	ACV	DCI	ACI	Ω
100μV-1000V	100μV-700V	1μA-2A	1μA-2A	100mΩ-20MΩ



Model 945 $265.00

- full-function
- .05% accuracy
- 100 hours battery life
- 10μV sensitivity DC and AC
- all ranges including current

Not all 4¼ digit portable instruments give you full specifications compatible with the basic 4½ digit resolution. Get a complement of proper specifications in a rugged, compact, go-anywhere case. 0.05% accuracy and 100 hours battery life mean precision in the field as long as you need it. From Data Precision, the innovators of high-performance portable DMMs.

MEASUREMENT FUNCTIONS & RANGES

DCV	ACV	DCI	ACI	Ω
200mV-1000V	200mV-700V	200μA-2000mA	200μA-2000mA	200Ω-20MΩ

DATA PRECISION®
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DIGITAL CAPACITANCE METER

Model 938 $219.00

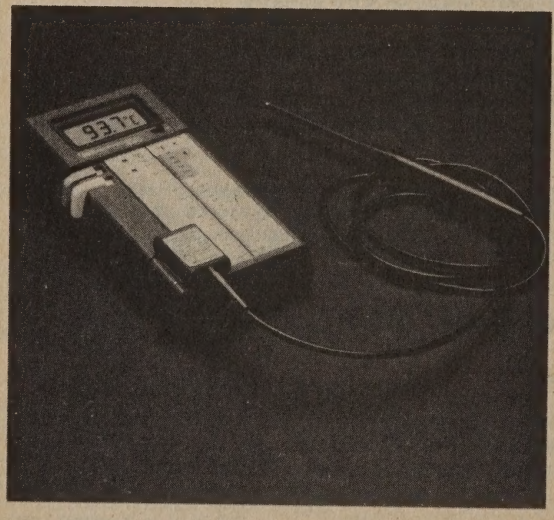
3½ Digit, 0.1% Accuracy Capacitance Meter

- measurement ranges 0.1pF to 2000μF
- immediate direct reading/push button selectability
- palm-sized
- 200 hour 9V transistor battery—optional battery eliminator
- unique Patent Pending "ΔQ/ΔV" technique
- 0.5" high LCD display
- two year full warranty
- fuse protected against inadvertent high voltage connection
- size: 6¾" x 3½" x 1½"
- weight: 11 oz.

The Model 938 is a tough, compact instrument, built to take rough usage without loss of calibration accuracy. It goes anywhere and is always handy for quick capacitance checkout, matching, calibration and tracking.

Exceptionally accurate and easy to use, Model 938 outperforms DC time-constant meters and even bridges costing 2-5 times as much.

DIGITAL TEMPERATURE METER



Model 940 $195.00

- 0.4°C/0.7°F basic accuracy
- switch selectable measurement ranges: −65° to +150°C, −85° to +302°F
- 0.1° resolution below 200°
- complete with probe and cable assembly
- big LCD 3½ digit display with °C/°F and "low battery" annunciators
- internal 9V transistor battery—optional battery eliminator
- 2 year warranty

The Model 940 hand-held portable Digital Thermometer is designed to take rough usage around your facility or in the field and maintain its accuracy for one year. When probes are interchanged, initial accuracy can be restored with an ice bath and one adjustment to remove the potential additional inaccuracy of 0.2°C/0.4°F.

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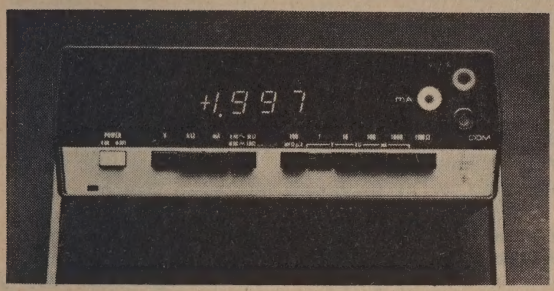
3½ DIGIT & 4½ DIGIT BENCH AND BENCH/PORTABLE MULTIMETERS



Model 1350 $210.00

- 3½ Digit 0.43" LED display
- 32 ranges and 6 functions
- 0.1% basic DC accuracy
- hi/lo excitation resistance measurement (High (2.8V) or Low (300mV))
- AC frequency response 30Hz to 10kHz
- protected for 6kV transients
- protected for 500V AC/DC on all ohms
- one year warranty

Model 1350 is a price/performance breakthrough—a 3½ digit, full function multimeter that offers 0.1% basic accuracy. Resistance is measured in both high (2.8V) and low (300mV) excitation from 100mΩ to 20MΩ, and both DC and AC current from 0.1μA to 2A. Model 1350 comes complete with test leads, spare fuse, and full documentation.

MEASUREMENT FUNCTIONS & RANGES

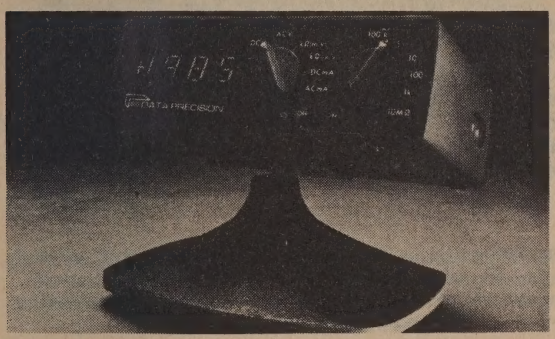
DCV	ACV	DCI	ACI	Ω
100μV-1200V	100μV-1000V	0.1μA-2A	0.1μA-2A	100mΩ-20MΩ

Model 1351 $210.00

The 3½ digit Model 1351 contains all the features of the Model 1350 plus a 20 Amp current range AC and DC.

MEASUREMENT FUNCTIONS & RANGES

DCV	ACV	DCI	ACI	Ω
100μV-1200V	100μV-1000V	0.1μA-20A	0.1μA-20A	100mΩ-20MΩ



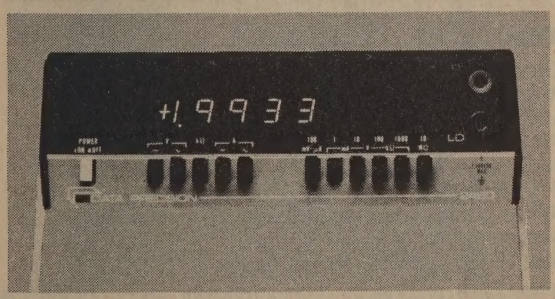
Model 175 $235.00

- 32 ranges and full function multimeter
- 0.1% basic DC accuracy
- hi/lo excitation resistance measurement
- 100 microvolts, 100 nanoamps resolution
- wide AC frequency response 30Hz to 50kHz
- .43" LED display
- 100% overrange
- rechargeable NiCd and line operation
- one year warranty
- size: 1¾" x 5½" x 3½", weight: 1.3 lbs.

With a basic DC accuracy of ±0.1% input ±1 l.s.d., guaranteed for a full year, and 100μV resolution, the Model 175 is unsurpassed for accuracy and sensitivity. Battery/line operated, it measures resistance from 100mΩ to 20MΩ in two modes (HI excitation 2.5V and LO excitation 300mV). It comes complete with rechargeable NiCd battery module, line cord recharger, a pair of test leads, alligator clips, carrying case and complete documentation.

MEASUREMENT FUNCTIONS & RANGES

DCV	ACV	DCI	ACI	Ω
100μV-1000V	100μV-500V	0.1μA-2A	0.1μA-2A	100mΩ-20MΩ



Model 2480R $350.00

- 4½ digit 0.43" high LED display
- .03% basic DC accuracy
- true RMS AC volts and AC current 20Hz to 20kHz
- 100% overrange
- bench/portable flexibility
- built in battery charger
- optional field installable battery module
- one year warranty

When you buy a Data Precision Model 2480R, you get a full-function, 4½ digit bench/portable digital multimeter with 0.03% basic accuracy. Its wide measurement ranges on all functions, make it an ideal bench top DMM, and its built-in battery charger allows you to drop in an optional battery pack and carry this same meter into the field.

MEASUREMENT FUNCTIONS & RANGES

DCV	ACV	DCI	ACI	Ω
10μV-1200V	10μV-1000V	10nA-2A	10nA-2A	100mΩ-20MΩ

Model 2480 $330.00

The same as the Model 2480R above but with wide band average sensing-RMS calibrated AC voltage and current (20Hz to 50kHz).

DATA PRECISION®
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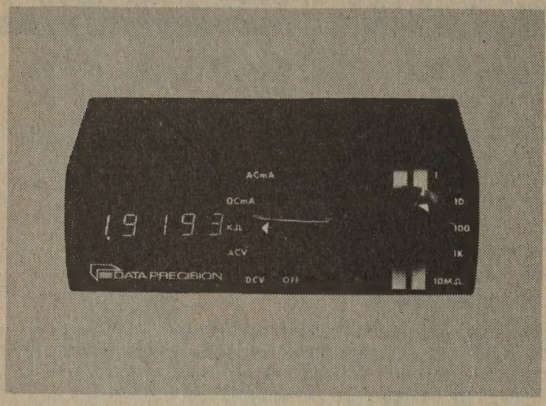
4½ DIGIT PORTABLE MULTIMETERS



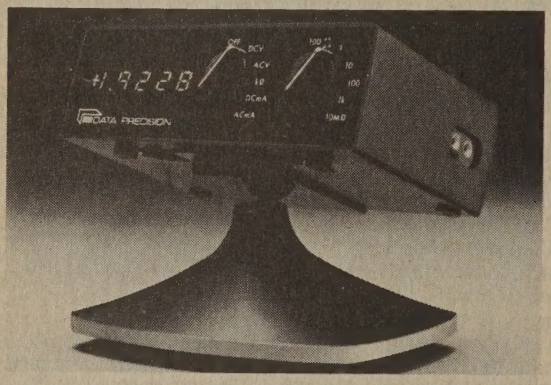
Model 245 $385.00

- 21 ranges and 5 functions
- 0.05% basic DC accuracy
- wide AC frequency response (30Hz to 50kHz)
- 1000MΩ input impedance on 1VDC range
- 100% overranging
- .33″ planar gas display
- one year warranty
- size: 1¾″ x 5½″ x 3½″, weight: 1.3 lbs.

Ideal for field use, the Model 245 is a rugged, truly miniature lab-quality instrument that comes complete with rechargeable NiCd battery, line cord with recharger, a pair of test leads, alligator clips, carrying case and complete documentation. You can use it as a lab instrument with the optional pedestal stand. Over 50,000 Model 245's are in use around the world.

MEASUREMENT FUNCTIONS & RANGES

DCV	ACV	DCI	ACI	Ω
100μV-1000V	100μV-500V	1μA-2A	1μA-2A	100mΩ-20MΩ



Model 248 $385.00

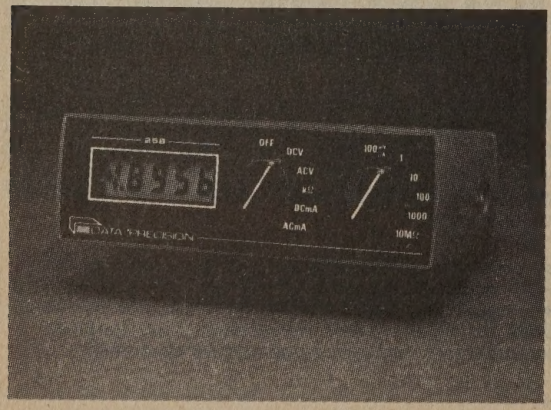
- 26 ranges and 5 functions
- 10μV, 10nA DC and AC sensitivity
- 0.05% basic DC accuracy
- bright 0.3″ LED display
- True RMS AC volts and AC current sensing (30Hz to 20kHz)
- one year warranty
- size: 1¾″ x 5½″ x 3½″, weight: 1.3 lbs.

Model 248 portable multimeter gives you 10μV DC and AC sensitivity, direct reading and sensing in True RMS for AC voltage and current along with unsurpassed ±0.05% basic DC accuracy, guaranteed for one year— in a truly portable, easy-to-read instrument.

The Model 248 comes with a rechargeable NiCd battery module, a pair of test leads, line cord with charger, carrying case, and full instruction manual and test data. A full range of optional accessories including a bench stand for lab work, is available.

MEASUREMENT FUNCTIONS & RANGES

DCV	ACV	DCI	ACI	Ω
10μV-1000V	10μV-500V	10nA-2A	10nA-2A	100mΩ-20MΩ



Model 258 $355.00

- 10μV, 10nA sensitivity, AC and DC
- 26 ranges and 5 functions
- 0.05% basic DC accuracy
- true RMS AC volts and AC current (30Hz to 20kHz)
- overload protection
- .4″ LCD display
- 40 hour continuous, rechargeable battery operation
- one year warranty
- size: 1¾″ x 5½″ x 3½″, weight: 1.3 lbs.

The Model 258 combines the optimum daylight viewing of liquid crystal display with the convenience of 40-hour continuous battery operation between recharge cycles to bring you a versatile, reliable and useful digital multimeter that's ideal for field applications.

This accurate, stable, 4½ digit instrument measures DC *and* true RMS AC voltage down to 10 microvolts. It measures DC and true RMS *current*, too . . . down to 10 nanoamperes. It measures resistance down to 100mΩ. It provides five 4½ digit ranges on all five parameters . . . including 100% overranging. And it provides 0.05% basic accuracy for one full year between calibrations. That's truly professional performance!

MEASUREMENT FUNCTIONS & RANGES

DCV	ACV	DCI	ACI	Ω
10μV-1000V	10μV-500V	10nA-2A	10nA-2A	100mΩ-20MΩ

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DATA PRECISION®
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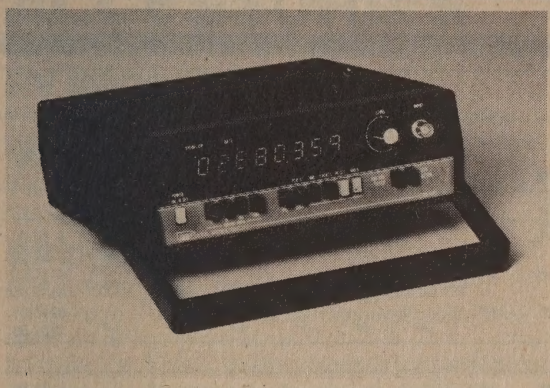
DIGITAL FREQUENCY COUNTERS



Model 5845 (Counter/Timer) $355.00

7 Digits, 100 MHz Multifunction Counter/Timer

- frequency range from 5Hz to 100MHz
- input sensitivity (min) 10mV
- measures: frequency, period, period average, events, elapsed time
- optional BCD, electrical start/stop, ext. 10MHz clock input
- one year warranty

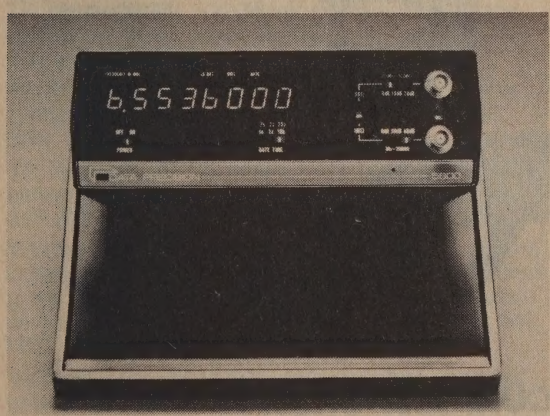
This exceptional buy, low cost multifunction counter timer measures sinewaves, square waves, pulses, complex waves, frequency: 5Hz to 100MHz. With four selectable gate times and resolution to .1Hz, Model 5845 measures period from ½ microsecond to 0.2 sec., period average: 10, 100 and 1000 periods, total events: 0 to 9,999,999 (unlimited with "overflow" indicator), elapsed time: 0 to 99,999.99 sec. (27.8 hrs.). Adjustable input threshold bias.

Model 585 $425.00

Portable 8 Digit, 250MHz Frequency Counter

- completely portable, rechargeable battery and line operated
- frequency range from 10Hz to 250MHz
- input sensitivity (min) 10mV
- direct counting, direct reading
- dual input impedance (switchable)
- .3" LED display
- wide-range attenuator
- precision TCXO option
- one year warranty
- size: 5½" x 1¾" x 3½", weight: 1.3 lbs.

The Model 585 features: Direct Counting, Direct Reading—always reads directly in MHz, with correctly positioned decimal point, High Sensitivity—10mVRMS to 50MHz, 50mVRMS to 250MHz, 8 Digit Display with Fully Compatible Stability—gate time: 10 sec., 1 sec., 0.1 sec.; resolution: 0.1Hz, 1Hz, 10Hz, Dual Input Impedance—switch-selected, 1 megohm or 50 ohms for impedance matching, and 3 position Wide-Range Attenuator switch accommodates very wide input signal range. It comes complete with rechargeable NiCd batteries, AC line charger, vinyl carrying case and complete documentation.



Model 5801 $545.00

520MHz, 8 Digit, Lab/Portable Frequency Counter

- frequency range from 10Hz to 520MHz
- input sensitivity (min) 10mV
- external 1MHz or 10MHz clock input
- direct reading in MHz
- two input channels
- bench/portable versatility (battery option)
- precision TCXO option
- one year warranty

The Model 5801 will satisfy virtually any measurement requirement in the sub-audio to UHF spectrum. The Model 5801 features: direct-reading in MHz for fast, error-free measurements, bright 0.43" 8 digit LED display, two input channels: 1MΩ input impedence channel from 10Hz, to 250MHz, 50Ω input channel from 25MHz to 520MHz, six selectable gate times to 0.1 sec., high sensitivity over complete frequency range (basic sensitivity is 10mV), wide range input protection, bench/portable versatility, AC line plus optional rechargeable NiCd or "C" cell operation.

Model 5800 $495.00

Similar to Model 5801 with no provision for external clock input.

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DIGITAL INSTRUMENTATION ACCESSORIES

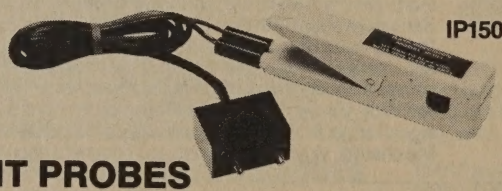
DMM MEASUREMENT ACCESSORIES

Part No.	Description	Applicable Data Precision Models										Price
		175	245	248	258	935	936	945	1350	1351	2480/ 2480R	
Clamp-on Current Probes												
IP150	2—150A, AC only	✓	✓	✓	✓							$ 80.00
IP151	2—150A, AC only					✓	✓	✓	✓	✓	✓	$ 80.00
IP1000	10—1000A, AC only	✓	✓	✓	✓							$185.00
IP1001	10—1000A, AC only					✓	✓	✓	✓	✓	✓	$185.00
CG100A/T10	to 200A, AC or DC	✓	✓	✓	✓							$208.00
CG100A/T11	to 200A, AC or DC					✓	✓	✓	✓	✓	✓	$208.00
Current Shunts												
CS10	AC/DC plug-in, to 10A	✓	✓	✓	✓							$ 23.50
CS11	AC/DC plug-in, to 10A					✓	✓	✓	✓	*	✓	$ 23.50
HV Probes												
V40A	± 40kVDC	✓	✓	✓	✓							$ 63.00
V41A	± 40kVDC					✓	✓	✓	✓	✓	✓	$ 63.00
RF Probes												
RF470	AC signal to > 500MHz	✓	✓	✓	✓							$114.50
RF471	AC signal to > 500MHz					✓	✓	✓	✓	✓	✓	$114.50
Temperature Probes												
TP150	−65° to +150°C, battery operated	✓	✓	✓	✓							$110.00
TP151	−65° to +150°C, battery operated					✓	✓	✓	✓	✓	✓	$110.00

*Not required—range of basic unit

COUNTER ACCESSORIES

REFER TO: counter accessories, carrying cases, batteries, chargers & eliminators, bench & rack mount accessories on following pages.



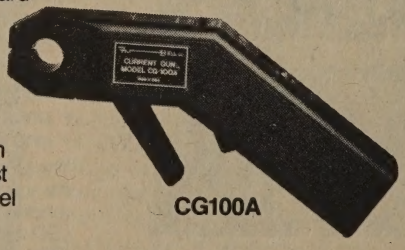
IP150/151

CURRENT PROBES

IP150/151: These AC Clamp-On Current Probes plug into the 200mA input of any digital multimeter, which will then read directly in amperes to 150A with a basic accuracy of 2%. A 4′ test lead is provided with either dual mini-banana connectors (Model IP150) or standard dual banana connectors (Model IP151) for the DMM. **$80.00**

IP1000/1001

IP1000/1001: When used with any digital multimeter with a 1A input, these AC Clamp-On Current Probes provide 1000:1 transformation ratio of the input AC signal to the meter, which will therefore read directly in amperes to 1000A with a basic accuracy of 2%. 4′ test leads are supplied with either dual mini-banana (Model IP1000) or standard dual banana (Model IP1001) connectors. **$185.00**



CG100A

CG100A T10/T11: These Hall-effect clamp-on current probes can measure DC, AC, or AC-on-DC currents. Two switch-selectable ranges are calibrated to give rated output of ± 1.0V for either ± 10A or ± 100A at 2% accuracy, plus 100% overrange. Probe leads, 4′ long, are provided with either dual mini-banana (CG100A/T10) or standard banana connectors (CG100A/T11). **$208.00**

CURRENT SHUNTS

CS10/CS11: AC/DC plug-in current shunts expand the current ranges of Data Precision DMM's to 10 amperes continuous, 20 amperes intermittent with a basic accuracy of .5%. The transfer ratio is 10mV/A. Model CS10 has ⅜″ banana plugs for use with Data Precision miniature DMM's; Model CS11 has ¾″ banana plugs for use with all standard multimeters. **$23.50**

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DIGITAL INSTRUMENTATION ACCESSORIES

HV PROBES

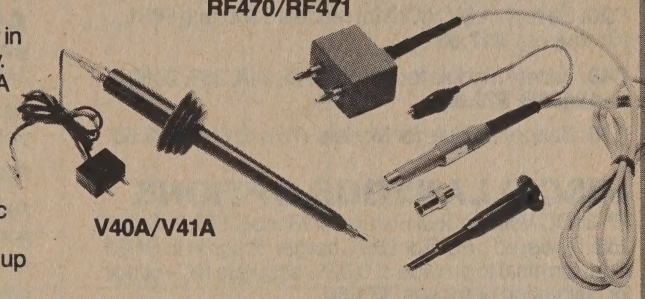
V40A/V41A: These hand-held High Voltage Probes provide 1000:1 attenuation so the DMM reads directly in kilovolts to ±40kV calibrated at 20kV for 2% accuracy. V40A has miniature banana mating connectors: V41A has standard banana connectors. **$63.00**

RF PROBES

RF470/RF471: High frequency ac signals from <100kHz to >500MHz may be measured with any dc voltmeter using these probes.
from 10mV to 30VAC, and they block dc components up to ±200VDC. Accuracy is calibrated at ±1dB from 100kHz to 200MHz and is typically ±3dB at 500MHz. Both units are supplied with a 5′ (1525mm) cable; Model RF470 has miniature banana connectors; Model RF471 standard bananas. **$114.50**

RFH1: Optional push-on retractile hook tip for either model. **$8.50**

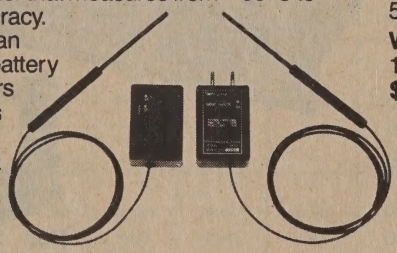
RF470/RF471



V40A/V41A

TEMPERATURE PROBES

TP150/TP151: These plug-in probes convert any DMM into a temperature meter that measures from −65°C to +150°C with ±1° accuracy. They are powered by an internal 9V transistor battery good for over 200 hours operation. Two models are available: TP150 with miniature banana plugs, and TP151 with standard banana plugs. **$110.00**



TEST LEADS & ADAPTORS

T4: Test leads, 48″. (1220 mm), with miniature banana connectors, fused, replacements for Models 175, 245, 248, and 258. **$7.00**

T5: Test leads, 48″, (1220 mm), with standard banana connectors, replacements for Models 935, 936, 938, 945, 1350, 1351, 2480, and 2480R. **$7.00**

T6: Test leads, 60″ (1525 mm), heavy-duty, with miniature banana connectors, fused, for Models 175, 245, 248, and 258. **$29.00**

T7: Universal Test Lead Kit, with 6 pairs of terminations, including alligator clips, spade lugs, banana plugs, blunt prods with chuck, and two sets of phone tips with standard banana connectors, for Models 935, 936, 938, 945, 1350, 1351, 2480, and 2480R. **$17.50**

T8: Test Leads, 48″, (1220 mm), heavy-duty, with miniature banana connectors, with 600V fuse, for Models 175, 245, 248, and 258. **$14.00**

T9: Test leads, 12″, (305 mm) with alligator clips for Models 935, 936, 938, 945, 1350, 1351, 2480, 2480R. **$6.50**

MB3: Adaptor, standard to mini-banana, fused, for using standard banana plugs with Models 175, 245, 248, and 258. **$28.00**

CARRYING CASES

CC35: Vinyl Carrying Case for Models 935, 936, 938, 945. **$6.00**

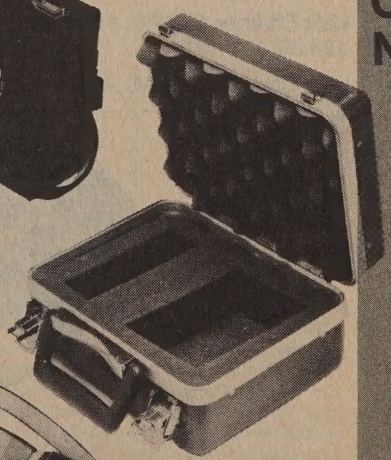
CC50: Vinyl Carrying Case for Models 1350, 1351, 2480, 2480R, 5800 and 5801. **$30.50**

FC9: Fiberglass Carrying Case for Models 175, 245, 248, 258, and 585. **$133.00**

WE8: Leather Case for Models 175, 245, 248, 258, and 585. **$40.50**

WE16: Leather Case for one Model 585, and one Model 175, 245, or 248 or any two mini-portable meters. **$75.00**

WE8



FC9

WE16

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DIGITAL INSTRUMENTATION ACCESSORIES

BATTERIES

C20: Battery (1.2V NiCd) for Models 5800 and 5801 (6 required). **$17.50**

C48: Battery Module for Models 245, 248, 258, 2480 and 2480R. **$29.00**

C75: Battery Module for Models 175 and 585. **$23.50**

MISCELLANEOUS OPTIONS

TF-3: DC Voltage Test Fixture for Models 175, 245, 248, 258. Powered by L15 or L30 Charger. Plugs in to DMM input terminal to provide ± 0.02% accurate DC voltage for calibration purposes. **$71.50**
A number of field-installable options are available for individual Data Precision instruments. Consult the appropriate data sheet for details.

CHARGERS & BATTERY ELIMINATORS

BE9: Battery Eliminator for Models 935, 936, 938, 940, and 945. 115VAC, 47—63Hz input. 9V output. **$17.50**

BC58: External Charging Fixture for C48 & C75 Batteries. (To be used with appropriate charger—see below.) **$58.00**

L15: Charger, 115VAC, 47—63Hz, for Models 175, 245, 248, 258. **$23.00**

L30: Charger, 230VAC, 47—63Hz, for Models 175, 245, 248, 258. **$23.00**

L85: Charger, 115VAC, 47—63Hz, for Model 585. **$23.00**

L90: Charger, 230VAC, 47—63Hz, for Model 585. **$23.00**

BENCH & RACK MOUNT ACCESSORIES

B40: Bench Stand with Swivel Mount for Models 175, 245, 248, 258, and 585. **$37.00**

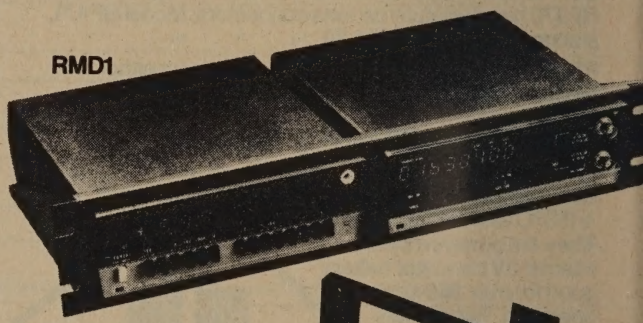
R35: Panel Mount Adaptor for Models 175, 245, 248, and 258. **$69.50**

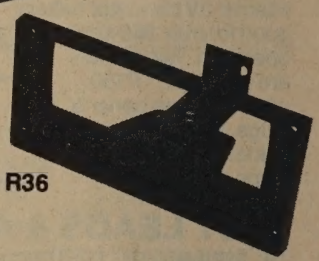
R36: Panel Mount Adaptor for Model 585. **$69.50**

RMD1: Rack Mount, single or dual, right or left orientation for Models 1350, 1351, 2480, 2480R, 5800 and 5801. **$63.00**

Line Cord
L45: For Models 2480, 2480R, 5800, and 5801. **$12.00**

RMD1





R36

COUNTER ACCESSORIES

AN10A: Whip antenna for Models 5740, 585, 5800 and 5801, for frequency measurement of radiated RF. **$29.00**

BN85: BNC/BNC 50Ω coaxial connecting cable 5-foot, for Models 5740, 5800, 5801, and 585. **$21.00**

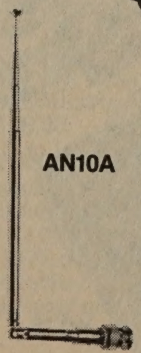
T1: Test probe (4′ BNC to 2mm probe) for Models 5740, 585, 5800 and 5801. **$29.00**

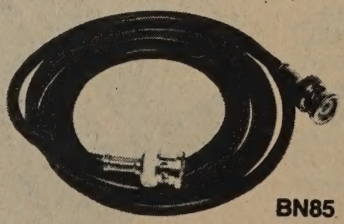
C4: 50Ω Input termination for Model 5740. **$25.50**

LP100A: 100kHz Low pass filter for Model 5740. **$37.00**

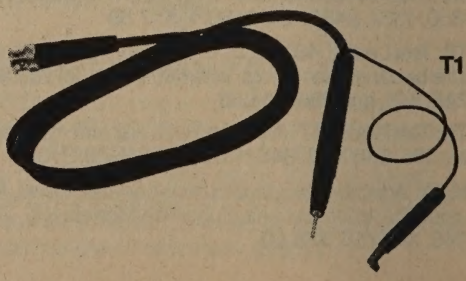
L15

AN10A





BN85



T1

PRICES LISTED ARE FOR GUIDANCE ONLY

FLUKE® DIGITAL MULTIMETERS

DMM Buyer's Guide

Features	Handheld Models						Bench/Portable Models			
	8020B $189	8021B $149	8022B $139	8024B $239	8060A $349	8062A $279	8012A $339	8030A-01 $389	8040A-01 $595	8050A $369
NUMBER OF DIGITS	3½	3½	3½	3½	4½	4½	3½	3½	4½	4½
TYPE OF DISPLAY	LCD	LCD	LCD	LCD	LCD	LCD	LCD	LED	LED	LCD
AUTORANGING	—	—	—	—	(Ohms)	(Ohms)	—	—	•	—
dB READOUT	—	—	—	—	•	—	—	—	—	•
RELATIVE REFERENCE	—	—	—	—	•	•	—	—	—	•
CONTINUITY TONE	•	•	—	•	•	•	—	—	—	—
LOGIC LEVEL TONE	—	—	—	•	—	—	—	—	—	—
PEAK OR SURGE HOLD	—	—	—	•	—	—	—	—	—	—
FREQUENCY					•					
TOUCH-HOLD PROBE	—	—	—	—	—	—	■	—	—	■
THERMOCOUPLE TEMP	—	—	—	*	—	—	—	—	—	—
CARRYING CASE	■	■	■	■	■	■	■	■	■	■
BATTERY/PACK	•	•	•	•	•	•	■	•	•	■
DC VOLTAGE										
Basic Accuracy	0.1%	0.25%	0.25%	0.1%	0.04%	0.05%	0.1%	0.1%	0.05%	0.03%
Max Range	1000V	1000V	1000V	1000V	1000V	1000V	1000V	1100V	1100V	1000V
Min Range	200 mV	200 mV	200 mV	200 mV	200 mV	200 mV	200 mV	200 mV	200 mV	200 mV
Resolution	100 μV	100 μV	100 μV	100 μV	10 μV	10 μV	100 μV	100 μV	10 μV	10 μV
AC VOLTAGE										
Max Range	750V	750V	750V	750V	750V	750V	750V	750V	750V	750V
Min Range	200 mV	200 mV	200 mV	200 mV	200 mV	200 mV	200 mV	200 mV	200 mV	200 mV
Resolution	100 μV	100 μV	100 μV	100 μV	10 μV	10 μV	100 μV	100 μV	10 μV	10 μV
True RMS	—	—	—	—	•	•	•	•	•	•
Frequency	5 KHz	450 Hz	450 Hz	5 KHz	100 kHz	30 kHz	50 KHz	10 KHz	20 KHz	50 KHz
AC & DC CURRENT										
Max Range	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A
Min Range	2 mA	2 mA	2 mA	2 mA	200 μA	200 μA	200 μA	200 μA	200 μA	200 μA
Resolution	1 μA	1 μA	1 μA	1 μA	10 μA	10 μA	100 nA	100 nA	10 nA	10 nA
True RMS	—	—	—	—	•	•	•	•	•	•
RESISTANCE										
Max Range	20 MΩ	20 MΩ	20 MΩ	20 MΩ	300 MΩ	300 MΩ	20 MΩ	2 MΩ	20 MΩ	20 MΩ
Min Range	200Ω	200Ω	200Ω	200Ω	200 Ω	200 Ω	2Ω	200Ω	200Ω	200Ω
Resolution	0.1Ω	0.1Ω	0.1Ω	0.1Ω	0.01 Ω	0.01 Ω	0.001Ω	0.1Ω	0.01Ω	0.01Ω
Hi & Lo Power Ohms	•	•	•	•	†	†	•	†	—	•
CONDUCTANCE										
Max Range	2 mS	—	—	200 nS	2000 nS	—	2 mS	—	—	2 mS
Min Range	200 nS	—	—	200 nS	2000 nS	—	200 nS	—	—	200 nS
Resolution	0.1 nS	—	—	0.1 nS	0.1 nS	—	0.1 nS	—	—	0.01 nS

*† 1 mA Test Current • Standard ■ Optional *Requires Y8102, Y8103, or Y8104*

Other Precision Products from Fluke

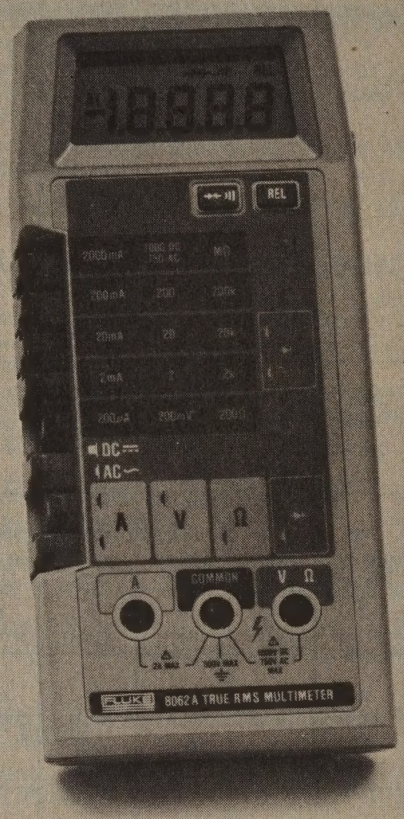
System Voltmeters & DMM's
Instrument Controllers
Functional PCB Testers
Data Loggers
Scanners & Printers
Differential Voltmeters
Signal Sources
Programmable Power Supplies
Calibrators & Standards

Fluke instruments are well known around the world for their exceptionally high quality and reliability. We value that reputation and do our utmost to preserve it. One way we can help this effort is with high quality support services that enhance the usefulness and value of your Fluke products.

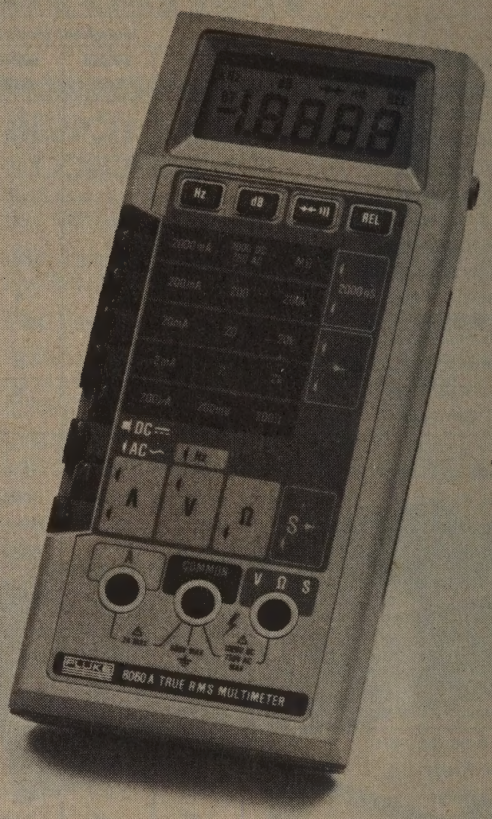
Fluke has specially trained technicians at numerous service facilities around the world. Regardless of when or where you purchase a Fluke instrument, the service facility most convenient to you is the right one to contact for assistance.

Each Technical Center maintains a large inventory of replacement parts for Fluke instruments. This field inventory of replacement parts for Fluke instruments. This field inventory is reinforced by an extensive supply of parts maintained by the Factory Parts Department. Replacement parts may be ordered through your nearest Fluke Technical Center or International Representative.

FLUKE® HANDHELD DMM's



8062A



8060A

8060A and 8062A

- 4½-digit resolution
- DC and wideband True RMS ac voltage
- DC and wideband True RMS ac current
- Resistance to 300 MΩ
- Resistance autoranging above 200 kΩ
- REL reference (offset) for all functions
- Fast audible and visual continuity checks
- Constant-current (1 mA) diode test

Plus, for 8060A

- 0.04% basic dc accuracy
- dBm referenced to 600Ω or relative dB
- Conductance function, equivalent to 10,000 MΩ
- Frequency measurements to 200 kHz, with 0.01 Hz resolution to 200 Hz

The 8060A and 8062A are Fluke's two most advanced handheld digital multimeters. They have the best accuracy, have 4½-digit resolution, make wideband and True RMS measurements of ac voltage and current and will store any reading for use as a reference level for subsequently making ± difference (offset) measurements. Both have a special visual indicator and a selectable beep tone for fast continuity tests. The constant-current diode test indicates the forward voltage drop across semiconductor junctions as well as telling you if they are open or shorted.

Unlike most multimeters, they will read resistance to 300 MΩ, well beyond the usual 20 MΩ top limit. Above the 200 kΩ range, in fact the DMM's automatically select the range with the greatest resolution. Having 4½-digits of resolution lets you measure low values of resistance with a resolution of 10 mΩ.

The 8060A has some extraordinary additional features. Besides having a conductance mode that lets you determine resistance values up to 10,000 MΩ, the 8060A has a dBm and relative dB readout mode, and a frequency counter mode to 200 kHz. Measuring dBm is relative to 1 mW in a 600Ω load. And with the REL reference (offset) feature any reading on the display may be stored and subsequent readings will be displayed as ± deviations from the stored value. The frequency-measuring capability is seldom found in a DMM. But why depend on a separate counter to measure frequency if it does not exceed 200 kHz?

8060A Multimeter $349
8062A Multimeter $279

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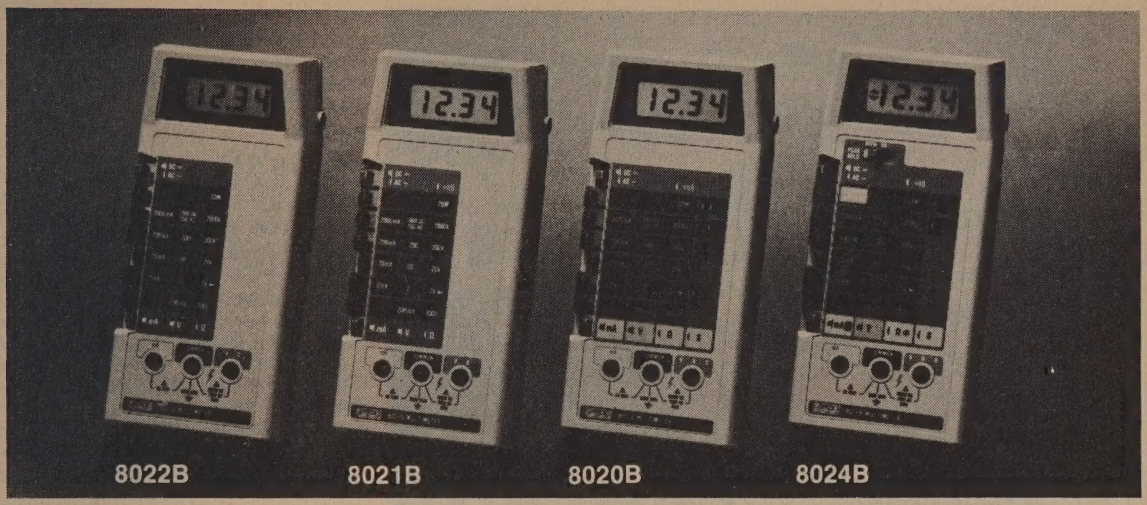


8020B/8021B/8022B/8024B

The world's most popular handheld DMM's are now better than ever — with four new models to choose from. We've redesigned these handheld DMM's both inside and outside for increased performance and ease of use while retaining all the quality and accuracy that you've come to expect from Fluke.

- All four models feature improved overload protection with a new dual-fuse system to protect against high voltage on the current inputs.
- Three models (the 8020B, 8021B, and 8024B) have a high-speed audible continuity "beeper" for fast open/short checks.
- All these handhelds use a quality crystal oscillator which drives the A/D converter for unsurpassed noise rejection.
- Fluke Handheld DMM's are now housed in an improved shock-resistant case with a locking tilt-bail and nonskid rubber feet.
- Improved front-panel design makes it easier for you to choose functions and ranges.
- And to attest to our confidence in their accuracy and reliability, we're backing all these meters with a two-year warranty and calibration cycle.

8024B

- Peak-hold function for ac or dc
- Audible and visual continuity indicators
- Audible and visual signals for +0.8V logic-level tests
- Conductance function
- Temperatures from -20°C to +1265°C

The 8024B is one of the most versatile handheld DMM's you can buy. It has 11 powerful measurement functions.

Peak-hold lets you measure the peak amplitude of voltage or current pulses as narrow as 2 ms and easily catch transients such as motor-starting currents.

A built-in high-speed continuity tester provides an instantaneous visual and audible signal when a good connection is found. Since you can keep your eyes on the test circuit, it's safer than stopping to look at the display and faster too.

In the level-detection mode, short duration switch closures or logic activity as short as 50 μs can be detected.

When checking for a circuit level above or below +0.8V, or when looking for ac or logic circuit activity that crosses the +0.8 volt level, an up arrow and/or down arrow appears in the display in conjunction with the switchable audio tone.

The 8024B is also a digital thermometer. With the Sheathed Thermocouple Probe (Y8102), you can make immersion-type temperature measurements from -20°C to 926°C or using the fast-response Bead-Type Thermocouple Probe (Y8103), you can measure from -20°C to +260°C.

8024B Multimeter $239

8020B

- Eight functions, including - audible continuity, conductance, diode test
- 0.1% basic dc accuracy
- High-speed audible continuity testing

The 8020B is the successor to the 8020A, the world's most popular handheld DMM. The 8020B retains all the functions of its predecessor and adds a high-speed audible continuity indicator that will detect momentary contacts as short as 50 μs. The conductance function, pioneered by Fluke, allows you to make resistance measurements up to 10,000 MΩ.

8020B Multimeter $189

8021B

- Six functions and 24 ranges
- High-speed audible continuity testing
- 0.25% basic dc accuracy

The 8021B is a basic-performance 3½-digit multimeter with the added convenience of an audible continuity indicator for fast open/short tests. The meter is designed specifically for those users of analog voltmeters who want to move up to the precision and accuracy of a DMM.

8021B Multimeter $149

8022B

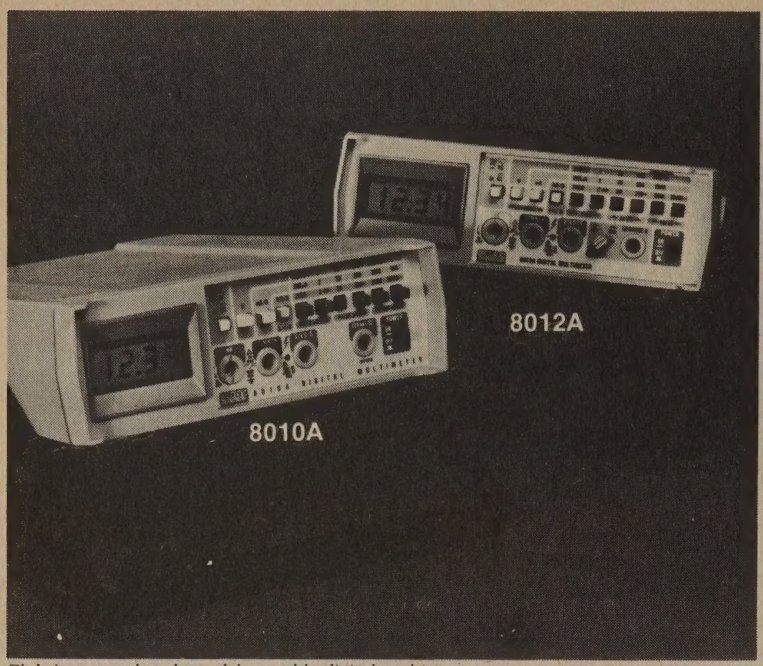
- Lowest cost
- Five functions and 24 ranges
- 0.25% basic accuracy

The 8022B is identical in functions and features to the 8021B except that it does not have the audible continuity indicator. This is Fluke's lowest-cost industrial DMM.

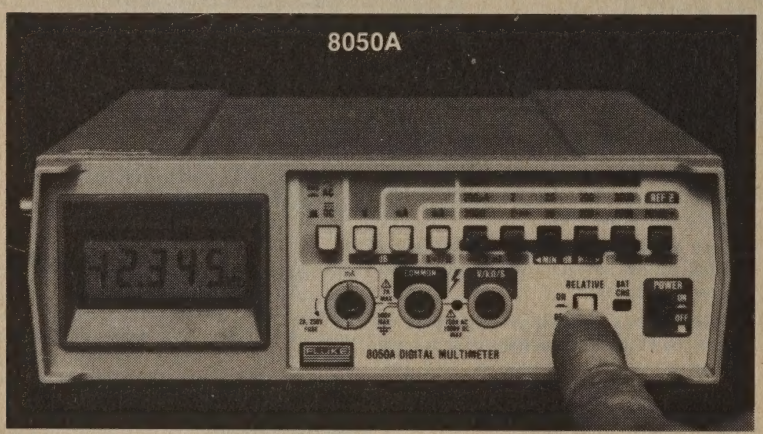
8022B Multimeter $139

See the Buyer's Guide and Comparison Chart for more specifications.

FLUKE® BENCH/PORTABLE DMM's



Fluke's newest bench model portable digital multimeters



Make dB, dBm, or offset measurements in addition to the usual

8010A/8012A/8050A DMM's

The 8010A, 8012A, and incomparable 8050A DMM offer more functions and features for the money than any other bench DMM's you can buy. They all have these important features in common:

The Conductance function lets you check resistance hundreds of times higher than the 20 MΩ limit of most DMM's.

True RMS measurements of ac voltage and current assures not only accuracy for sinewaves, but assures accuracy for other waveforms, from square waves to pulse-shaped signals. Measurement errors may approximate 40% near these extremes when measured with average-sensing ac-to-dc converter circuits instead of rms-sensing circuits.

Accuracy specs to 50 kHz, and a typical bandwidth to 200 kHz, assures recognition of harmonics of lower frequency signals as well as extending sinewave measurements to this range.

High- or low-power ohms mean you can check in-circuit resistances without turning on diodes, or check diodes if you prefer.

One year accuracy specifications reduce calibration costs greatly.

The 80T-H Touch-Hold Probe (optional) lets you make voltage or resistance measurements in crowded, hard-to-reach, or hazardous places without taking your eyes off the probe.

8050A

- 4½ digits & microprocessor-based
- 0.03% basic dc accuracy
- True RMS for ac accuracy
- Direct dBm readout...15 impedances
- Direct relative dB readout
- Offset (±difference) measurements

Even though the 8050A resembles the 8010A and 8012A, it is like nothing you have seen before in a low-cost digital multimeter. First, it has 10 times the resolution of 3½-digit DMM's and extraordinary accuracy. Being micropressor-based, it can store any reading as an offset and algebraically subtract it from subsequent measurements, yielding a direct ± difference. The offset capability lets you avoid calculations. Makes it eacy to check tolerances, match components, fast — and with much better accuracy.

The microprocessor will also convert voltage directly to dB — either compared to your stored (relative) reading or compared to 1 milliwatt (dBm) and your choice of 15 impedances. Decibel readings make gain and attenuation measurements easy. 20 Hz to 20 kHz voltages as small as 0.77 mV rms and as high as 200V rms can be measured with a mid-range accuracy of ±0.15 dB. Out to 50 kHz, accuracy is ±0.75 dB for voltages above 0.1V. See DMM comparison chart.

8050A 4½-Digit μP-based DMM $369
8050A-01 w/rechargeable battery 419

8010A

- Our lowest-cost bench/portable DMM
- True RMS current to 10 amps

The 8010A is for people who need an accurate, reliable, rugged, bench/portable DMM with standard measurement capabilities plus the unique capabilities described earlier. The added value makes Fluke an easy choice. See the comparison chart for more specifications.

8010A 10 Ampere DMM $259
8010A-01 w/rechargeable battery 299

8012A

- World's widest-range 3½-digit ohmmeter
- True RMS for ac accuracy

The 8012A has two additional low resistance ranges compared to most DMM's — 20Ω and 2Ω. Resistance measurements extend from 0.001Ω to 10,000 MΩ using the conductance function. Check transformer winding resistance *and* leakage! See the comparison chart for specifications.

8012A Low-Ohms DMM $339
8012A-01 w/rechargeable battery 379

BENCH/PORTABLE DMM's

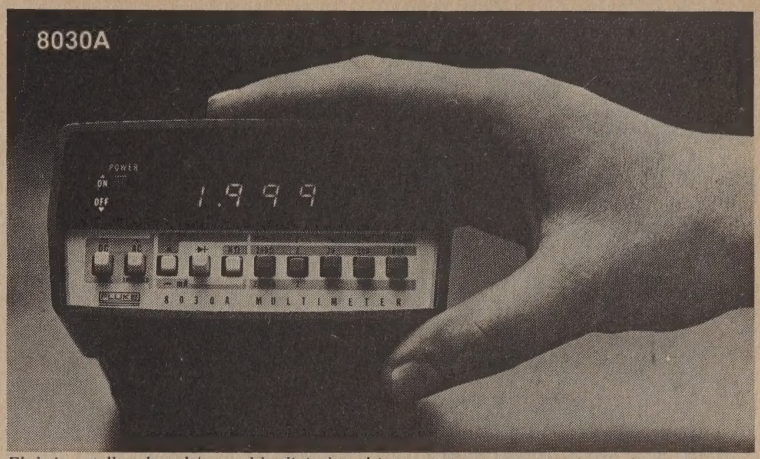
FLUKE

8030A-01

- Fluke's smallest bench/portable DMM
- True RMS for ac accuracy
- 3½-digit LED readout, even in the dark
- Diode test measures forward voltage drops

If your application requires a 3½-digit DMM with True RMS in a small package, the 8030A is the answer. It features bright LED's, 0.1% basic dc accuracy, and an internal rechargeable battery pack. A separate battry charger/eliminator reduces the size and weight for field use. True RMS provides ac measurement accuracy in the presence of noise and distorted waveforms. Ac coupling rejects dc bias during ac voltage measuremetns, and dc coupling on ac current ranges provides ac + dc capability for measuring power supply and SCR-regulating circuitry. See comparison chart for other specifications.

8030A-01 Battery-portable DMM $389



Fluke's smallest bench/portable digital multimeter

8040A-01

- Only battery-portable 4½-digit DMM with autoranging
- True RMS for ac accuracy
- 0.05% basic dc accuracy
- LED readout, even in the dark

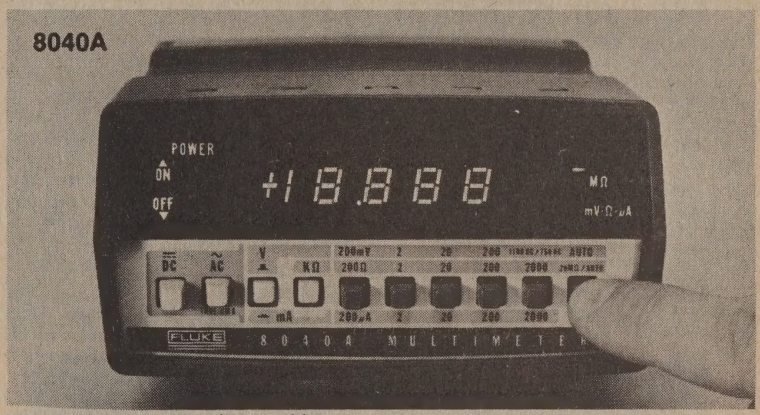
The 8040A is our smallest 4½-digit multimeter. It brings the features, accuracy, and resolution of a laboratory type instrument to the field in a ruggedized, compact package. Fluke True RMS circuitry insures accurate measurements of distorted ac waveforms.

Ac current is dc coupled, providing the ability to measure unfiltered power supplies and SCR-regulated sources. Ac voltage is ac coupled so you can block dc and measure only ac components like power supply ripple.

Autoranging automatically switches to the range that gives you the best resolution.

Includes an internal 8-hour rechargeable battery pack and separate battery charger/eliminator.

8040A-01 Autoranger DMM $595



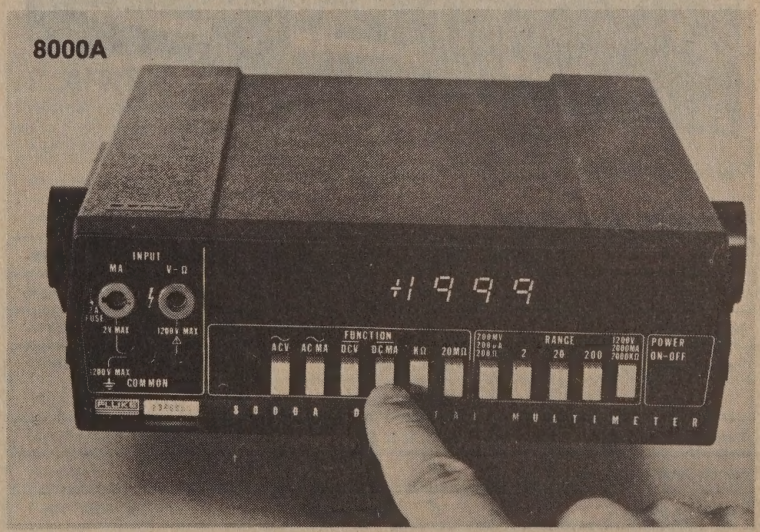
"Lone" Autoranger, 4½ digits and batteries

8000A

The 8000A is not the newest — it is the classic. Available in several special variations, too.

The 8000A/MAS has five special ranges to indicate energy in x-ray current pulses — a product of current and time expressed in milli-ampere-seconds (mAs).

8000A 3½-Digit DMM $550
8000A-01 w/rechargeable battery 595
8000A/MAS 3½-Digit DMM 675



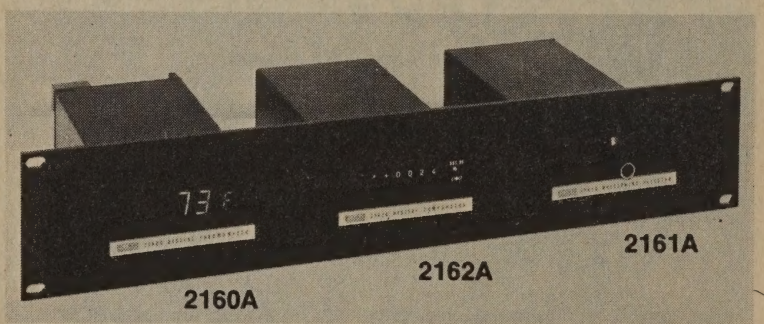
Best known DMM in the world

FLUKE® DIGITAL THERMOMETERS

Panel size of all bench/portable models is 2.5 x 8.6 inches

The 2160- and 2170-Series Digital Thermometers read the temperature of thermocouples. Temperature resolution of 1 degree or 0.2 degrees is available in either panel mount or portable bench models. The compact panel mounted versions conform to DIN Standards and are designed for use in industrial environments. Advanced Fluke LSI technology means low parts count, low power and consumption and high reliability. Temperature scale selection (°F or °C) is easily accomplished. The panel mount instruments may be calibrated in place without removal from the panel.

Superior conformity to NBS curves is achieved with 48 straight line segments which have been computer-optimized for best possible curve fit for each thermocouple type. All models feature a high intensity LED display. Open thermocouple indication is provided by a blinking display on all models.



Panel-mount modules in a standard 19-inch rack panel

Thermometer Buyer's Guide

Features	2160A	2165A	2166A	2168A	2170A	2175A	2176A
Portable or panel mount	Panel	Portable	Portable	Portable	Panel	Portable	Portable
Resolution, °C or °F	1°	1°	1°	1°	0.2°	0.2°	0.2°
Temperature range	-328 to 3999°F or -200 to 2320°C				-99.8 to 999.8°F or -99.8 to 999.8°C		
Thermocouple types*	J, K, T, E, R, S, B, C*				J, K, T, E*		
Switch-Selectable types	1	1	1	8	1	1	1
Selectable points	1	1	10	1	1	1	10

**Specify Thermocouple type when ordering. However, conversion kits are available.*

2165A Single Point Thermometer $520
Front panel selection of °C or °F, 1 degree resolution.

2175A Single-Point Thermometer $610
Resolution is 0.2 degrees.

2166A Multi-Point Thermometer $615
Like the 2165A except 10-position front panel rotary switch lets you monitor up to ten thermocouples of the same type. Power is either ac line voltage or external 12V dc.

2176A Multi-Point Thermometer $725
Like the 2166A except resolution is 0.2 degrees.

2168A Multi-Type Thermometer $735
8-position front panel rotary switch lets you select circuit linearization for either a J, K, T, E, R, S, B, or C type thermocouple.

2160A Panel Thermometer $420
Readout of °C or °F is selectable with internal jumper. Panel size is 48 mm by 96 mm, conforming to DIN Standard. Resolution is 1 degree.

2170A Panel Thermometer $455
Like 2160A but resolution is 0.2 degrees.

2161A Panel Multi-Point Selector $180
Rotary switch for use with 2160A or 2170A. Selects any one of ten thermocouples of the same type. An eleventh switch position permits cascading 2161A units. Panel size is same as 2160A.

2162A Panel Limit Comparator $335
Digital comparator compatible with 2160A or 2170A. six thumbwheel switches select high or low limit, polarity, and four limit digits. Out-of-limit reading causes visual indication and alarm contact closure. Units may be cascaded for setting dual limits.

2165A-01 Battery Pack Option $80
For 2165A or 2175A. Mounts inside. Rechargeable, eight hours of operation.

2160A-02 Digital Output Option $150
For 2165A, 2175A, 2160A, or 2170A. Provides parallel BCD data equivalent to displayed measurement data. Field installable but not compatible with Option -04.

2160A-04 Analog Output Option $205
For 2165A, 2175A, 2160A, or 2170A. Provides output voltage proportional to displayed data. For chart recorders, etc. Field installable but not compatible with Option -02.

Accessory J, K, T, and E type thermocouple probes are available with INCONEL shields for immersion measurements.

P20E Probe $50
P20J Probe 50
P20K Probe 50
P20T Probe 50

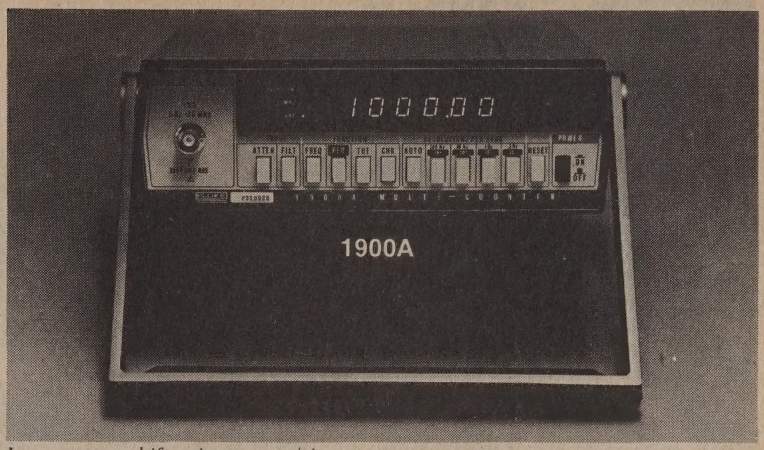
Rackmount hardware and carrying cases are also available.

DIGITAL COUNTERS

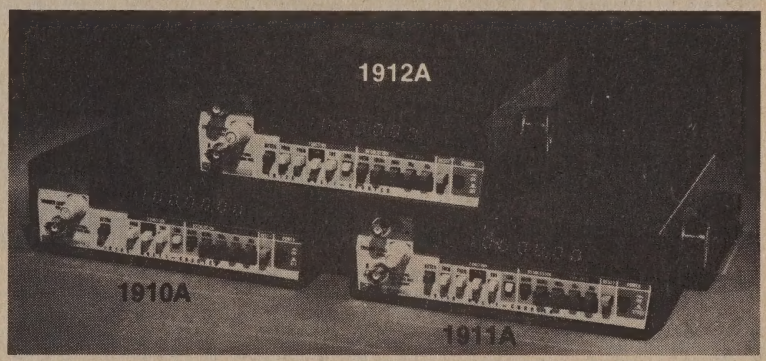
FLUKE®

Fluke's versatile 1900-Series Multifunction Counters provide frequency, period, and totalize measurements over a wide range of applications. In the frequency mode, they verify the accuracy of signal sources such as generators, oscillators, and transmitters. Period mode measures the time duration of single input cycles, which allows fast, high resolution of low frequency measurements. In period average mode, the counter averages cycle time over 10, 100, or 1000 cycles for still finer resolution. Totalize mode is similar to frequency mode except the signal gate is opened and closed deliberately, a feature useful for totalizing the cycles in a single rf burst or counting relay contact bounce, for example.

At high frequencies, where erratic triggering is most apt to cause erroneous measurements, the 1911A and 1912A 50 ohm input channels have "automatic clean drop out" — the reading goes to zero instead of being intermittant. All models are available with an internal rechargeable battery providing at least 4 hours of operating time. Recharge time is 16 hours.



Lowest cost multifunction counter/timer



Wide, wider, and widest of the wide-band counters

Sensitivity: 25 mV rms on 1900A, 15 mV rms on 1910A, 1911A, 1912A, at 50 mHz.
Impedance: 1 MΩ shunted by 30 pF. Additional 50Ω input on 1911A and 1912A
Frequency Resolution: Four manually-selected gate times provide resolution of 100 Hz to 0.1 Hz in decade steps
Period: 5 Hz to 1 MHz. Period-average mode provides resolution of 100 ns to 100 ps
Timebase Aging: $\pm 5 \times 10^{-7}$ per month
Temperature Stability: ±5 ppm, 0°C to 50°C
Display: LED, leading zero suppression, annunciation, and overflow
Autoranging: Automatically changes range seeking to fill all digits. 20% hysteresis allows measurements to be made on signals containing large amounts of FM and PM
Autoreset: Every time a front panel button is activated
Data Output Option (-02): Seven digits of BCD data with overflow, decimal point and units information

Models

1900A 80 MHz Counter	$395
1900A-01 with battery	445
1900A-02 with data output	465
1910A 125 MHz Counter	475
1910A-01 with battery	595
1911A 250 MHz Counter	575
1911A-01 with battery	695
1912A 520 MHz Counter	725
1912A-01 with battery	835

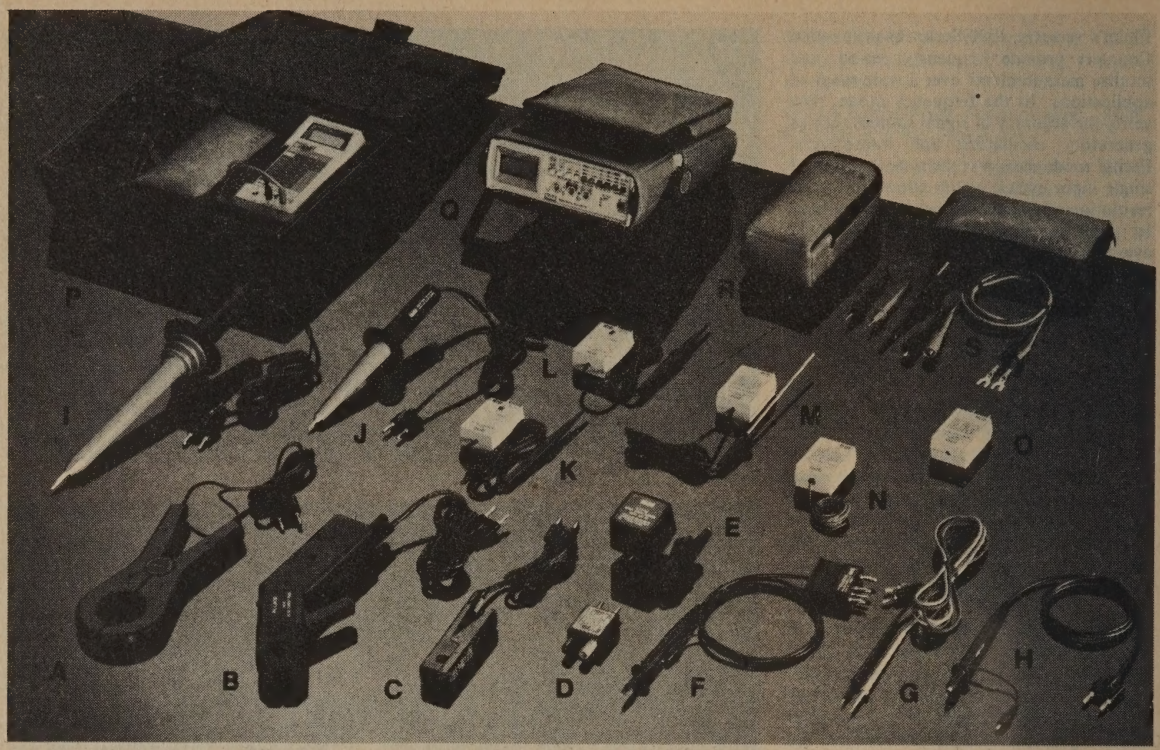
Options (for 1910A, 1911A, 1912A)

1910A-02 Data output	$35
1910A-03 2 ppm TCXO	165
1910A-04 0.5 ppm TCXO	275

Counter Buyer's Guide

Features	1900A	1910A	1911A	1912A
Number of Digits	6	7	7	7
Frequency (MHz)	80	125	250	520
Period & Period Average	•	•	•	•
Totalize	•	•	•	•
Ratio (w/ext. timebase)		•	•	•
Sensitivity (mV rms 50 MHz)	25	15	15	15
Trigger Level Control		•	•	•
Automatic Clean Dropout			•	•
External Timebase Input		•	•	•
Battery Option	•	•	•	•
TCXO Options		•	•	•
Digital Output Option	•	•	•	•
Autoreset	•	•	•	•
Autorange or Manual	•	•	•	•

FLUKE® DMM & COUNTER ACCESSORIES



(A) 80I-600 Current Transformer $95
Measure ac current from 1A to 600A. Clamps over conductors up to 2 inches in diameter. Accuracy is ±3% from 30 Hz to 1 kHz. 5 kV breakdown rating.

(B) Y8100 DC/AC Current Probe $199
Battery-powered Hall-effect clamp-on probe with switch-selectable 200A or 20A current range, produces 2V full range output. For conductors up to 0.75 inches in diameter. Accuracy is ±2% of range from dc to 200 Hz.

(C) Y8101 Current Transformer $75
Measure ac current from 2A to 150A. Clamps over conductors up to 7/16 inches in diameter. Accuracy is ±2% of reading over 48 Hz to 10 kHz range for 10A to 150A currents.

(D) 80J-10 20A Current Shunt $30
Precision 0.01Ω current shunt will pass 10A continuously, 20A for one minute. Accuracy is ±0.25% from dc to 10 kHz.

(E) A81 Battery Eliminator $20
Lets you operate the 8020B, 8021B, 8022B, or 8024B without a battery. Included with 8030A-01 and 8040-01 for line operation and recharging battery. Available for 100, 115, 230V ac operation.

(F) 80T-H Touch-Hold Probe $45
For use with the Fluke 8010A, 8012A, or 8050A. For measuring voltage or resistance in hazardous, or hard-to-reach places. Touch a button on the probe to hold any reading.

(G) Y8140 Test Leads $18
Slim grips with retractable needlepoint tips.

(H) 83RF High Frequency Probe $49
dc output for high frequency ac voltage inputs from 0.25 to 30V rms. Frequency response is ±1.0 dB, 100 kHz to 100 MHz. Accuracy is ±1.0 dB above 1V input, ±1.5 dB below 1V input.

85RF High Frequency Probe $85
dc output for high frequency ac voltage inputs from 0.25 to 30V rms. Frequency response is ±0.5 dB from 100 kHz-100 MHz, ±1.0 dB from 100 MHz-200 MHz, and ±3.0 dB from 200 MHz-500 MHz. Accuracy is ±0.5 dB for inputs ≥0.5V, ±1.0 dB for inputs <0.5V. Not shown. Looks the same as 83RF.

(I) 80K-40 High Voltage Probe $80
Measure up to 40 kV dc or 28 kV rms ac. Has 1000 MΩ input resistance. Dc accuracy is ±2% for the 20 kV to 30 kV range and decreases linearly to ±4% at 1 kV and 40 kV. Accuracy is ±5% at 60 Hz.

(J) 80K-6 High Voltage Probe $45
Extends voltage-measurement capabilities of an ac/dc voltmeter to 6000V dc or peak ac. Accuracy is ±1.0%, dc to 500 Hz, and ±2.0%, 500 Hz to 1 kHz.

(K) 80T-150C Temp Probe $120
Measure surface temperatures from -50°C to +150°C. Provides direct temperature conversion of 1 mV per degree. Resolution is 0.1°C. Withstands 350V dc or peak ac. Basic accuracy is ±2°C from -25°C to +125°C.

(L) 80T-150F Temp Probe $120
Same as 80T-150C except for Fahrenheit.

(M) Y8102 Thermocouple Probe $60
Especially designed for immersion measurements. Has Inconel shield surrounding the thermocouple bead. Temperature range is 0°C to 926°C. Accuracy is ±2.2°C from -20°C to 276°C and ±0.75% of reading from 276°C to 926°C. For 8024B.

(N) Y8103 Bead Thermocouple $25
Like Y8104 attached to four-foot length of Teflon-insulated type K thermocouple wire with bead end. Fast response. Accuracy is ±2.2°C from -17.8°C to +260°C. For 8024B.

(O) Y8104 Thermocouple Term $10
For 8024B. Isothermal block and screw terminals for type K thermocouple wire.

(P) Y8105 Ruggedized Case $20
Provides maximum protection against rough handling and bad weather. For Fluke Handheld DMM's.

C86 Ruggedized Case $20
Not shown. Same as Y8105. For 8010A, 8012A and 8050A.

(Q) Y8205 Zippered Case $35
For 8000A, 8010A, 8012A, or 8050A. Has shoulder strap and pouch.

(R) C90 Zippered Case $10
Fabric-backed vinyl. Inside pocket holds test leads, operator's instruction card, etc. Loop handle also fits over belt. For 8020B, 8021B, 8022B and 8024B.

(S) Y8134 Safety Test Leads $20
Interchangeable tips. Alligator clips, spade lugs, and retractable hook tip as well as standard pointed tips. Banana plugs have insulating shield. Fit new handheld DMM's and 8050A. Includes pouch.

Y8133 Universal Test Leads $20
Like Y8134 except banana plugs don't have insulating shield. Not shown.

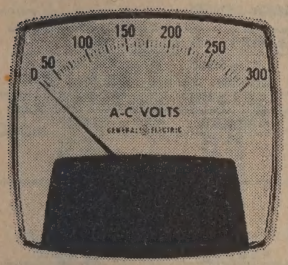
A53 Antenna $25
Telescopic antenna with BNC connector for electronic counters. Not shown.

Y7201 Attenuator/Filter $60
5X to 100X attenuator and switchable low pass filter, for counters. Not shown.

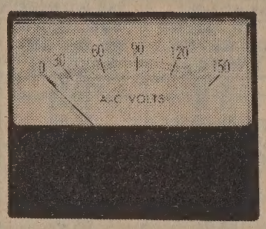
PRICES LISTED ARE FOR GUIDANCE ONLY

GENERAL ELECTRIC Panel Meters

SERIES 250 AND 251 AC PANEL METERS



250 BIG LOOK®



251 HORIZON LINE®

Handsome, easy-to-read meters in two styles for all panel and control applications. All meters meet ANSI specifications C-39.1. **Accuracy:** AC iron vane type, ±2% FS; AC rectifier type, ±3% FS; expanded scale voltmeters, ±0.5% of mid-span. **Overload:** AC voltmeters, 20% momentary and sustained; AC ammeters (momentary), 10 times the rated current for 10 consecutive intervals of ½ sec with one minute interval between successive applications; AC ammeters (sustained), 20% for 8 hours. **Scale Data:** 90° rotation. **Insulation Level:** 2600 V rms hi-pot. **Burden Data:** AC ammeters, 5 amps, 0.5 VA, 0.5 power factor lagging; AC voltmeters, unity power factor. **Response Time:** 2.5 seconds max. **Damping:** 40% max. overshoot with 2.5 minimum damping factor.

Size	250 BIG LOOK® Scale Length	251 HORIZON LINE® Scale Length
1½″	1.32″	1.50″
2½″	2.06″	2.06″
3½″	2.88″	2.88″
4½″	3.93″	3.93″

AC VOLTMETERS—SELF-CONTAINED, IRON VANE TYPE, PIVOT AND JEWEL

Scale Volts	Term. Resis., Ohms	§ Add Suffix	250 BIG LOOK Net Each, Lots of 1-9			251 HORIZON LINE Net Each, Lots of 1-9		
			2½-inch GE No. 50-250244§	3½-inch GE No. 50-250344§	4½-inch GE No. 50-250444§	2½-inch GE No. 50-251244§	3½-inch GE No. 50-251344§	4½-inch GE No. 50-251444§
3	11.1	LJLJ	$31.60	$32.80	$37.00	$31.60	$32.80	$37.00
5	29	LSLS	31.60	32.80	37.00	31.60	32.80	37.00
10	110	MTMT	31.60	32.80	37.00	31.60	32.80	37.00
15	251	NDND	31.60	32.80	37.00	31.60	32.80	37.00
30	779	NLNL	31.60	32.80	37.00	31.60	32.80	37.00
50	2500	NTNT	32.80	34.50	38.20	32.80	34.50	38.20
150	15000	PZPZ	34.50	37.30	41.10	34.50	37.30	41.10
300	70260	RXRX	38.30	40.10	43.70	38.30	40.10	43.70
500	117260	SFSF	.....	50.10	53.40	.....	50.10	53.40
600	140000	SJSJ	.....	50.10	53.40	.....	50.10	53.40

AC MICROAMMETERS AND MILLIAMMETERS—RECTIFIER TYPE, TAUT BAND, ±3% ACCURACY

Scale	Term. Resis., Ohms	§ Add Suffix	250 BIG LOOK Net Each, Lots of 1-9				251 HORIZON LINE Net Each, Lots of 1-9			
			1½-inch GE No. 50-250110§	2½-inch GE No. 50-250210§	3½-inch GE No. 50-250310§	4½-inch GE No. 50-250410§	1½-inch GE No. 50-251110§	2½-inch GE No. 50-251210§	3½-inch GE No. 50-251310§	4½-inch GE No. 50-251410§
500 μA	850	EMEM	$45.10	$45.10	$46.90	$50.30	$45.10	$45.10	$46.90	$50.30
800 μA	620	EWEW	45.10	45.10	46.90	50.30	45.10	45.10	46.90	50.30
1 mA	555	FAFA	45.10	45.10	46.90	50.30	45.10	45.10	46.90	50.30
1.5 mA	344	FDFD	45.10	45.10	46.90	50.30	45.10	45.10	46.90	50.30
2 mA	294	FGFG	45.10	45.10	46.90	50.30	45.10	45.10	46.90	50.30
3 mA	212	FNFN	45.10	45.10	46.90	50.30	45.10	45.10	46.90	50.30
5 mA	148	FXFX	45.10	45.10	46.90	50.30	45.10	45.10	46.90	50.30
10 mA	91	GZGZ	45.10	45.10	46.90	50.30	45.10	45.10	46.90	50.30
20 mA	63	HFHF	45.10	45.10	46.90	50.30	45.10	45.10	46.90	50.30

AC MILLIAMMETERS—SELF-CONTAINED, PIVOT AND JEWEL, 25-400 Hz

Scale mA	Term. Resis., Ohms	§ Add Suffix	250 BIG LOOK Net Each, Lots of 1-9			251 HORIZON LINE Net Each, Lots of 1-9		
			2½-inch GE No. 50-250240§	3½-inch GE No. 50-250340§	4½-inch GE No. 50-250440§	2½-inch GE No. 50-251240§	3½-inch GE No. 50-251340§	4½-inch GE No. 50-251440§
10	2158	GZGZ	$32.80	$34.50	$38.20	$32.80	$34.50	$38.20
25	341	HJHJ	32.80	34.50	38.20	32.80	34.50	38.20
50	84	HYHY	32.80	34.50	38.20	32.80	34.50	38.20
100	21	JRJR	32.80	34.50	38.20	32.80	34.50	38.20
200	4.1	KAKA	32.80	34.50	38.20	32.80	34.50	38.20
500	0.7	KMKM	32.80	34.50	38.20	32.80	34.50	38.20

AC AMMETERS—SELF-CONTAINED, PIVOT AND JEWEL, 25-400 Hz

Scale Amps	Term. Resis., Ohms	§ Add Suffix	250 BIG LOOK Net Each, Lots of 1-9			251 HORIZON LINE Net Each, Lots of 1-9		
			2½-inch GE No. 50-250240§	3½-inch GE No. 50-250340§	4½-inch GE No. 50-250440§	2½-inch GE No. 50-251240§	3½-inch GE No. 50-251340§	4½-inch GE No. 50-251440§
1	0.16	LALA	$32.80	$34.50	$38.20	$32.80	$34.10	$38.20
3	0.015	LJLJ	32.80	34.50	38.20	32.80	34.10	38.20
5	0.007	LSLS	32.80	34.50	38.20	32.80	34.10	38.20
8	0.003	MJMJ	32.80	34.50	38.20	32.80	34.10	38.20
10	0.0024	MTMT	32.80	34.50	38.20	32.80	34.10	38.20
15	0.0016	NDND	32.80	34.50	38.20	32.80	34.10	38.20
20	0.001	NGNG†	34.50	34.50	41.10	34.50	37.30	41.10
30	0.0006	NLNL†	34.50	34.50	41.10	34.50	37.30	41.10
50#	0.0004	NTNT†	.....	40.10	43.70	.....	40.10	43.70
80#	0.0004	PDPD†	.....	45.70	49.60	.....	45.70	49.60

†With external magnetic shield on meter base. §**When ordering show complete number;** example: **50-250244 LJLJ** for 250 BIG LOOK 2½″ AC voltmeter, pivot and jewel iron vane type. #Without sealed terminal studs.

Contact us for availability of additional ratings.

CURRENT PRICES WILL APPLY ON ALL LINES

SERIES 250 AND 251 AC PANEL METERS (CONT'D)

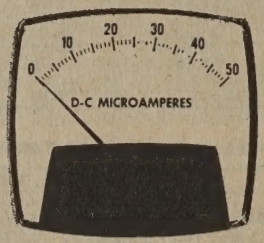
AC AMMETERS—TRANSFORMER-RATED, 0-5 AMPS, 25-400 Hz, PIVOT AND JEWEL

Scale Amps	Term. Resis., Ohms	§ Add Suffix	250 BIG LOOK® Net Each, Lots of 1-9			251 HORIZON LINE® Net Each, Lots of 1-9		
			2½-inch GE No. 50-250240§	3½-inch GE No. 50-250340§	4½-inch GE No. 50-250440§	2½-inch GE No. 50-251240§	3½-inch GE No. 50-251340§	4½-inch GE No. 50-251440§
10	0.007	LSMT	$32.80	$34.50	$38.20	$32.80	$34.50	$38.20
15	0.007	LSND	32.80	34.50	38.20	32.80	34.50	38.20
20	0.007	LSNG	32.80	34.50	38.20	32.80	34.50	38.20
30	0.007	LSNL	32.80	34.50	38.20	32.80	34.50	38.20
40	0.007	LSNP	32.80	34.50	38.20	32.80	34.50	38.20
50	0.007	LSNT	32.80	34.50	38.20	32.80	34.50	38.20
75	0.007	LSPB	32.80	34.50	38.20	32.80	34.50	38.20
80	0.007	LSPD	32.80	34.50	38.20	32.80	34.50	38.20
100	0.007	LSPK	32.80	34.50	38.20	32.80	34.50	38.20
150	0.007	LSPZ	32.80	34.50	38.20	32.80	34.50	38.20
200	0.007	LSRL	32.80	34.50	38.20	32.80	34.50	38.20
300	0.007	LSRX	32.80	34.50	38.20	32.80	34.50	38.20
400	0.007	LSSC	32.80	34.50	38.20	32.80	34.50	38.20
500	0.007	LSSF	32.80	34.50	38.20	32.80	34.50	38.20
600	0.007	LSSJ	32.80	34.50	38.20	32.80	34.50	38.20
800	0.007	LSSN	32.80	34.50	38.20	32.80	34.50	38.20
1.0 kA	0.007	LSVA	32.80	34.50	38.20	32.80	34.50	38.20
1.2 kA	0.007	LSVB	32.80	34.50	38.20	32.80	34.50	38.20
1.5 kA	0.007	LSVC	32.80	34.50	38.20	32.80	34.50	38.20
2.0 kA	0.007	LSVE	32.80	34.50	38.20	32.80	34.50	38.20
3.0 kA	0.007	LSVJ	32.80	34.50	38.20	32.80	34.50	38.20

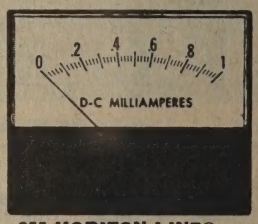
SERIES 254 AND 255 DC PANEL METERS—PIVOT AND JEWEL

Pivot and jewel DC panel meters available in two different styles. All meters meet ANSI Specifications C-39.1. **Accuracy:** ±2% of full scale. **Overload:** DC voltmeters, 20% momentary and sustained; DC ammeters (momentary), 10 times the rated current for 10 consecutive intervals of ½ second with one minute interval between successive applications; DC ammeters (sustained), 20% for 8 hours. **Scale Data:** 90° rotation. **Insulation Level:** 2600 V rms hi-pot. **Response Time:** 3 seconds maximum for microammeters; 2 seconds maximum for all other DC ratings. **Damping:** 40% maximum overshoot with minimum factor of 2.5.

Size	254 BIG LOOK Scale Length	255 HORIZON LINE Scale Length
2½"	2.06"	2.06"
3½"	2.88"	2.88"
4½"	3.93"	3.93"



254 BIG LOOK®



255 HORIZON LINE®

DC VOLTMETERS—ZERO-LEFT

Scale Volts	Term. Resis., Ohms	§ Add Suffix	254 BIG LOOK Net Each, Lots of 1-9			255 HORIZON LINE Net Each, Lots of 1-9		
			2½-inch GE No. 50-254220§	3½-inch GE No. 50-254320§	4½-inch GE No. 50-254420§	2½-inch GE No. 50-255220§	3½-inch GE No. 50-255320§	4½-inch GE No. 50-255420§
1	1000 Ohms per Volt	LALA	$36.20	$39.20	$40.20	$36.20	$39.20	$40.20
3		LJLJ	36.20	39.20	40.20	36.20	39.20	40.20
10		MTMT	36.20	39.20	40.20	36.20	39.20	40.20
30		NLNL	36.20	39.20	40.20	36.20	39.20	40.20
50		NTNT	36.20	39.20	40.20	36.20	39.20	40.20
100		PKPK	36.20	39.20	43.20	36.20	39.20	43.20
150		PZPZ	36.20	39.20	43.20	36.20	39.20	43.20
300		RXRX	39.20	40.70	44.50	39.20	40.70	44.50

DC VOLTMETERS—ZERO-LEFT, RATED 0-1 mADC, USE WITH EXTERNAL RESISTORS

Scale Volts	Term. Resis., Ohms	§ Add Suffix	254 BIG LOOK Net Each, Lots of 1-9			255 HORIZON LINE Net Each, Lots of 1-9		
			2½-inch GE No. 50-254204§	3½-inch GE No. 50-254304§	4½-inch GE No. 50-254404§	2½-inch GE No. 50-255204§	3½-inch GE No. 50-255304§	4½-inch GE No. 50-255404§
500	125	FASF	$34.70	.....	.....	$34.70	.....	.....
600	125	FASJ	34.70	.....	.....	34.70	.....	.....
750	125	FASM	34.70	$36.20	$38.80	34.70	$36.20	$38.80

DC MICROAMMETERS—ZERO-LEFT

Scale μA	Term. Resis., Ohms	§ Add Suffix	254 BIG LOOK Net Each, Lots of 1-9			255 HORIZON LINE Net Each, Lots of 1-9		
			2½-inch GE No. 50-254200§	3½-inch GE No. 50 254300§	4½-inch GE No. 50-254400§	2½-inch GE No. 50-255200§	3½-inch GE No. 50-255300§	4½-inch GE No. 50-255400§
20	3400	CFCF	$61.70	$63.20	.....	$61.70	$63.20	.....
50	1600	CYCY	47.00	51.00	$54.40	47.00	51.00	$54.40
100	1525	DRDR	40.70	42.10	46.10	40.70	42.10	46.10
200	690	EAEA	36.20	39.20	40.20	36.20	39.20	40.20
500	220	EMEM	34.70	36.20	38.80	34.70	36.20	38.80

§When ordering show complete number; example: **50-254200 CFCF** for 254 BIG LOOK 2½" type, zero-left DC microammeter with 0–20 μA scale.

Contact us for availability of additional ratings.

PRICES LISTED ARE FOR GUIDANCE ONLY

SERIES 254 AND 255 DC PANEL METERS (CONT'D)

DC MICROAMMETERS—ZERO-CENTER

Scale μA	Term. Resis., Ohms	§ Add Suffix	254 BIG LOOK® Net Each, Lots of 1-9			255 HORIZON LINE® Net Each, Lots of 1-9		
			2½-inch GE No. 50-254201§	3½-inch GE No. 50-254301§	4½-inch GE No. 50-254401§	2½-inch GE No. 50-255201§	3½-inch GE No. 50-255301§	4½-inch GE No. 50-255401§
20–0–20	3300	CFCF	$54.00	$57.00	.....	$54.00	$57.00	.....
100–0–100	690	DRDR	36.20	39.20	$40.20	36.20	39.20	$40.20

DC MILLIAMMETERS—ZERO-LEFT

Scale mA	Term. Resis., Ohms	§ Add Suffix	254 BIG LOOK Net Each, Lots of 1-9			255 HORIZON LINE Net Each, Lots of 1-9		
			2½-inch GE No. 50-254200§	3½-inch GE No. 50-254300§	4½-inch GE No. 50-254400§	2½-inch GE No. 50-255200§	3½-inch GE No. 50-255300§	4½-inch GE No. 50-255400§
1	64	FAFA	$34.70	$36.20	$38.80	$34.70	$36.20	$38.80
3	2.5	FNFN	34.70	36.20	38.80	34.70	36.20	38.80
10	1.8	GZGZ	34.70	36.20	38.80	34.70	36.20	38.80
20	1.5	HFHF	34.70	36.20	38.80	34.70	36.20	38.80
50	1.9	HYHY	34.70	36.20	38.80	34.70	36.20	38.80
100	0.50	JRJR	34.70	36.20	38.80	34.70	36.20	38.80
150	0.33	JXJX	34.70	36.20	38.80	34.70	36.20	38.80
200	0.25	KAKA	34.70	36.20	38.80	34.70	36.20	38.80
300	0.167	KGKG	34.70	36.20	38.80	34.70	36.20	38.80
500	0.100	KMKM	34.70	36.20	38.80	34.70	36.20	38.80
800	0.062	KWKW	34.70	36.20	38.80	34.70	36.20	38.80

DC AMMETERS—ZERO-LEFT

Scale Amps	Term. Resis., Ohms	§ Add Suffix	254 BIG LOOK Net Each, Lots of 1-9			255 HORIZON LINE Net Each, Lots of 1-9		
			2½-inch GE No. 50-254200§	3½-inch GE No. 50-254300§	4½-inch GE No. 50-254400§	2½-inch GE No. 50-255200§	3½-inch GE No. 50-255300§	4½-inch GE No. 50-255400§
1	0.05	LALA	$35.30	$36.60	$39.60	$35.30	$36.60	$39.60
1.5	0.0333	LCLC	35.30	36.60	39.60	35.50	36.60	39.60
3	0.0167	LJLJ	35.30	36.60	39.60	35.30	36.60	39.60
5	0.01	LSLS	35.30	36.60	39.60	35.30	36.60	39.60
10	0.005	MTMT	35.30	36.60	39.60	35.30	36.60	39.60
20	0.0025	NGNG	35.30	36.60	39.60	35.30	36.60	39.60
50	0.001	NTNT	.....	36.60	39.60	.....	36.60	39.60

DC AMMETERS—ZERO-LEFT, 50 mV SHUNT-RATED

Scale Amps	Term. Resis., Ohms	§ Add Suffix	254 BIG LOOK Net Each, Lots of 1-9			255 HORIZON LINE Net Each, Lots of 1-9		
			2½-inch GE No. 50-254224§	3½-inch GE No. 50-254324§	4½-inch GE No. 50-254424§	2½-inch GE No. 50-255224§	3½-inch GE No. 50-255324§	4½-inch GE No. 50-255424§
20	12.5 Ohms Calibrated*	ECNG	$35.30	$36.60	$39.60	$35.30	$36.60	$39.60
50		ECNT	35.30	36.60	39.60	35.30	36.60	39.60
75		ECPB	35.30	36.60	39.60	35.60	36.60	39.60
100		ECPK	35.30	36.60	39.60	35.30	36.60	39.60
150		ECPZ	35.30	36.60	39.60	35.30	36.60	39.60
300		ECRX	35.30	36.60	39.60	35.30	36.60	39.60
400		ECSC	35.30	36.60	39.60	35.30	36.60	39.60
500		ECSF	35.30	36.60	39.60	35.30	36.60	39.60
600		ECSJ	35.30	36.60	39.60	35.30	36.60	39.60
1.0 kA		ECVA	35.30	36.60	39.60	35.30	36.60	39.60
1.5 kA		ECVC	35.30	36.60	39.60	35.30	36.60	39.60
2.0 kA		ECVE	35.30	36.60	39.60	35.30	36.60	39.60

DC AMMETERS—ZERO-LEFT, 100 mV, SHUNT-RATED

Scale Amps	Term. Resis., Ohms	§ Add Suffix	254 BIG LOOK Net Each, Lots of 1-9			255 HORIZON LINE Net Each, Lots of 1-9		
			2½-inch GE No. 50-254224§	3½-inch GE No. 50-254324§	4½-inch GE No. 50-254424§	2½-inch GE No. 50-255224§	3½-inch GE No. 50-255324§	4½-inch GE No. 50-255424§
20	25 Ohms Calibrated*	GBNG	$36.00	$36.60	.....	$36.00	$36.60	.....
50		GBNT	36.00	36.60	$39.60	36.00	36.60	$39.60
75		GBPB	36.00	36.60	39.60	36.00	36.60	39.60
100		GBPK	36.00	36.60	39.60	36.00	36.60	39.60
150		GBPZ	36.00	36.60	39.60	36.00	36.60	39.60
300		GBRX	36.00	36.60	39.60	36.00	36.60	39.60
400		GBSC	36.00	36.60	39.60	36.00	36.60	39.60
500		GBSF	36.00	36.60	39.60	36.00	36.60	39.60
600		GBSJ	36.00	36.60	39.60	36.00	36.60	39.60
1.0 kA		GBVA	36.00	36.60	39.60	36.00	36.60	39.60
2.0 kA		GBVE	36.00	36.60	39.60	36.00	36.60	39.60

DC AMMETERS—ZERO-CENTER

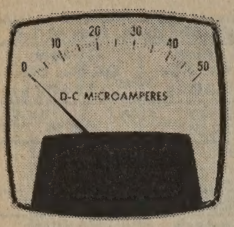
Scale Amps	Term. Resis., Ohms	§ Add Suffix	254 BIG LOOK Net Each, Lots of 1-9			255 HORIZON LINE Net Each, Lots of 1-9		
			2½-inch GE No. 50-254201§	3½-inch GE No. 50-254301§	4½-inch GE No. 50-254401§	2½-inch GE No. 50-255201§	3½-inch GE No. 50-255301§	4½-inch GE No. 50-255401§
1–0–1	0.05	LALA	$35.30	$36.60	$39.60	$35.30	$36.60	$39.60
5–0–5	0.01	LSLS	35.30	36.60	39.60	35.30	36.60	39.60
10–0–10	0.005	MTMT	35.30	36.60	39.60	35.30	36.60	39.60
15–0–15	0.0033	NDND	35.30	36.60	39.60	35.30	36.60	39.60

*For use with two-way shunt lead resistance of 0.065 ohms. §**When ordering show complete number**; example: **50-254224 GBNG** for 254 BIG LOOK 2½" type, zero-left DC ammeter (100 mV shunt-rated) with 0–20 amps scale rating.

Contact us for availability of additional ratings.

GENERAL ELECTRIC Panel Meters

SERIES 250 AND 251 DC PANEL METERS—TAUT BAND



250 BIG LOOK®

251 HORIZON LINE®

Easy-to-read DC panel meters in two styles for all panel and control applications. All DC meters have self-shielded movement with taut-band suspension. All meters meet ANSI Specifications C-39.1. **Accuracy:** ±2% of full scale. **Overload:** DC Voltmeters, 20% momentary and sustained; AC ammeters (momentary), 10 times the rated current for 10 consecutive intervals of ½ second with one minute interval between successive applications; AC ammeters (sustained), 20% for 8 hours. **Scale Data:** 90° rotation. **Insulation Level:** 2600 V rms hi-pot. **Response Time:** 3 seconds maximum for microammeters; 2 seconds maximum for other DC ratings. **Damping:** 40% maximum overshoot with minimum damping factor of 2.5.

Size	250 BIG LOOK® Scale Length	251 HORIZON LINE® Scale Length
1½″	1.32″	1.50″
2½″	2.06″	2.06″
3½″	2.88″	2.88″
4½″	3.93″	3.93″

DC VOLTMETERS—ZERO-LEFT, TAUT BAND

Scale Volts	Term. Resis., Ohms	§ Add Suffix	250 BIG LOOK Net Each, Lots of 1-9				251 HORIZON LINE Net Each, Lots of 1-9			
			1½-inch GE No. 50-250120§	2½-inch GE No. 50-250220§	3½-inch GE No. 50-250320§	4½-inch GE No. 50-250420§	1½-inch GE No. 50-251120§	2½-inch GE No. 50-251220§	3½-inch GE No. 50-251320§	4½-inch GE No. 50-251420§
1.0		LALA	$36.20	$36.20	$39.20	$40.20	$36.20	$36.20	$39.20	$40.20
3		LJLJ	36.20	36.20	39.20	40.20	36.20	36.20	39.20	40.20
10		MTMT	36.20	36.20	39.20	40.20	36.20	36.20	39.20	40.20
30	1000	NLNL	36.20	36.20	39.20	40.20	36.20	36.20	39.20	40.20
50	Ohms/	NTNT	36.20	36.20	39.20	40.20	36.20	36.20	39.20	40.20
100	Volt	PKPK	36.20	36.20	39.20	43.20	36.20	36.20	39.20	43.20
150		PZPZ	36.20	36.20	39.20	43.20	36.20	36.20	39.20	43.20
300		RXRX	39.20	39.20	40.70	44.50	39.20	39.20	40.70	44.50

DC VOLTMETERS—ZERO-LEFT, RATED 0-1 mADC, USE WITH EXTERNAL RESISTOR, TAUT BAND

Scale Volts	Term. Resis., Ohms	§ Add Suffix	250 BIG LOOK Net Each, Lots of 1-9				251 HORIZON LINE Net Each, Lots of 1-9			
			1½-inch GE No. 50-250104§	2½-inch GE No. 50-250204§	3½-inch GE No. 50-250304§	4½-inch GE No. 50-250404§	1½-inch GE No. 50-251104§	2½-inch GE No. 50-251204§	3½-inch GE No. 50-251304§	4½-inch GE No. 50-251404§
500	49	FASF	$34.70	$34.70	.....	.....	$34.70	.....	.....	.....
600	49	FASJ	34.70	34.70	.....	.....	34.70	$34.70	.....	.....
750	49	FASM	34.70	34.70	$36.20	$38.80	34.70	34.70	$36.20	$38.80

DC MICROAMMETERS—ZERO-LEFT, TAUT BAND

Scale μA	Term. Resis., Ohms	§ Add Suffix	250 BIG LOOK Net Each, Lots of 1-9				251 HORIZON LINE Net Each, Lots of 1-9			
			1½-inch GE No. 50-250100§	2½-inch GE No. 50-250200§	3½-inch GE No. 50-250300§	4½-inch GE No. 50-250400§	1½-inch GE No. 50-251100§	2½-inch GE No. 50-251200§	3½-inch GE No. 50-251300§	4½-inch GE No. 50-251400§
20	2650	CFCF	$68.90	$61.70	$63.20	.....	$68.90	$61.70	$63.20	.....
50	2385	CYCY	48.10	47.00	51.00	$54.40	48.10	48.10	51.00	$54.40
100	600	DRDR	40.70	40.70	42.10	46.10	40.70	40.70	42.10	46.10
200	188	EAEA	36.20	36.20	39.20	40.20	36.20	36.20	39.20	43.20
500	185	EMEM	34.70	34.70	36.20	38.80	34.70	34.70	36.20	38.80

DC MICROAMMETERS—ZERO-CENTER, TAUT BAND

Scale μA	Term. Resis., Ohms	§ Add Suffix	250 BIG LOOK Net Each, Lots of 1-9				251 HORIZON LINE Net Each, Lots of 1-9			
			1½-inch GE No. 50-250101§	2½-inch GE No. 50-250201§	3½-inch GE No. 50-250301§	4½-inch GE No. 50-250401§	1½-inch GE No. 50-251101§	2½-inch GE No. 50-251201§	3½-inch GE No. 50-251301§	4½-inch GE No. 50-251401§
20–0–20	1340	CFCF	$54.00	$54.00	$57.00	.....	$54.00	$54.00	$57.00	.....
100–0–100	188	DRDR	36.20	36.20	39.20	$40.20	36.20	36.20	39.20	$40.20

DC MILLIAMMETERS—ZERO-LEFT, TAUT BAND

Scale mA	Term. Resis., Ohms	§ Add Suffix	250 BIG LOOK Net Each, Lots of 1-9				251 HORIZON LINE Net Each, Lots of 1-9			
			1½-inch GE No. 50-250100§	2½-inch GE No. 50-250200§	3½-inch GE No. 50-250300§	4½-inch GE No. 50-250400§	1½-inch GE No. 50-251100§	2½-inch GE No. 50-251200§	3½-inch GE No. 50-251300§	4½-inch GE No. 50-251400§
1	49	FAFA	$34.70	$34.70	$36.20	$38.80	$34.70	$34.70	$36.20	$38.80
3	18	FNFN	34.70	34.70	36.20	38.80	34.70	34.70	36.20	38.80
10	3.2	GZGZ	34.70	34.70	36.20	38.80	34.70	34.70	36.20	38.80
20	2.8	HFHF	34.70	34.70	36.20	38.80	34.70	34.70	36.20	38.80
50	2.6	HYHY	34.70	34.70	36.20	38.80	34.70	34.70	36.20	38.80
100	0.5	JRJR	34.70	34.70	36.20	38.80	34.70	34.70	36.20	38.80
150	0.33	JXJX	34.70	34.70	36.20	38.80	34.70	34.70	36.20	38.80
200	0.25	KAKA	34.70	34.70	36.20	38.80	34.70	34.70	36.20	38.80
300	0.16	KGKG	34.70	34.70	36.20	38.80	34.70	34.70	36.20	38.80
500	0.10	KMKM	34.70	34.70	36.20	38.80	34.70	34.70	36.20	38.80
800	0.06	KWKW	34.70	34.70	36.20	38.80	34.70	34.70	36.20	38.80

DC AMMETERS—ZERO-LEFT, TAUT BAND

Scale Amps	Term. Resis., Ohms	§ Add Suffix	250 BIG LOOK Net Each, Lots of 1-9				251 HORIZON LINE Net Each, Lots of 1-9			
			1½-inch GE No. 50-250100§	2½-inch GE No.50-250200§	3½-inch GE No. 50-250300§	4½-inch GE No. 50-250400§	1½-inch GE No. 50-251100§	2½-inch GE No. 50-251200§	3½-inch GE No. 50-251300§	4½-inch GE No. 50-251400§
1	0.050	LALA	$35.30	$35.30	$36.60	$39.60	$35.30	$35.30	$36.60	$39.60
1.5	0.033	LCLC	35.30	35.30	36.60	39.60	35.30	35.30	36.60	39.60
3	0.0167	LJLJ	35.30	35.30	36.60	39.60	35.30	35.30	36.60	39.60
5	0.010	LSLS	35.30	35.30	36.60	39.60	35.30	35.30	36.60	39.60
10	0.0050	MTMT	35.30	35.30	36.60	39.60	35.30	35.30	36.60	39.60
20	0.0025	NGNG	.....	35.30	36.60	39.60	.....	35.30	36.60	39.60
50	0.00100	NTNT	.....	.....	36.60	39.60	.....	.....	36.60	39.60

§When ordering show complete number; example: **50-250120 LALA** for 250 BIG LOOK 1½″ type zero-left, DC voltmeter with 1.0 volt rating.

Contact us for availability of additional ratings.

PRICES LISTED ARE FOR GUIDANCE ONLY

GENERAL ELECTRIC Meters

SERIES 250 AND 251 DC PANEL METERS (CONT'D)

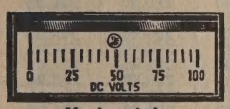
DC AMMETERS—ZERO-LEFT, 50 mV, SHUNT-RATED, TAUT BAND

Scale Volts	Term. Resis., Ohms	§ Add Suffix	250 BIG LOOK® Net Each, Lots of 1-9				251 HORIZON LINE® Net Each, Lots of 1-9			
			1½-inch GE No. 50- 250124§	2½-inch GE No. 50- 250224§	3½-inch GE No. 50- 250324§	4½-inch GE No. 50- 250424§	1½-inch GE No. 50- 251124§	2½-inch GE No. 50- 251224§	3½-inch GE No. 50- 251324§	4½-inch GE No. 50- 251424§
20	50*	ECNG	$35.30	$35.30	$36.60	$39.60	$35.30	$35.30	$36.60	$39.60
50	50*	ECNT	35.30	35.30	36.60	39.60	35.30	35.30	36.60	39.60
75	50*	ECPB	35.30	35.30	36.60	39.60	35.30	35.30	36.60	39.60
100	50*	ECPK	35.30	35.30	36.60	39.60	35.30	35.30	36.60	39.60
150	50*	ECPZ	35.30	35.30	36.60	39.60	35.30	35.30	36.60	39.60
300	50*	ECRX	35.30	35.30	36.60	39.60	35.30	35.30	36.60	39.60
400	50*	ECSC	35.30	35.30	36.60	39.60	35.30	35.30	36.60	39.60
500	50*	ECSF	35.30	35.30	36.60	39.60	35.30	35.30	36.60	39.60
600	50*	ECSJ	35.30	35.30	36.60	39.60	35.30	35.30	36.60	39.60
1000	50*	ECVA	35.30	35.30	36.60	39.60	35.30	35.30	36.60	39.60
2000	50*	ECVE	35.30	35.30	36.60	39.60	35.30	35.30	36.60	39.60

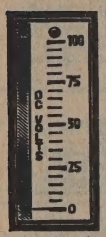
DC AMMETERS—ZERO-CENTER, TAUT BAND

Scale Amps	Term. Resis., Ohms	§ Add Suffix	250 BIG LOOK Net Each, Lots of 1-9				251 HORIZON LINE Net Each, Lots of 1-9			
			1½-inch GE No. 50- 250101§	2½-inch GE No. 50- 250201§	3½-inch GE No. 50- 250301§	4½-inch GE No. 50- 250401§	1½-inch GE No. 50- 251101§	2½-inch GE No. 50- 251201§	3½-inch GE No. 50- 251301§	4½-inch GE No. 50- 251401§
1–0–1	0.050	LALA	$35.30	$35.30	$36.60	$34.50	$35.30	$35.30	$36.60	$39.60
5–0–5	0.010	LSLS	35.30	35.30	36.60	34.50	35.30	35.30	36.60	39.60
10–0–10	0.0050	MTMT	35.30	35.30	36.60	34.50	35.30	35.30	36.60	39.60
20–0–20	0.0025	NGNG	.....	35.30	36.60	39.60	.....	35.30	36.60	39.60
50–0–50	0.0010	NTNT	.....	.....	36.60	39.60	.....	.....	36.60	39.60

TYPE 185 EDGEWISE PANEL METERS



Horizontal



vertical

Slim, miniature design can be mounted individually or in space-saving clusters. Choice of horizontal or vertical placement. Flush sides assure tight, case-to-case stacking without mechanism bulge. Magnetically shielded to prevent interaction between meters; no need for special calibration. Optional bezel and mounting brackets available for one, two or three-unit stacking. Meet applicable portions of ANSI C-39.1. **Accuracy:** ±2% of full scale, DC meters; ±3% with 60-Hz sine wave at 25° C, AC rectifier-type meters. **Overload:** 20% momentary and sustained, voltmeter; 1000% momentary and 20% sustained, ammeter. **Insulation:** 1800 V rms hi-pot. **Scale:** 1.785″ long, 53° rotation. **Response Time and Damping:** Meet or exceed ANSI requirements. Response time 3 sec. max., μA meters; 2 sec. max., all other DC ratings; 2.5 sec. max., AC ratings. Damping 40% max. overshoot; damping factor, 2.5 minimum. **Size:** 0.92″ w. x 2.258″ lg. x 3.44″ d., overall. Bezel 1.255″ w. x 3.005″ lg., single; 2.155″ w., double; 3.055″ w., triple-unit mounting.

DC VOLTMETERS (SELF-CONTAINED)

Scale Range	Term. Resis., Ohms	Horizontal Zero-Left No. 50-	Vertical Zero-Bottom No. 50-	Net Ea., 1-9
0-10	1000 ohms/ volt	185 011 MTMT	185 013 MTMT	$37.40
0-15		185 011 NDND	185 013 NDND	37.40
0-30		185 011 NLNL	185 013 NLNL	37.40
0-50		185 011 NTNT	185 013 NTNT	37.40
0-100		185 011 PKPK	185 013 PKPK	37.40
0-150		185 011 PZPZ	185 013 PZPZ	37.40
0-300		185 011 RXRX	185 013 RXRX	38.88

DC VOLTMETERS (SELF-CONTAINED)

Scale Range	Term. Resis., Ohms	Horizontal Zero-Center No. 50-	Vertical Zero-Center No. 50-	Net Ea., 1-9
15-0-15	2000 ohms/ volt	185 012 NDND	185 014 NDND	$37.40
50-0-50		185 012 NTNT	185 014 NTNT	37.40
150-0-150		185 012 PZPZ	185 014 PZPZ	38.80

DC VOLTMETERS (SELF-CONTAINED*)

Scale Range	Term. Resis., Ohms	Horizontal Zero-Left No. 50-	Vertical Zero-Bottom No. 50-	Net Ea., 1-9
0-500	34	185 171 FASF	185 173 FASF	$34.50
0-600	34	185 171 FASJ	185 173 FASJ	34.50
0-750	34	185 171 FASM	185 173 FASM	34.50

DC MICROAMMETERS (SELF-CONTAINED)

Scale Range	Term. Resis., Ohms	Horizontal Zero-Left No. 50-	Vertical Zero-Bottom No. 50-	Net Ea., 1-9
0-20	3250	Refer to factory		★
0-50	2310	185 111 CYCY	185 113 CYCY	$48.50
0-100	910	185 111 DRDR	185 113 DRDR	40.10
0-500	125	185 111 EMEM	185 113 EMEM	34.50

DC MICROAMMETERS (SELF-CONTAINED)

Scale Range	Term. Resis., Ohms	Horizontal Zero-Left No. 50-	Vertical Zero-Bottom No. 50-	Net Ea., 1-9
50-0-50	910	185 112 CYCY	185 114 CYCY	$40.10
500-0-500	34	185 112 EMEM	185 114 EMEM	34.50

DC MILLIAMMETERS (SELF-CONTAINED)

Scale Range	Term. Resis., Ohms	Horizontal Zero-Left No. 50-	Vertical Zero-Bottom No. 50-	Net Ea., 1-9
0-1	34	185 111 FAFA	185 113 FAFA	$34.50
0-5	2.5	185 111 FXFX	185 113 FXFX	34.50
0-10	2.0	185 111 GZGZ	185 113 GZGZ	34.50
0-20	1.5	185 111 HFHF	185 113 HFHF	34.50
0-50	1.5	185 111 HYHY	185 113 HYHY	34.50
0-100	0.5	185 111 JRJR	185 113 JRJR	34.50
0-300	0.167	185 111 KGKG	185 113 KGKG	34.50
0-500	0.099	185 111 KMKM	185 113 KMKM	34.50

DC MILLIAMMETERS (SELF-CONTAINED)

Scale Range	Term. Resis., Ohms	Horizontal Zero-Left No. 50-	Vertical Zero-Bottom No. 50-	Net Ea., 1-9
1-0-1	20	185 112 FAFA	185 114 FAFA	$34.50
5-0-5	2.0	185 112 FXFX	185 114 FXFX	34.50
10-0-10	1.5	185 112 GZGZ	185 114 GZGZ	34.50
50-0-50	0.5	185 112 HYHY	185 114 HYHY	34.50
500-0-500	0.05	185 112 KMKM	185 114 KMKM	34.50

DC AMMETERS (SELF-CONTAINED)

Scale Range	Term. Resis., Ohms	Horizontal Zero-Left No. 50-	Vertical Zero-Bottom No. 50-	Net Ea., 1-9
0-1	0.05	185 111 LALA	185 113 LALA	$34.50
0-5	0.01	185 111 LSLS	185 113 LSLS	34.50
0-10	0.005	185 111 MTMT	185 113 MTMT	34.50

DC AMMETERS (SELF-CONTAINED)

Scale Range	Term. Resis., Ohms	Horizontal Zero-Left No. 50-	Vertical Zero-Bottom No. 50-	Net Ea., 1-9
5-0-5	0.005	185 112 LSLS	185 114 LSLS	$34.50

DC AMMETERS (SELF-CONTAINED#)

Scale Range	Term. Resis., Ohms	Horizontal Zero-Left No. 50-	Vertical Zero-Bottom No. 50-	Net Ea., 1-9
0-20	12.5§	185 121 ECNG	185 123 ECNG	$34.50
0-50		185 121 ECNT	185 123 ECNT	34.50
0-300		185 121 ECRX	185 123 ECRX	34.50
0-500		185 121 ECSF	185 123 ECSF	34.50

AC VOLTMETERS (SELF-CONTAINED) RECTIFIER TYPE

Scale Range	Term. Resis., Ohms	Horizontal Zero-Left No. 50-	Vertical Zero-Bottom No. 50-	Net Ea., 1-9
0-10	1000 ohms/ volt	185 051 MTMT	185 053 MTMT	$42.20
0-15		185 051 NDND	185 053 NDND	42.20
0-30		185 051 NLNL	185 053 NLNL	42.20
0-50		185 051 NTNT	185 053 NTNT	42.20
0-100		185 051 PKPK	185 053 PKPK	44.10
0-150		185 051 PZPZ	185 053 PZPZ	44.10

AC MICROAMMETERS (SELF-CONTAINED)

Scale Range	Term. Resis., Ohms	Horizontal Zero-Left No. 50-	Vertical Zero-Bottom No. 50-	Net Ea., 1-9
0-500	985	185 151 EMEM	185 153 EMEM	$42.10

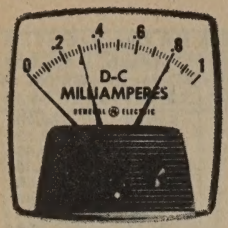
AC MILLIAMMETERS (SELF-CONTAINED)

Scale Range	Term. Resis., Ohms	Horizontal Zero-Left No. 50-	Vertical Zero-Bottom No. 50-	Net Ea., 1-9
0-1	570	185 151 FAFA	185 153 FAFA	$42.10
0-5	139	185 151 FXFX	185 153 FXFX	42.10
0-10	82	185 151 GZGZ	185 153 GZGZ	42.10
0-20	54	185 151 HFHF	185 153 HFHF	42.10

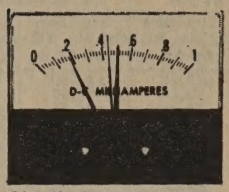
*Does not include resistor. #Does not include shunt or leads. §Calibrated for use with two-way shunt-lead resistance of 0.065 ohms. ★**Price on request.**

GENERAL ELECTRIC Protectors/Controllers

SERIES 195 AND 196 PROTECTORS/CONTROLLERS



195 BIG LOOK®
2½", 3½", & 4½"



196 HORIZON LINE®
3½" & 4½"

Available in BIG LOOK or HORIZON LINE styles. Lead length compensation up to 10 ohms. Bimetal type cold-junction compensation. Thermocouple-break projection standard on pyrometer controllers, optional on over-temperature protectors. **Accuracy:** ±2% of full scale at 117 volts input power. **Repeatability:** 0.3% of full scale. **Setpoint Travel:** 100% of full scale travel; double setpointers can be positioned to within two mechanical degrees of each other—approx. 2.2% of full scale. **Minimum Span:** 0–150° F/70° C. Units thru 0–1000° F/500° C are calibrated for iron-constantan; from 0–1600° F/800° C thru 0–2500° F/1400° C for chromel-alumel; 0–3000° F/1650° C for platinum-platinum/13% rhodium.

4½-INCH TYPES—SINGLE HIGH AND DOUBLE SETPOINTS

Scale Range	Max. Lead Resis., Ohms	§ Add Suffix to GE No.	195 Big Look Net Each, Lots of 1-9 — Protectors: Single High Setpoint GE No. 195450§	Protectors: Double Setpoint GE No. 195451§	Controllers: Single High Setpoint GE No. 195453§	Controllers: Double Setpoint GE No. 195454§	196 Horizon Look Net Each, Lots of 1-9 — Protectors: Single High Setpoint GE No. 196450§	Protectors: Double Setpoint GE No. 196451§	Controllers: Single High Setpoint GE No. 196453§	Controllers: Double Setpoint GE No. 196454§
0–150° F/70° C	200	ABAB	$249.00	$294.00	$277.00	$322.00	$249.00	$294.00	$277.00	$322.00
0–250° F/125° C	200	ADAD	249.00	294.00	277.00	322.00	249.00	294.00	277.00	322.00
0–300° F/150° C	200	AEAE	249.00	294.00	277.00	322.00	249.00	294.00	277.00	322.00
0–650° F/350° C	10	AJAJ	223.00	267.00	250.00	294.00	223.00	267.00	250.00	294.00
0–800° F/400° C	10	ALAL	223.00	267.00	250.00	294.00	223.00	267.00	250.00	294.00
0–1000° F/500° C	10	ANAN	223.00	267.00	250.00	294.00	223.00	267.00	250.00	294.00
0–1600° F/800° C	10	ERAR	223.00	267.00	250.00	294.00	223.00	267.00	250.00	294.00
0–1800° F/1000° C	10	ESAS	223.00	267.00	250.00	294.00	223.00	267.00	250.00	294.00
0–2000° F/1100° C	10	EUAU	223.00	267.00	250.00	294.00	223.00	267.00	250.00	294.00
0–2200° F/1200° C	10	EWAW	223.00	267.00	250.00	294.00	223.00	267.00	250.00	294.00
0–2500° F/1400° C	10	EYAY	223.00	267.00	250.00	294.00	223.00	267.00	250.00	294.00
0–3000° F/1650° C	10	JKCC	223.00	267.00	250.00	294.00	223.00	267.00	250.00	294.00

SERIES 195 AND 196 METER RELAYS

Models listed are zero-left. **Accuracy:** ±2% of full scale at 117 volts input power. **Repeatability:** 0.3% of full scale. **Setpoint Travel:** 100% of full scale travel; double setpointers can be positioned to within two mechanical degrees of each other— approx. 2.2% of full scale. **Minimum Span:** 0–5 μA. **Input Power:** 107–127 VAC, 50/60 Hz. **Lamp:** Derated to provide 5 year life. **Load Relay:** DPDT per set point. **Contact Rating:** 5 amps AC non-inductive at 120 volts; 5 amps DC non-inductive at 28 volts; 0.2 amps DC non-inductive at 125 volts.

SINGLE-HIGH SETPOINT DC METER RELAYS

Scale	Term. Resis., Ohms	§ Add Suffix	195 Big Look—Net Each, Lots of 1-9: 2½-inch GE No. 195210§	3½-inch GE No. 195310§	4½-inch GE No. 195410§	196 Horizon Line—Net Each, Lots of 1-9: 2½-inch Not Available	3½-inch GE No. 196310§	4½-inch GE No. 196410§
DC MICROAMMETERS								
50 μA	1600	CYCY	$213.00	$206.00	$212.00	.....	$206.00	$212.00
100 μA	1525	DRDR	206.00	200.00	205.00	.....	200.00	205.00
DC MILLIAMMETERS								
1 mA	64	FAFA	$202.00	$195.00	$198.00	.....	$195.00	$198.00
10 mA	1.8	GZGZ	202.00	195.00	198.00	.....	195.00	198.00
100 mA	0.5	†	202.00	195.00	198.00	.....	195.00	198.00
500 mA	0.1	KMKM	202.00	195.00	198.00	.....	195.00	198.00
DC AMMETERS								
1 A	.....	†	$202.00	$195.00	$198.00	.....	$195.00	$198.00
			GE No. 195211§	GE No. 195311§	GE No. 195411§	GE No. 195211§	GE No. 196311§	GE No. 196411§
DC MILLIVOLTMETERS								
5 mV	.....	JDJD	.....	$240.00	$245.00	.....	$240.00	$245.00
10 mV	.....	JEJE	.....	233.00	239.00	.....	233.00	239.00
DC AMMETERS 50 MV SHUNT RATED								
50 mV	#	†	$202.00	$195.00	$198.00	$202.00	$195.00	$198.00

DOUBLE SETPOINT

			GE No. 195230§	GE No. 195330§	GE No. 195430§	Not Available	GE No. 196330§	GE No. 196430§
DC MICROAMMETERS								
50 μA	1600	CYCY	$259.00	$251.00	$257.00	.....	$251.00	$257.00
100 μA	1525	DRDR	251.00	245.00	250.00	.....	245.00	250.00
DC MILLIAMMETERS								
1 mA	64	FAFA	$247.00	$240.00	$243.00	.....	$240.00	$243.00
10 mA	1.8	GZGZ	247.00	240.00	243.00	.....	240.00	243.00
100 mA	0.5	†	247.00	240.00	243.00	.....	240.00	243.00
500 mA	0.1	KMKM	247.00	240.00	243.00	.....	240.00	243.00
DC AMMETERS								
1 A	*	†	$247.00	$240.00	$243.00	.....	$240.00	$243.00
			GE No. 195231§	GE No. 195331§	GE No. 195431§	Not Available	GE No. 196331§	GE No. 196431§
DC MILLIVOLTMETERS								
5 mV	.....	JDJD	.....	$285.00	$290.00	.....	$285.00	$290.00
10 mV	.....	JEJE	.....	279.00	284.00	.....	279.00	284.00
DC AMMETERS 50 MV SHUNT RATED								
50 mV	#	†	$247.00	$240.00	$243.00	.....	$240.00	$243.00

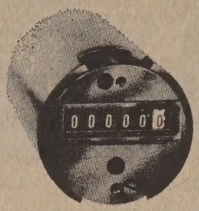
†Order by complete description. #Standard scales available ranging from 1 amp to 10 KA in 34 steps; same price. *Calibrated for two-way shunt lead resistance of 0.065 ohm. §Add suffix letter code (i.e., **195210CYCY**).

PRICES LISTED ARE FOR GUIDANCE ONLY

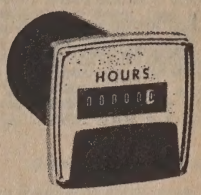
GENERAL ELECTRIC Panel Meters

SERIES 200 ELAPSED TIME METERS

Elapsed time meters are available with or without reset button. Features include synchronous motor with gear connected to digital readout counter. Meters display elapsed time in hours and minutes (tenths) by 6 digits. **Accuracy:** Matches frequency control of power system. **Vibration-Shock:** Meets ANSI Specifications C39.1. **Input Range:** 120/240 VAC, 50/60 Hz; 208/480 VAC, 60 Hz. **Insulation Level:** 2000 volts rms hi-pot for one minute. **Burden Data:** 2.5 volt-amps maximum. UL Approved.



BACK-OF-PANEL



2½" or 3½" RESET

BACK-OF-PANEL—60 Hz

Motor VAC	Non-Reset Type				Reset Type			
	In Minutes		In Hours		In Minutes		In Hours	
	GE Number	Net 1-9	GE Number	Net 1-9	GE Number	Net 1-9	GE Number	Net 1-9
120	50-240 003 AAAA	$31.80	50-240 001 AAAA	$31.80	50-240 004 AAAA	$43.80	50-240 002 AAAA	$43.80
208/240	50-240 003 ABAA	33.20	50-240 001 ABAA	33.20	50-240 004 ABAA	45.30	50-240 002 ABAA	45.30
480	50-240 003 ACAA	36.00	50-240 001 ACAA	36.00	50-240 004 ACAA	45.80	50-240 002 ACAA	45.80

2½-INCH BIG LOOK®—60 Hz

Motor VAC	Non-Reset Type				Reset Type			
	In Minutes		In Hours		In Minutes		In Hours	
	GE Number	Net 1-9	GE Number	Net 1-9	GE Number	Net 1-9	GE Number	Net 1-9
120	50-240 213 AAAB	$41.00	50-240 211 AAAB	$41.00	50-240 214 AAAB	$55.20	50-240 212 AAAB	$55.20
208/240	50-240 213 ABAB	42.30	50-240 211 ABAB	42.30	50-240 214 ABAB	56.50	50-240 212 ABAB	56.50
480	50-240 213 ACAB	45.30	50-240 211 ACAB	45.30	50-240 214 ACAB	59.20	50-240 212 ACAB	59.20

3½-INCH BIG LOOK—60 Hz

Motor VAC	Non-Reset Type				Reset Type			
	In Minutes		In Hours		In Minutes		In Hours	
	GE Number	Net 1-9	GE Number	Net 1-9	GE Number	Net 1-9	GE Number	Net 1-9
120	50-240 313 AAAB	$41.00	50-240 311 AAAB	$41.00	50-240 314 AAAB	$55.20	50-240 312 AAAB	$55.20
208/240	50-240 313 ABAB	42.30	50-240 311 ABAB	42.30	50-240 314 ABAB	56.50	50-240 312 ABAB	56.50
480	50-240 313 ACAB	45.30	50-240 311 ACAB	45.30	50-240 314 ACAB	59.20	50-240 312 ACAB	59.20

2½-INCH SQUARE CASE—60 Hz

Motor VAC	Non-Reset Type				Reset Type			
	In Minutes		In Hours		In Minutes		In Hours	
	GE Number	Net 1-9	GE Number	Net 1-9	GE Number	Net 1-9	GE Number	Net 1-9
120	50-240 613 AAAD	$45.80	50-240 611 AAAD	$45.80	50-240 614 AAAD	$60.80	50-240 612 AAAD	$60.80
208/240	50-240 613 ABAD	47.40	50-240 611 ABAD	47.40	50-240 614 ABAD	61.30	50-240 612 ABAD	61.30
480	50-240 613 ACAD	50.10	50-240 611 ACAD	50.10	50-240 614 ACAD	64.40	50-240 612 ACAD	64.40

3½-INCH SQUARE CASE—60 Hz

Motor VAC	Non-Reset Type				Reset Type			
	In Minutes		In Hours		In Minutes		In Hours	
	GE Number	Net 1-9	GE Number	Net 1-9	GE Number	Net 1-9	GE Number	Net 1-9
120	50-240 713 AAAD	$45.80	50-240 711 AAAD	$45.80	50-240 714 AAAD	$60.80	50-240 712 AAAD	$60.80
208/240	50-240 713 ABAD	47.40	50-240 711 ABAD	47.40	50-240 714 ABAD	61.30	50-240 712 ABAD	61.30
480	50-240 713 ACAD	50.10	50-240 711 ACAD	50.10	50-240 714 ACAD	64.40	50-240 712 ACAD	64.40

2½-INCH ROUND CASE—60 Hz

Motor VAC	Non-Reset Type				Reset Type			
	In Minutes		In Hours		In Minutes		In Hours	
	GE Number	Net 1-9	GE Number	Net 1-9	GE Number	Net 1-9	GE Number	Net 1-9
120	50-240 633 AAAE	$45.80	50-240 631 AAAE	$45.80	50-240 634 AAAE	$60.80	50-240 632 AAAE	$60.80
208/240	50-240 633 ABAE	47.40	50-240 631 ABAE	47.40	50-240 634 ABAE	61.30	50-240 632 ABAE	61.30
480	50-240 633 ACAE	50.10	50-240 631 ACAE	50.10	50-240 634 ACAE	64.40	50-240 632 ACAE	64.40

3½-INCH ROUND CASE—60 Hz

Motor VAC	Non-Reset Type				Reset Type			
	In Minutes		In Hours		In Minutes		In Hours	
	GE Number	Net 1-9	GE Number	Net 1-9	GE Number	Net 1-9	GE Number	Net 1-9
120	50-240 733 AAAE	$45.80	50-240 731 AAAE	$45.80	50-240 734 AAAE	$60.80	50-240 732 AAAE	$60.80
208/240	50-240 733 ABAE	47.40	50-240 731 ABAE	47.40	50-240 734 ABAE	61.30	50-240 732 ABAE	61.30
480	50-240 733 ACAE	50.10	50-240 731 ACAE	50.10	50-240 734 ACAE	64.40	50-240 732 ACAE	64.00

2½-INCH CONDUIT-MOUNTED CASE—60 Hz*

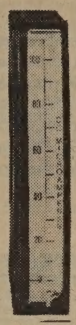
Motor VAC	Non-Reset Type				Reset Type			
	In Minutes		In Hours		In Minutes		In Hours	
	GE Number	Net 1-9	GE Number	Net 1-9	GE Number	Net 1-9	GE Number	Net 1-9
120	50-240 253 AAAF	$55.20	50-240 251 AAAF	$55.20				
208/240	50-240 253 ABAF	56.50	50-240 251 ABAF	56.50				
480	50-240 253 ACAF	59.20	50-240 251 ACAF	59.20				

*Conduit-mounted case and type 240 meter are available as a unit; replacement meters for conduit-mounted case not available as a separate item. Motors can be supplied as a renewal part. For 50 Hz service specify model desired and add "except 50 Hz"; add $2.75 to price shown.

GENERAL ELECTRIC Panel Meters

TYPE 280 THIN EDGEWISE METERS

Meters designed to be interchangeable with most competitive models without panel cutout changes. An Alnico 8 magnet and a pivot and jewel mechanism offer maximum relief from friction-caused difficulties. **Accuracy:** DC meters, ±2% of full scale; AC meters, ±3% with 60 Hz sine wave at 25° C. **Response Time:** 3 seconds max. for μA meters; 2 seconds max. for others. **Damping:** 25% max. overshoot for 1½" size; 40% max. overshoot for others. **Scale Length:** 1½" size, 1.25"; 2½" size, 1.93"; 3½" size, 2.70". **Dielectric Strength:** 1½" size, 1500 VAC; 2½" size, 1500 VAC; 3½" size, 2600 VAC.



Scale	Resis., Ohms	1½" Size G.E. Number Horiz. Scale 50-281-	1½" Size G.E. Number Vert. Scale 50-281-	1½" Size Net Each 1-9	2½" Size G.E. Number Horiz. Scale 50-282-	2½" Size G.E. Number Vert. Scale 50-282-	2½" Size Net Each 1-9	3½" Size G.E. Number Horiz. Scale 50-283-	3½" Size G.E. Number Vert. Scale 50-283-	3½" Size Net Each 1-9
DC VOLTMETERS										
0–10 V		011MTMT	013MTMT	$25.20	011MTMT	013MTMT	$26.90	011MTMT	013MTMT	$30.70
0–15 V		011NDND	013NDND	25.20	011NDND	013NDND	26.90	011NDND	013NDND	30.70
0–30 V		011NLNL	013NLNL	25.20	011NLNL	013NLNL	26.90	011NLNL	013NLNL	30.70
0–50 V		011NTNT	013NTNT	25.20	011NTNT	013NTNT	26.90	011NTNT	013NTNT	30.70
0–100 V	1000	011PKPK	013PKPK	25.20	011PKPK	013PKPK	26.90	011PKPK	013PKPK	30.70
0–150 V	Ohms	011PZPZ	013PZPZ	25.20	011PZPZ	013PZPZ	26.90	011PZPZ	013PZPZ	30.70
0–200 V	per	.....	.....	.....	011RLRL	013RLRL	28.00	011RLRL	013RLRL	32.00
0–300 V	Volt	.....	.....	.....	011RXRX	013RXRX	28.00	011RXRX	013RXRX	32.00
15–0–15 V		012NDND	014NDND	25.20	.....	014NDND	26.90	012NDND	014NDND	30.70
30–0–30 V		012NLNL	014NLNL	25.20	012NLNL	014NLNL	26.90	012NLNL	140NLNL	30.70
150–0–150 V		.....	.....	.....	012PZPZ	014PZPZ	28.00	012PZPZ	014PZPZ	32.00
DC VOLTMETERS FOR EXTERNAL RESISTORS										
0–500 V	34	171FASF	173FASF	$23.30	171FASF	173FASF	$24.90	171FASF	173FASF	$28.40
0–600 V	34	171FASJ	173FASJ	23.30	171FASJ	173FASJ	24.90	171FASJ	173FASJ	28.40
0–750 V	34	171FASM	173FASM	23.30	171FASM	173FASM	24.90	171FASM	173FASM	28.40
DC AMMETERS (SELF-CONTAINED)										
0–50 μA	2310	111CYCY	113CYCY	$27.30	111CYCY	113CYCY	$28.60	111CYCY	113CYCY	$32.10
0–100 μA	910	111DRDR	113DRDR	23.30	111DRDR	113DRDR	24.90	111DRDR	113DRDR	28.40
0–200 μA	500	111EAEA	113EAEA	23.30	111EAEA	113EAEA	24.90	111EAEA	113EAEA	28.40
0–500 μA	125	111EMEM	113EMEM	23.30	111EMEM	113EMEM	24.90	111EMEM	113EMEM	28.40
0–1 mA	34	111FAFA	113FAFA	23.30	111FAFA	113FAFA	24.90	111FAFA	113FAFA	28.40
0–5 mA	2.5	111FXFX	113FXFX	23.30	111FXFX	113FXFX	24.90	111FXFX	113FXFX	28.40
0–10 mA	2.0	111GZGZ	113GZGZ	23.30	111GZGZ	113GZGZ	24.90	111GZGZ	113GZGZ	28.40
0–25 mA	1.5	111HJHJ	113HJHJ	23.30	111HJHJ	113HJHJ	24.90	111HJHJ	113HJHJ	28.40
0–50 mA	1.5	111HYHY	113HYHY	23.30	111HYHY	113HYHY	24.90	111HYHY	113HYHY	28.40
0–100 mA	0.5	111JRJR	113JRJR	23.30	111JRJR	113JRJR	24.90	111JRJR	113JRJR	28.40
0–250 mA	0.2	111KDKD	113KDKD	23.30	111KDKD	113KDKD	24.90	111KDKD	113KDKD	28.40
0–500 mA	0.1	111KMKM	113KMKM	23.30	111KMKM	113KMKM	24.90	111KMKM	113KMKM	28.40
0–1 A	0.05	111LALA	113LALA	24.70	111LALA	113LALA	26.30	111LALA	113LALA	30.00
0–1.5 A	0.03	111LCLC	113LCLC	24.70	111LCLC	113LCLC	26.30	111LCLC	113LCLC	30.00
0–2 A	0.025	111LELE	113LELE	24.70	111LELE	113LELE	26.30	111LELE	113LELE	30.00
0–3 A	0.016	111LJLJ	113LJLJ	24.70	111LJLJ	113LJLJ	26.30	111LJLJ	113LJLJ	30.00
0–5 A	0.01	111LSLS	113LSLS	24.70	111LSLS	113LSLS	26.30	111LSLS	113LSLS	30.00
0–10 A	0.005	111MTMT	113MTMT	24.70	111MTMT	113MTMT	26.30	111MTMT	113MTMT	30.00
0–15 A	0.003	.....	.....	.....	111NDND	113NDND	26.30	111NDND	113NDND	30.00
0–20 A	0.003	.....	.....	.....	111NGNG	113NGNG	26.30	111NGNG	113NGNG	30.00
0–30 A	0.002	.....	.....	.....	111NLNL	113NLNL	26.30	.....	.....	.....
50–0–50 μA	910	112CYCY	114CYCY	23.30	112CYCY	114CYCY	24.90	112CYCY	114CYCY	28.40
100–0–100 μA	500	112DRDR	114DRDR	23.30	112DRDR	114DRDR	24.90	112DRDR	114DRDR	28.40
500–0–500 μA	34	112EMEM	114EMEM	23.30	112EMEM	114EMEM	24.90	112EMEM	114EMEM	28.40
1–0–1 mA	20	112FAFA	114FAFA	23.30	112FAFA	114FAFA	24.90	112FAFA	114FAFA	28.40
5–0–5 mA	2.0	112FXFX	114FXFX	23.30	112FXFX	114FXFX	24.90	112FXFX	114FXFX	28.40
50–0–50 mA	0.5	.....	.....	.....	112HYHY	114HYHY	24.90	112HYHY	114HYHY	28.40
5–0–5 A	0.005	112LSLS	114LSLS	24.70	112LSLS	114LSLS	26.30	112LSLS	114LSLS	30.00
DC AMMETERS (SHUNT RATED)										
1 A		121ECLA	123ECLA	$25.20	121ECLA	123ECLA	$26.90	121ECLA	123ECLA	$30.70
5 A		121ECLS	123ECLS	25.20	121ECLS	123ECLS	26.90	121ECLS	123ECLS	30.70
10 A		121ECMT	123ECMT	25.20	121ECMT	123ECMT	26.90	121ECMT	123ECMT	30.70
20 A	50 mV	121ECNG	123ECNG	25.20	121ECNG	123ECNG	26.90	121ECNG	123ECNG	30.70
50 A		121ECNT	123ECNT	25.20	121ECNT	123ECNT	26.90	121ECNT	123ECNT	30.70
300 A		121ECRX	123ECRX	25.20	121ECRX	123ECRX	26.90	121ECRX	123ECRX	30.70
500 A		121ECSF	123ECSF	25.20	121ECSF	123ECSF	26.90	121ECSF	123ECSF	30.70
1 A		121GBLA	123GBLA	25.20	121GBLA	123GBLA	26.90	121GBLA	123GBLA	30.70
5 A		121GBLS	123GBLS	25.20	121GBLS	123GBLS	26.90	121GBLS	123GBLS	30.70
10 A		121GBMT	123GBMT	25.20	121GBMT	123GBMT	26.90	121GBMT	123GBMT	30.70
20 A	100 mV	121GBNG	123GBNG	25.20	121GBNG	123GBNG	26.90	121GBNG	123GBNG	30.70
50 A		121GBNT	123GBNT	25.20	121GBNT	123GBNT	26.90	121GBNT	123GBNT	30.70
300 A		121GBRX	123GBRX	25.20	121GBRX	123GBRX	26.90	121GBRX	123GBRX	30.70
500 A		121GBSF	123GBSF	25.20	121GBSF	123GBSF	26.90	121GBSF	123GBSF	30.70
AC VOLTMETERS										
0–10 V		051MTMT	053MTMT	$27.10	051MTMT	053MTMT	$29.00	051MTMT	053MTMT	$33.00
0–15 V	1000	051NDND	053NDND	27.10	051NDND	053NDND	29.00	051NDND	053NDND	33.00
0–30 V	Ohms	051NLNL	053NLNL	27.10	051NLNL	053NLNL	29.00	051NLNL	053NLNL	33.00
0–50 V	per	051NTNT	053NTNT	27.10	051NTNT	053NTNT	29.00	051NTNT	053NTNT	33.00
0–100 V	Volt	051PKPK	053PKPK	28.80	051PKPK	053PKPK	30.70	051PKPK	053PKPK	35.00
0–150 V		051PZPZ	053PZPZ	28.80	051PZPZ	053PZPZ	30.70	051PZPZ	052PZPZ	35.00
AC AMMETERS										
0–500 μA	985	151EMEM	153EMEM	$26.60	151EMEM	153EMEM	$27.90	151EMEM	153EMEM	$31.80
0–1 mA	570	151FAFA	153FAFA	26.60	151FAFA	153FAFA	27.90	151FAFA	153FAFA	31.80
0–5 mA	139	151FXFX	153FXFX	26.60	151FXFX	153FXFX	27.90	151FXFX	153FXFX	31.80
0–10 mA	82	151GZGZ	153GZGZ	26.60	151GZGZ	153GZGZ	27.90	151GZGZ	153GZGZ	31.80
0–20 mA	54	151HFHF	153HFHF	26.60	151HFHF	153HFHF	27.90	151HFHF	153HFHF	31.80

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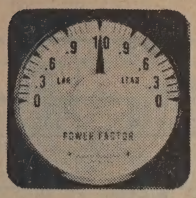
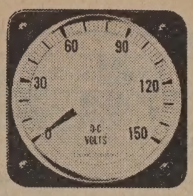
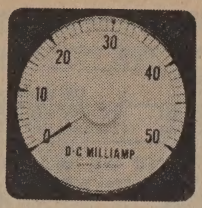
GENERAL ELECTRIC SWITCHBOARD INSTRUMENTS



Type AB-30



Type AB-40



Type AB-16

Type 180 Vertical

Type 180 Horizontal

AC types AB-40, AB-30 and AB-16 ±1% accuracy switchboard instruments intended for general switchboard service on both large and small equipment. Excellent for control stations, test equipment and other installations where space is limited. Cases are dustproof and designed for semiflush mounting. White scales with black markings standard. Black scales with white markings available. AB-30 scales have a maximum of 3 digits as standard; AB-16 and AB-40 have a maximum of 4 digits as standard. High-shock and illuminated instruments; optional features and accessories available on request.

AC VOLTMETERS

Self-contained; 50/60 Hz; iron-vane type. Taut band except AB-30 (pivot and jewel, 60 Hz).

Rating	Scale	AB-30 GE Number	AB-30 Net Each	AB-40 GE Number	AB-40 Net Each	AB-16 GE Number	AB-16 Net Each
150 V	0–150	50-105 031 PZPZ	$158.00	50-103 021 PZPZ	$199.00	50-121 021 PZPZ	$321.00
250 V	0–250	50-105 021 RSRS	166.00	50-103 021 RSRS	205.00	50-121 021 RSRS	326.00
300 V	0–300	50-105 021 RXRX	172.00	50-103 021 RXRX	216.00	50-121 021 RXRX	337.00
500 V	0–500	50-105 021 SFSF	189.00	50-103 021 SFSF	235.00	50-121 021 SFSF	360.00
600 V	0–600	50-105 021 SJSJ	198.00	50-103 021 SJSJ	244.00	50-121 021 SJSJ	369.00
Transformer-rated, 50/60 Hz; iron-vane type. Taut band except AB-30 (pivot and jewel, 60 Hz).							
150 V	0–150 kV	50-105 031 PZYR	$158.00	50-103 021 PZYR	$199.00	50-121 021 PZYR	$321.00
250 V	0–600 V	50-105 031 RSSJ	166.00	50-103 021 RSSJ	205.00	50-121 021 RSSJ	326.00
Rectifier type, 1.5% accuracy, 20–3000 Hz. Taut band.							
15 V	0–15	†	$235.00	†	$258.00	†	$381.00
30 V	0–30	†	235.00	†	258.00	†	381.00
150 V	0–150	†	235.00	†	258.00	†	381.00
150 V	†	†	235.00	†	258.00	†	381.00
300 V	0–300	†	247.00	†	268.00	†	393.00
600 V	0–600	†	274.00	†	300.00	†	424.00
750 V	0–750	†	291.00	†	316.00	†	442.00
Ground-detector type, single-phase, 50/60 Hz. Taut band except AB-30 (pivot and jewel).							
150 V	0–150	50-105 031 PZPZ	$158.00	50-103 021 PZPZ	$199.00	50-121 021 PZPZ	$321.00
150 V	†	50-105 031 PZ..†	158.00	50-103 021 PZ..†	199.00	50-121 021 PZ..†	321.00
300 V	0–300	50-105 021 RXRX	172.00	50-103 021 RXRX	216.00	50-121 021 RXRX	337.00
600 V	0–600	50-105 021 SJSJ	198.00	50-103 021 SJSJ	244.00	50-121 021 SJSJ	369.00

DC VOLTMETERS

		DB-30		DB-40		DB-16	
0–30 V	0–30	50-112 011 NLNL	$189.00	50-103 011 NLNL	$210.00	50-121 011 NLNL	$335.00
0–75 V	0–75	50-112 011 PBPB	189.00	50-103 011 PBPB	210.00	50-121 011 PBPB	335.00
0–150 V	0–150	50-112 011 PZPZ	189.00	50-103 011 PZPZ	210.00	50-121 011 PZPZ	335.00
0–300 V	0–300	50-112 011 RXRX	199.00	50-103 011 RXRX	221.00	50-121 011 RXRX	343.00
0–600 V	0–600	50-112 011 SJSJ	232.00	50-103 011 SJSJ	256.00	50-121 011 SJSJ	379.00
Narrow range—zener-diode.							
110–130 V	110–130	†	$362.00	†	$396.00	†	$524.00

AC AMMETERS

Self-contained, 40/70 Hz; iron-vane type. Taut band except AB-30 (pivot and jewel).

		AB-30		AB-40		AB-16	
8 A	0–8	50-105 131 MJMJ	$146.00	50-103 131 MJMJ	$185.00	50-121 131 MJMJ	$306.00
10 A	0–10	50-105 131 MTMT	146.00	50-103 131 MTMT	185.00	50-121 131 MTMT	306.00
Transformer-rated, 40/70 Hz; iron-vane type. Taut band except AB-30 (pivot and jewel).							
5	‡	†	$146.00	†	$185.00	†	$306.00

DC AMMETERS—SELF-CONTAINED, TAUT BAND

Self-contained milliammeters, zero-left.

		DB-30		DB-40		DB-16	
0–1 mA	0–1	50-112 111 FAFA	$188.00	50-103 111 FAFA	$205.00	50-121 111 FAFA	$326.00
Shunt-rated—zero-left for use with 50 mV shunts and 0.063-ohm shunt leads (standard 6-foot leads). Shunts and leads are not included in the price and must be ordered separately.							
50	#	†	$179.00	†	$199.00	†	$321.00

AC FREQUENCY METERS

Taut band, 120 V rating.

Scale Hz	Ctr. Freq. Hz	Accuracy Hz	AB-30 GE Number	AB-30 Net Each	AB-40 GE Number	AB-40 Net Each	AB-16 GE Number	AB-16 Net Each
55–65	60	±0.1	50-112 372 ANAN	$549.00	50-103 372 ANAN	$569.00	50-121 372 ANAN	$699.00

*Standard scales available ranging from 0–300 volts to 0–150 kV in 11 steps. †Order by description: Specify CT (Current Transformer) and/or PT (Potential Transformer) ratios if used and scale desired (where applicable). ‡Standard scales available ranging from 10 amps to 8000 amps in 30 steps. #Standard ranges available from 15–3000 amps in 19 steps.

GENERAL ELECTRIC SWITCHBOARD INSTRUMENTS

AC SYNCHROSCOPES

Pivot and jewel; self-contained, 120 V rating.

Scale	Normal Freq. Hz	AB-30 GE Number	AB-30 Net Each	AB-40 GE Number	AB-40 Net Each	AB-16 GE Number	AB-16 Net Each
Slow-fast	50	50-105 452 ABAA	$504.00	50-106 452 ABAA	$561.00	50-120 452 ABAA	$693.00
Slow-fast	60	50-105 452 AAAA	504.00	50-106 452 AAAA	561.00	50-120 452 AAAA	693.00

TAUT BAND AC WATTMETERS

One element self-contained, single-phase/2-wire, 50/60 Hz, integral transducer.

Rating A	Rating V	Scale Watts	AB-30 GE Number 50-112	AB-30 Net Each	AB-40 GE Number 50-103	AB-40 Net Each	AB-16 GE Number 50-121	AB-16 Net Each
5	120	0–500	211 ARBU 1CRB	$350.00	211 ARBU 1CRB	$385.00	211 ARBU 1CRB	$511.00
Transformer-rated, 1-element, single-phase/2-wire, 50/60 Hz, integral transducer.								
5	120	*	211 A*	$350.00	211 A*	$385.00	211 A*	$511.00
Transformer-rated, 2-element, 3-phase/3-wire, 50/60 Hz, integral transducer.								
5	120	*	221 A*	$463.00	221 A*	$514.00	221 A*	$644.00
5	240	*	221 C*	500.00	221 C*	546.00	221 C*	677.00
Transformer-rated, 2½-element, 3-phase/4-wire, 50/60 Hz, integral transducer.								
5	120	*	251 A*	$500.00	251 A*	$546.00	251 A*	$677.00
5	240	*	251 C*	532.00	251 C*	579.00	251 C*	713.00

AC VARMETERS

Transformer-rated, 1-element, single-phase/2-wire, 50/60 Hz, integral transducer and phase-shift impedor, taut band. Transformers rated 2-element, 3-phase/3-wire and 2½-element, 3-phase/4-wire, with integral transducers, also available.

5	120	*	312 A*	$454.00	312 A*	$502.00	312 A*	$591.00

*Order by description: Specify CT (Current Transformer) and/or PT (Potential Transformer) ratios if used, and scale desired.

PHASE-SHIFTING TRANSFORMERS

For measurement of Vars using standard watt meter.

GE No.	Type	Circuit	Net Each
8600K92001	MC63	3-wire/3-phase	$96.00
8600K92006	MC65	4-wire/3-phase	$96.00

TAUT BAND AC POWER-FACTOR METERS

Accuracy ±1% of scale length. Single-phase/2-wire, 50/60 Hz self-contained.

Rating A	Rating V	Scale	AB-30 GE Number	AB-30 Net Each	AB-40 GE Number	AB-40 Net Each	AB-16 GE Number	AB-16 Net Each
5	120	.5–1–.5	50-112 412 FCAD	$418.00	50-103 412 FCAD	$462.00	50-121 412 FCAD	$591.00
Accuracy ±1% of scale length. Three-phase/3-wire, 50/60 Hz.								
5	240	.5–1–.5	50-112 402 FEAD	$454.00	50-103 402 FEAD	$496.00	50-121 402 FEAD	$627.00
Accuracy ±1% of scale length. Three-phase/4-wire, 50/60 Hz.								
5	240	.5–1–.5	50-112 402 FEAD	$454.00	50-103 402 FEAD	$496.00	50-121 402 FEAD	$627.00

TYPE 180 INDICATING INSTRUMENTS

AC VOLTMETERS, 60 Hz, IRON VANE TYPE

Scale Range	Transformer Rating	Vertical Scale No. 50-	Horizontal Scale No. 50-	List Price
0-150 V	Self-Contained	180 033 PZPZ	180 031 PZPZ	$98.00
0-300 V		180-033 RXRX	180 031 RXRX	108.00
0-500 V		180 033 SFSF	180 031 SFSF	126.00
0-600 V		180 033 SJSJ	180 031 SJSJ	137.00

AC VOLTMETERS, TRANSFORMER RATED ELEMENTS, 150 VOLTS

0-300 V	240/120	180 033 PZRX	180 031 PZRX	$98.00
0-600 V	480/120	180 033 PZSJ	180 031 PZSJ	98.00
0-750 V	600/120	180 033 PZSM	180 031 PZSM	98.00
0-3000 V	2400/120	180 033 PZVJ	180 031 PZVJ	98.00
0-5250 V	4000/120	180 033 PZVV	180 031 PZVV	98.00
0-6000 V	4800/120	180 033 PZVX	180 031 PZVX	98.00
0-9000 V	7200/120	180 033 PZWJ	180 031 PZWJ	98.00
0-15000 V	12000/120	180 033 PZWZ	180 031 PZWZ	98.00
0-18000 V	14400/120	180 033 PZXE	180 031 PZXE	98.00

AC AMMETERS, 60 Hz, IRON VANE TYPE

Scale Range	Transformer Rating	Vertical Scale No. 50-	Horizontal Scale No. 50-	List Price
0-1 A	Self-Contained	180 143 LALA	180 141 LALA	$98.00
0-3 A		180 143 LJLJ	180 141 LJLJ	98.00
0-5 A		180 143 LSLS	180 141 LSLS	98.00
0-10 A		180 143 MTMT	180 141 MTMT	98.00
0-15 A		180 143 NDND	180 141 NDND	98.00
0-20 A		180 143 NGNG	180 141 NGNG	117.00
0-30 A		180 143 NLNL	180 141 NLNL	117.00
0-50 A		180 143 NTNT	180 141 NTNT	126.00

DC VOLTMETERS, D'ARSONVAL TYPE

Scale Range Amps	Term. Resis. Ohms	Vertical Scale No. 50-	Horizontal Scale No. 50-	List Price
0-1 V	1000 ohms/volt	180 013 LALA	180 011 LALA	$87.00
0-5 V		180 013 LSLS	180 011 LSLS	87.00
0-15 V		180 013 NDND	180 011 NDND	87.00
0-30 V		180 013 NLNL	180 011 NLNL	87.00
0-50 V		180 013 NTNT	180 011 NTNT	87.00
0-80 V		180 013 PDPD	180 011 PDPD	87.00
0-150 V		180 103 PZPZ	180 011 PZPZ	98.00
0-300 V		180 013 RXRX	180 011 RXRX	108.00
0-600 V		180 013 SJSJ	180 011 SJSJ	108.00
150-0-150 V		180 014 PZPZ	180 012 PZPZ	98.00
300-0-300 V		180 014 RXRX	180 012 RXRX	108.00

DC AMMETERS, D'ARSONVAL TYPE

Scale Range Amps	Term. Resis. Ohms	Vertical Scale No. 50-	Horizontal Scale No. 50-	List Price
0-50 μA	2760	180 113 CYCY	180 111 CYCY	117.00
0-100 μA	1525	180 113 DRDR	180 111 DRDR	108.00
0-200 μA	690	180 113 EAEA	180 111 EAEA	98.00
0-500 μA	125	180 113 EMEM	180 111 EMEM	87.00
0-800 μA	63	180 113 EWEW	180 111 EWEW	87.00
0-1 mA	62.7	180 113 FAFA	180 111 FAFA	87.00
0-2 mA	3.2	180 113 FGFG	180 111 FGFG	87.00
0-5 mA	2.4	180 113 FXFX	180 111 FXFX	87.00
0-10 mA	2.4	180 113 GZGZ	180 111 GZGZ	87.00
0-50 mA	1.0	180 113 HYHY	180 111 HYHY	87.00
0-100 mA	0.5	180 113 JRJR	180 111 JRJR	87.00
0-200 mA	0.25	180 113 KAKA	180 111 KAKA	87.00
0-500 mA	0.1	180 113 KMKM	180 111 KMKM	87.00
0-800 mA	0.06	180 113 KWKW	180 111 KWKW	87.00
0-1 A	0.05	180 113 LALA	180 111 LALA	87.00
0-2 A	0.03	180 113 LELE	180 111 LELE	87.00
0-5 A	0.01	180 113 LSLS	180 111 LSLS	87.00
0-10 A	0.005	180 113 MTMT	180 111 MTMT	87.00
0-15 A	0.003	180 113 NDND	180 111 NDND	87.00
0-20 A	0.25	180 113 NGNG	180 111 NGNG	87.00
0-30 A	0.001	180 113 NLNL	180 111 NPNP	87.00
0-40 A	0.001	180 113 NPNP	180 111 NTNT	87.00
0-50 A	0.001	180 113 NTNT	180 111 NTNT	87.00

DC AMMETERS, SHUNT RATED*

0-10 A	12.5	180 123 ECMT	180 121 ECMT	$87.00
0-20 A	12.5	180 123 ECNG	180 121 ECNG	87.00
0-30 A	12.5	180 123 ECNL	180 121 ECNL	87.00
0-40 A	12.5	180 123 ECNP	180 121 ECNP	87.00
0-50 A	12.5	180 123 ECNW	180 121 ECNW	87.00
0-80 A	12.5	180 123 ECPD	130 112 ECPD	87.00
0-100 A	12.5	180 123 ECPK	180 121 ECPK	87.00
0-200 A	12.5	180 123 ECRL	180 121 ECRL	87.00
0-300 A	12.5	180 123 ECRX	180 121 ECRX	87.00
0-400 A	12.5	180 123 ECSC	180 121 ECSC	87.00
0-500 A	12.5	180 123 ECSJ	180 121 ECSJ	87.00
0-800 A	12.5	180 123 ECSN	180 121 ECSN	87.00
0-1000 A	12.5	180 123 ECVA	180 121 ECVA	87.00
0-50 mV	12.5	180 123 EC†	180 121 EC†	87.00
50-0-50 mV	25	180 124 EC†	180 122 EC†	87.00
0-100 mV	25	180 123 GB†	180 121 GB†	87.00
100-0-100 mV	50	180 124 GB†	180 122 GB†	87.00

†Scale and legend to be specified by customer. *Order shunt and leads separately.

PRICES LISTED ARE FOR GUIDANCE ONLY

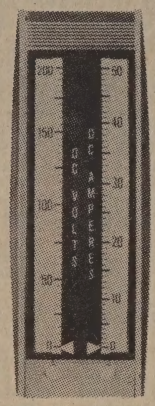
EDGEWISE INSTRUMENTS
TYPE 181 AND 182

ORDERING INSTRUCTIONS

Two type 181's = one type 182. To order a type 182 edgewise instrument, simply select the appropriate top and bottom (for horizontal units) or left and right (for vertical units) model numbers. Specify aluminum or black colored case. For example, Qty. 1—type 182 edgewise instrument w/black case. Left side—50-181 013 LALA1; Right side—50-181 018 RXRX1. To price a type 182 edgewise instrument, add the prices of the two type 181 mechanisms selected. A 50-182 model number will be assigned upon receipt of the order.

SPECIFICATIONS

Accuracy Class: Standard ±1½% of full scale span for DC horizontal and vertical. Standard 2½% of full scale span on 60 Hz for AC rectifier type ammeters and voltmeters. Sine wave at 25° C. **Repeatability:** ±2% of full scale. 120% sustained overload for AC and DC voltmeters; 120% sustained overload for 8 hrs. for AC and DC ammeters. Momentary overload is ten times rated current applied for 10 consecutive intervals of ½ second with one minute intervals between successive applications for AC and DC ammeters. Mechanical overload same as momentary overload for ammeters. **Response Time:** 2.5 sec. Max. **Damping:** Nominal damping factor = 4. **Insulation Level:** operating—600 Volts; Hi-Pot—5000 Volts rms terminals to case for 1 min. **Mounting Dimensions:** Panel Cutout—1.791″ x 5.695″; Faceplate—2.294″ Max. x 6.040″ Max. x 5.765″ deep. Mounts semi-flush. Consult manufacturer for special lettering, scale variations, ratings, calibration, and construction.



Vertical

Horizontal

A-C VOLTMETERS

Scale & Rating	Transformer Rating	HORIZONTAL TOP (Catalog No.)	HORIZONTAL BOTTOM (Catalog No.)	VERTICAL LEFT (Catalog No.)	VERTICAL RIGHT (Catalog No.)	List Price GO-87L
Self-contained 60 HZ rectifier type movement						
0–150 V	Self-Contained	50-181 051 PZPZ1	50-181 055 PZPZ1	50-181 053 PZPZ1	50-181 057 PZPZ1	$86.00
Transformer-rated 0-150 volt 60 HZ rectifier movement						
0–300 V	240/120	50-181 051 PZRX1	50-181 055 PZRX1	50-181 053 PZRX1	50-181 057 PZRX1	$86.00
0–600 V	480/120	50-181 051 PZSJ1	50-181 055 PSZJ1	50-181 053 PZSJ1	50-181 057 PZSJ1	86.00
0–750 V	600/120	50-181 051 PZSM1	50-181 055 PZSM1	50-181 053 PZSM1	50-181 057 PZSM1	86.00
0–3 KV	2400/120	50-181 051 PZVJ1	50-181 055 PZVJ1	50-181 053 PZVJ1	50-181 057 PZVJ1	86.00
0–5.25 KV	4000/120	50-181 051 PZVV1	50-181 055 PZVV1	50-181 053 PZVV1	50-181 057 PZVV1	86.00
0–6 KV	4800/120	50-181 051 PZVX1	50-181 055 PZVX1	50-181 053 PZVX1	50-181 057 PZVX1	86.00
0–9 KV	7200/120	50-181 051 PZWJ1	50-181 055 PZWJ1	50-181 053 PZWJ1	50-181 057 PZWJ1	86.00
0–15 KV	12000/120	50-181 051 PZWZ1	50-181 055 PZWZ1	50-181 053 PZWZ1	50-181 057 PZWZ1	86.00
0–18 KV	14400/120	50-181 051 PZXE1	50-181 055 PZXE1	50-181 053 PZXE1	50-181 057 PZXE1	86.00

D-C AMMETERS

Scale & Rating	Terminal Resistance Ohms	HORIZONTAL TOP (Catalog No.)	HORIZONTAL BOTTOM (Catalog No.)	VERTICAL LEFT (Catalog No.)	VERTICAL RIGHT (Catalog No.)	List Price GO-87L
Shunt-rated—0-50 mv						
0–10 A	12.5	50-181 121 ECMT1	50-181 125 ECMT1	50-181 123 ECMT1	50-181 127 ECMT1	$76.00
0–20 A	12.5	50-181 121 ECNG1	50-181 125 ECNG1	50-181 123 ECNG1	50-181 127 ECNG1	76.00
0–30 A	12.5	50-181 121 ECNL1	50-181 125 ECNL1	50-181 123 ECNL1	50-181 127 ECNL1	76.00
0–40 A	12.5	50-181 121 ECNP1	50-181 125 ECNP1	50-181 123 ECNP1	50-181 127 ECNP1	76.00
0–60 A	12.5	50-181 121 ECNW1	50-181 125 ECNW1	50-181 123 ECNW1	50-181 127 ECNW1	76.00
0–80 A	12.5	50-181 121 ECPD1	50-181 125 ECPD1	50-181 123 ECPD1	50-181 127 ECPD1	76.00
0–100 A	12.5	50-181 121 ECPK1	50-181 125 ECPK1	50-181 123 ECPK1	50-181 127 ECPK1	76.00
0–200 A	12.5	50-181 121 ECRL1	50-181 125 ECRL1	50-181 123 ECRL1	50-181 127 ECRL1	76.00
0–300 A	12.5	50-181 121 ECRX1	50-181 125 ECRX1	50-181 123 ECRX1	50-181 127 ECRX1	76.00
0–400 A	12.5	50-181 121 ECSC1	50-181 125 ECSC1	50-181 123 ECSC1	50-181 127 ECSC1	76.00
0–500 A	12.5	50-181 121 ECSF1	50-181 125 ECSF1	50-181 123 ECSF1	50-181 127 ECSF1	76.00
0–600 A	12.5	50-181 121 ECSJ1	50-181 125 ECSJ1	50-181 123 ECSJ1	50-181 127 ECSJ1	76.00
0–800 A	12.5	50-181 121 ECSN1	50-181 125 ECSN1	50-181 123 ECSN1	50-181 127 ECSN1	76.00
0–1 KA	12.5	50-181 121 ECVA1	50-181 125 ECMT1	50-181 123 ECMT1	50-181 127 ECMT1	76.00

D-C MILLIVOLTMETERS

0–50 MV	12.5	50-181 121 ECEC1	50-181 125 ECEC1	50-181 123 ECEC1	50-181 127 ECEC1	$76.00
50–0–50 MV	25	50-181 122 ECEC1	50-181 126 ECEC1	50-181 124 ECEC1	50-181 128 ECEC1	76.00
0–100 MV	25	50-181 121 GBGB1	50-181 125 GBGB1	50-181 123 GBGB1	50-181 127 GBPB1	76.00
100–0–100 MV	50	50-181 122 GBGB1	50-181 126 GBGB1	50-181 124 GBGB1	50-181 128 GBGB1	76.00

D-C VOLTMETERS

Scale & Rating	Terminal Resistance Ohms	HORIZONTAL TOP (Catalog No.)	HORIZONTAL BOTTOM (Catalog No.)	VERTICAL LEFT (Catalog No.)	VERTICAL RIGHT (Catalog No.)	List Price GO-87L
Self-contained 1000 Ω/volt sensitivity						
0–1 V	1000	50-181 011 LALA1	50-181 015 LALA1	50-181 013 LALA1	50-181 017 LALA1	$76.00
0–5 V	5000	50-181 011 LSLS1	50-181 015 LSLS1	50-181 013 LSLS1	50-181 017 LSLS1	76.00
0–15 V	15000	50-181 011 NDND1	50-181 015 NDND1	50-181 013 NDND1	50-181 017 NDND1	76.00
0–30 V	30000	50-181 011 NLNL1	50-181 015 NLNL1	50-181 013 NLNL1	50-181 017 NLNL1	76.00
0–50 V	50000	50-181 011 NTNT1	50-181 015 NTNT1	50-181 013 NTNT1	50-181 017 NTNT1	76.00
0–80 V	80000	50-181 011 PDPD1	50-181 015 PDPD1	50-181 013 PDPD1	50-181 017 PDPD1	76.00
0–150 V	150000	50-181 011 PZPZ1	50-181 015 PZPZ1	50-181 013 PZPZ1	50-181 017 PZPZ1	85.00
0–300 V	300000	50-181 011 RXRX1	50-181 015 RXRX1	50-181 013 RXRX1	50-181 017 RXRX1	93.00
0–600 V	600000	50-181 011 SJSJ1	50-181 015 SJSJ1	50-181 013 SJSJ1	50-181 017 SJSJ1	93.00
150–0–150 V	150000	50-181 011 PZPZ1	50-181 016 PZPZ1	50-181 014 PZPZ1	50-181 018 PZPZ1	85.00
300–0–300 V	300000	50-181 011 RXRX1	50-181 016 RXRX1	50-181 014 RXRX1	50-181 018 RXRX1	93.00

LISTING CONTINUED ON NEXT PAGE

GENERAL ELECTRIC SWITCHBOARD INSTRUMENTS

CONTINUED FROM PRECEDING PAGE

A-C AMMETERS

Scale & Rating	Transformer Rating	HORIZONTAL TOP (Catalog No.)	HORIZONTAL BOTTOM (Catalog No.)	VERTICAL LEFT (Catalog No.)	VERTICAL RIGHT (Catalog No.)	List Price GO-87L
Self-contained 60 HZ DC rectifier type movement—with internal CT						
0–5 A	Self-Contained	50-181 151 LSLS1	50-181 155 LSLS1	50-181 153 LSLS1	50-181 157 LSLS1	$86.00
Transformer-rated 0-5 amp 60 HZ DC rectifier type movement—with internal CT						
0–10 A	10/5	50-181 151 LSMT1	50-181 155 LSMT1	50-181 153 LSMT1	50-181 157 LSMT1	$86.00
0–15 A	15/5	50-181 151 LSND1	50-181 155 LSND1	50-181 153 LSND1	50-181 157 LSND1	86.00
0–20 A	20/5	50-181 151 LSNG1	50-181 155 LSNG1	50-181 153 LSNG1	50-181 157 LSNG1	86.00
0–25 A	25/5	50-181 151 LSNJ1	50-181 155 LSNJ1	50-181 153 LSNJ1	50-181 157 LSNJ1	86.00
0–30 A	30/5	50-181 151 LSNL1	50-181 155 LSNL1	50-181 153 LSNL1	50-181 157 LSNL1	86.00
0–40 A	40/5	50-181 151 LSNP1	50-181 155 LSNP1	50-181 153 LSNP1	50-181 157 LSNP1	86.00
0–50 A	50/5	50-181 151 LSNT1	50-181 155 LSNT1	50-181 153 LSNT1	50-181 157 LSNT1	86.00
0–75 A	75/5	50-181 151 LSPB1	50-181 155 LSPB1	50-181 153 LSPB1	50-181 157 LSPB1	86.00
0–100 A	100/5	50-181 151 LSPK1	50-181 155 LSPK1	50-181 153 LSPK1	50-181 157 LSPK1	86.00
0–150 A	150/5	50-181 151 LSPZ1	50-181 155 LSPZ1	50-181 153 LSPZ1	50-181 157 LSPZ1	86.00
0–200 A	200/5	50-181 151 LSRL1	50-181 155 LSRL1	50-181 153 LSRL1	50-181 157 LSRL1	86.00
0–300 A	300/5	50-181 151 LSRX1	50-181 155 LSRX1	50-181 153 LSRX1	50-181 157 LSRX1	86.00
0–400 A	400/5	50-181 151 LSSC1	50-181 155 LSSC1	50-181 153 LSSC1	50-181 157 LSSC1	86.00
0–500 A	500/5	50-181 151 LSSF1	50-181 155 LSSF1	50-181 153 LSSF1	50-181 157 LSSF1	86.00
0–600 A	600/5	50-181 151 LSSJ1	50-181 155 LSSJ1	50-181 153 LSSJ1	50-181 157 LSSJ1	86.00
0–800 A	800/5	50-181 151 LSSN1	50-181 155 LSSN1	50-181 153 LSSN1	50-181 157 LSSN1	86.00
0–1 KA	1000/5	50-181 151 LSVA1	50-181 155 LSVA1	50-181 153 LSVA1	50-181 157 LSVA1	86.00
0–1.2 KA	1200/5	50-181 155 LSVB1	50-181 155 LSVB1	50-181 153 LSVB1	50-181 157 LSVB1	86.00
0–1.5 KA	1500/5	50-181 151 LSVC1	50-181 153 LSVC1	50-181 153 LSVC1	50-181 157 LSVC1	86.00
0–2 KA	2000/5	50-181 151 LSVE1	50-181 155 LSVE1	50-181 153 LSVE1	50-181 157 LSVE1	86.00
0–3 KA	3000/5	50-181 151 LSVJ1	50-181 155 LSVJ1	50-181 153 LSVJ1	50-181 157 LSVJ1	86.00
0–4 KA	4000/5	50-181 151 LSVN1	50-181 155 LSVN1	50-181 153 LSVN1	50-181 157 LSVN1	86.00

D-C AMMETERS

Scale & Rating	Terminal Resistance Ohms	HORIZONTAL TOP (Catalog No.)	HORIZONTAL BOTTOM (Catalog No.)	VERTICAL LEFT (Catalog No.)	VERTICAL RIGHT (Catalog No.)	List Price GO-87L
Self-contained						
0–50 μA	4900	50-181 111 CYCY1	50-181 115 CYCY1	50-181 113 CYCY1	50-181 117 CYCY1	$100.00
0–100 μA	1525	50-181 111 DRDR1	50-181 115 DRDR1	50-181 113 DRDR1	50-181 117 DRDR1	92.00
0–200 μA	690	50-181 111 EAEA1	50-181 115 EAEA1	50-181 113 EAEA1	50-181 117 EAEA1	85.00
0–500 μA	230	50-181 111 EMEM1	50-181 115 EMEM1	50-181 113 EMEM1	50-181 117 EMEM1	76.00
0–1 MA	64	50-181 111 FAFA1	50-181 115 FAFA1	50-181 113 FAFA1	50-181 117 FAFA1	76.00
0–2 MA	64	50-181 111 FGFG1	50-181 115 FGFG1	50-181 113 FGFG1	50-181 117 FGFG1	76.00
0–5 MA	3.1	50-181 111 FXFX1	50-181 115 FXFX1	50-181 113 FXFX1	50-181 117 FXFX1	76.00
0–10 MA	1.8	50-181 111 GZGZ1	50-181 115 GZGZ1	50-181 113 GZGZ1	50-181 117 GZGZ1	76.00
0–50 MA	1.2	50-181 111 HYHY1	50-181 115 HYHY1	50-181 113 HYHY1	50-181 117 HYHY1	76.00
0–100 MA	0.5	50-181 111 JRJR1	50-181 115 JRJR1	50-181 113 JRJR1	50-181 117 JRJR1	76.00
0–200 MA	0.25	50-181 111 KAKA1	50-181 115 KAKA1	50-181 113 KAKA1	50-181 117 KSKA1	76.00
0–500 MA	0.10	50-181 111 KMKM1	50-181 115 KMKM1	50-181 113 KMKM1	50-181 117 KMKM1	76.00
0–800 MA	0.062	50-181 111 KWKW1	50-181 115 KWKW1	50-181 113 KWKW1	50-181 117 KWKW1	76.00
0–1 A	0.05	50-181 111 LALA1	50-181 115 LALA1	50-181 113 LALA1	50-181 117 LALA1	76.00
0–2 A	0.025	50-181 111 LELE1	50-181 115 LELE1	50-181 113 LELE1	50-181 117 LELE1	76.00
0–5 A	0.010	50-181 111 LSLS1	50-181 115 LSLS1	50-181 113 LSLS1	50-181 117 LSLS1	76.00
0–10 A	0.005	50-181 111 MTMT1	50-181 115 MTMT1	50-181 113 MTMT1	50-181 117 MTMT1	76.00
0–15 A	0.003	50-181 111 NDND1	50-181 115 NDND1	50-181 113 NDND1	50-181 117 NDND1	76.00
0–20 A	0.0025	50-181 111 NGNG1	50-181 115 NGNG1	50-181 113 NGNG1	50-181 117 NGNG1	76.00
0–30 A	0.001	50-181 111 NLNL1	50-181 115 NLNL1	50-181 113 NLNL1	50-181 117 NLNL1	76.00
0–40 A	0.001	50-181 111 NPNP1	50-181 115 NPNP1	50-181 113 NPNP1	50-118 117 NPNP1	76.00
0–50 A	0.001	50-181 111 NTNT1	50-181 115 NTNT1	50-181 113 NTNT1	50-181 117 NTNT1	76.00

D-C MILLIAMMETERS

20% MECHANICALLY SUPPRESSED, LIVE-ZERO, SELF-CONTAINED

Scale & Rating	Terminal Resistance Ohms	HORIZONTAL TOP (Catalog No.)	HORIZONTAL BOTTOM (Catalog No.)	VERTICAL LEFT (Catalog No.)	VERTICAL RIGHT (Catalog No.)	List Price GO-87L
Blank scales and legends—pencil lines at 0, 25%, 50%, 75%, 100% of full scale positions						
1–5 MA	3.1	50-181 191 FYAA1	50-181 195 FYAA1	50-181 193 FYAA1	50-181 197 FYAA1	$83.00
4–20 MA	1.8	50-181 191 HEAA1	50-181 195 HEAA1	50-181 193 HEAA1	50-181 197 HEAA1	83.00
10–50 MA	1.2	50-181 191 HXAA1	50-181 195 HXAA1	50-181 193 HXAA1	50-181 197 HXAA1	83.00

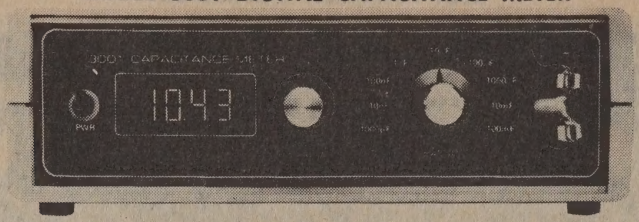
WRITE US FOR INFORMATION AND PRICING ON ALL NEW OR UNLISTED ITEMS. NO SPECIAL ORDER NUMBERS NECESSARY, JUST USE THE MANUFACTURER'S MODEL NUMBERS.

PRICES LISTED ARE FOR GUIDANCE ONLY

GLOBAL SPECIALTIES

CAPACITANCE METER & COMPARATOR

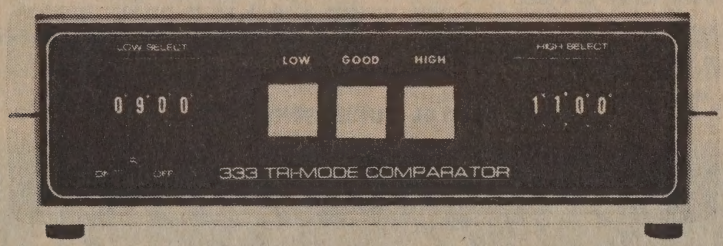
MODEL 3001 DIGITAL CAPACITANCE METER



● 9 ranges from 1 pF to 199,000 μF ● Fuse protected input ● Zero calibration adjustment ● Faster incoming inspection ● 0.1% accuracy through first 7 ranges

Input: Dual banana jacks for attachment of capacitor or capacitance from 1 pF to 199,999 μF, protected by 1/2 Amp, 250 V fuse.
Output: 5-pin DIN connector providing TTL-level Gated Clock and Clock Enable Gate signals, buffered to drive min 1 TTL load.
References: Timebase—2 MHz crystal oscillator. **Voltage**—Two regulated precision Voltage references are used on each measurement using dual threshold charging curve integration; high reference is approx 3.5 VDC in lower seven ranges, approx 0.5 VDC in higher two ranges; low reference varies 50-500 mV (chosen as non-zero to minimize effects of dielectric absorption.
Accuracy—overall measurement accuracy is ±0.1% of reading on 7 lower ranges, ±0.5% of reading on 2 higher ranges, ±1 pF, ±1 count; accuracy determined at 23 ±5° C, temperature coefficient is ±0.01%/° C in all ranges; **Zero Cal** front panel knob adjustment, active and significant only in 3 lowest ranges; allows nulling of incidental capacitance, cable capacitance, etc. up to 100 pF.
Controls: Power, Zero, Calibrate, 9-position Range switch ranges marked are 1000 pF, 10 nF, 100 nF, 1 μF, 10 μF, 100 μF, 1000 μF, 10 mF, 100 mF; actual capabilities for these ranges are 1-1999 pF, 10 pF-19.99 nF, 100 pF-199.9 nF, 1 nF-1.999 μF, 10 nF-19.99 μF, 100 nF-199.9 μF, 1-1999 μF, 10 μF-19.99 mF, and 100 μF-199.9 mF.
Display: 3 1/2 digit 7-segment 0.5 inch LED display, decimal point positioned automatically for selected Range units; if overrange, display flashes at 2 Hz; if underrange, display indicates all zeroes.
Power: 105-135 VAC, 57-63 Hz, 6 VA maximum (215-250 VAC, 50-60 Hz version available).
Dimensions: 3 × 10 × 7 inches H × W × D (76 × 254 × 178 mm) 3.0 lbs (1.4 kg).
Op Temp: 5-45° C (calibrated at 23° C ±5%).
Includes: Instruction manual; Model 335 Test Cable, Model 336 Test Clips.
Model 3001 Capacitance Meter—Net Each **$275.00**

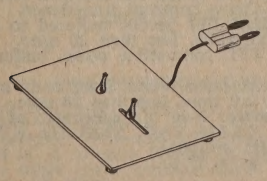
MODEL 333 TRI-MODE COMPARATOR



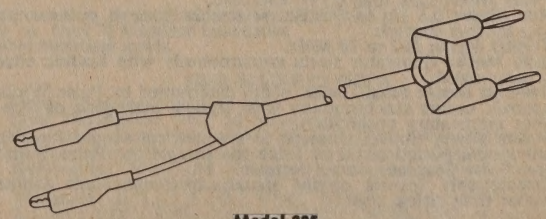
● Speed capacitor selection/sorting ● Thumbwheel switchbanks define range limits ● Color-coded lamps indicate Low-Good-High ● Input through 5-pin rear-panel DIN connector ● Buffered outputs drive 5 TTL loads

Input: 3 lines—ground, Gated Clock, Clock Enable Gate—standard TTL levels, 5-pin rear panel DIN connector; compatible with 3001 output.
Loading: 1 TTL load max.
Response: 2 MHz max.
Output: 3 lines—Low, Good, High—active-low TTL-compatible 5 VDC logic levels, through 5-pin rear panel DIN connector; correspond to annunciators. **Drive:** Buffered to drive min 5 TTL loads.
Modes: For 0-1999 clock pulses during gate, compares pulse count to limits set on High Select, Low Select switchbanks. Count lower than Low Select lights Low annunciator, provides logic 0 at rear panel Low output; count equal to or higher than Low Select and lower than High Select lights Good annunciator, provides Good output signal (Good condition disabled if Low Select set higher than High Select); count equal to or higher than High Select lights High annunciator, provides High output signal.
Controls: Power, Low Select, and High Select 3 1/2 digit thumbwheel switchbanks.
Display: Yellow Low, Green Good, Red High 0.71 × 0.71 inch lamp annunciators with wide angle diffuser lens assemblies, extended life incandescent lamps.
Power: 105-135 VAC, 57-63 Hz, 10 VA maximum (215-250 VAC, 50-60 Hz version available).
Dimensions: 3 × 10 × 7 inches H × W × D (76 × 254 × 178 mm) 3.0 lbs (1.4 kg).
Op Temp: 0-40° C.
Includes: Instruction manual, Model 337 Connecting Cable.
Model 333 Tri-Mode Comparator—Net Each **$295.00**

OTHER ACCESSORIES



Model 334



Model 335

Model 334 Production test fixture—Has two test clips (for grasping capacitor) mounted on 4 " × 6" × 1/16" aluminum baseplate, and 18-in. coax cable with banana plug for connecting to Model 3001. Net Each **$21.90**
Model 335 Test Cable—RG-58/U coax cable, 18 inches long, with banana plug on one end, alligator clips on the other. Net Each **$9.90**
Model 336 Test Clips—Nickel plated brass, tweezer style, spring clips attached to standard banana plug. Includes 2 clips. Net Each **$3.50**
Model 337 Connecting Cable—18-inch cable with 5-pin DIN connector at each end. For connecting 3001 output to 333 input. Net Each **$4.95**
Model 338 Replacement Lamp Kit—Includes all parts and instructions for replacing single annunciator lamp and lamp housing. Net Each **$3.95**

GLOBAL SPECIALTIES

SIGNAL GENERATORS

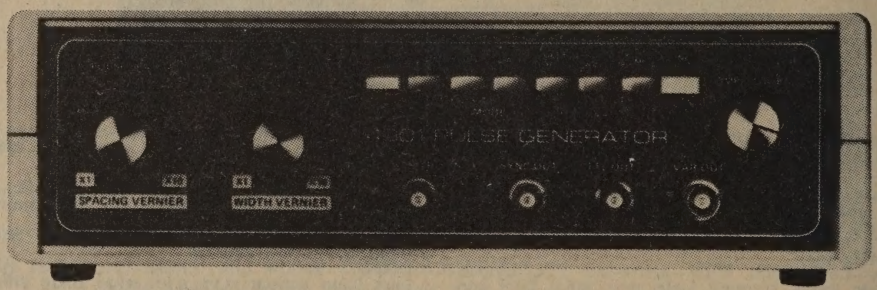
2001 FUNCTION GENERATOR

- **Sine, square, triangle**
- **Separate TTL output**
- **1 Hz to 100 KHz**
- **Variable DC offset**
- **Sweepable 100:1 with ±10 volts input**
- **High, low level, 600-ohm, variable outputs**

SPECIFICATIONS

Frequency Range: 1 Hz to 100 KHz in 5 overlapping decade ranges (1-10 Hz, 10-100 Hz, 100 Hz to 1 KHz, 1-10 KHz, 10-100 KHz), pushbutton selectable with a 10:1, 50-increment vernier dial.
Dial Accuracy: ±5% of dial setting; calibrated at 10 Hz, 100 Hz, 1 KHz and 10 KHz.
Sine Wave Distortion: Less than 1% THD typ.; calibrated to less than 1.5%.
Triangle Wave Linearity: Better than 1%.
Square Wave Rise and Fall Times: Less than 100 nsec into 600 Ohms, 20 pF.
Square Wave Time Symmetry: ±1% typ.; calibrated to less than 1.5%.
Sweep Range: 100:1 max.; linear range, 10:1 max.
Sweep Input: 0-10 V.
Input Impedance: 30,000 Ohms.
Outputs: High, Low, TTL; DC coupled, banana jacks.
Output Impedance: Constant 600 Ohms; short circuit proof.
High Output Level: 0.1-10 V p-p, open circuit; .05-5 V p-p into 600 Ohms.
Low Output Level: −40 dB of High output; 1-100 mV, open circuit; 0.5-50 mV into 600 Ohms.
TTL Output: TTL-level square wave (in all modes), buffered to drive 10 TTL loads; rise and fall times, less than 25 nsec; synchronous with Hi and Lo outputs.
High Output DC Offset: Variable from −5 to +5 VDC, open circuit; total AC (signal) plus DC (offset) output limited to ±10 V p-p, open circuit, ±5 V p-p into 600 Ohms; offset zero when feature not selected.
Low Output DC Offset: ±50 mV max.
Operating Temperature: 0-50° C; calibrated at 25° C ±5%.
Power Required: 105-135 VAC, 47-63 Hz, 6 VA max.; 215-250 VAC, 50-60 Hz optional.
Size: 3" h. × 10" w. × 7" d.
Weight: 2.2 lbs.
Model 2001 Function Generator—Net Each **$200.00**

4001 DIGITAL PULSE GENERATOR



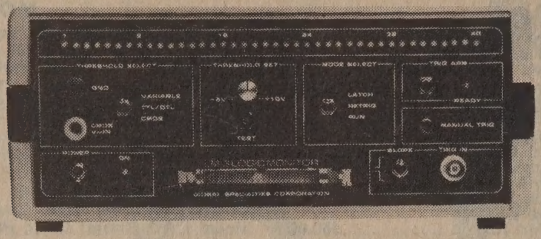
- **Complement output pulse, square wave**
- **Symmetrical square wave**
- **Variable output; 0.1-10 V at 50 Ohms**
- **Drives 40 TTL loads**
- **Pulse width and spacing independently variable**
- **Four modes; Run, Triggered, Gated, One-Shot**
- **Sync output leads main output**

SPECIFICATIONS

Frequency Range: 0.5 Hz to 5 MHz.
Pulse Width and Spacing: Independently variable from 100 nsec to 1 sec with 10:1 verniers over 7 decade ranges.
Accuracy: ±5%; calibrated at min. and max. settings.
Pulse Jitter: Less than 0.1% ±50 psec.
Run Mode: 0.5 Hz to 5 MHz, selectable through pulse width and spacing controls.
Trigger Mode: DC to 10 MHz.
Gate Mode: Generator starts synchronously with leading edge of gate signal.
One-Shot Mode: Single pulse, width determined by Pulse Width control; occurs synchronously with manual activation of One-Shot momentary pushbutton.
Square Wave: Converts output to symmetrical square wave in any mode; period equal to twice the sum of the Pulse Width and Pulse Spacing control settings.
Complement: Inverts output signal; sync out leads falling rather than rising edge.
Trigger/Gate Input Signal: 1.7 V rms sine wave, 2.4 V pk. pulses; TTL compatible.
Input Pulse Width: Greater than 40 nsec wide.
Input Impedance: 400 Ohms, DC coupled.
VAR OUT: Amplitude, 0.1-10 V, open circuit; 0.05-5 V into 50 Ohms; variable with Amplitude control; rise/fall time, less than 30 nsec; 50 Ohms constant impedance.
TTL Drive: Standard TTL levels, buffered to drive up to 40 TTL loads; rise/fall time, less than 20 nsec.
Sync Out: 2.4 V, TTL compatible pulse, buffered to drive 10 TTL loads.
Sync Timing: 20 nsec pulse width, leads main outputs by more than 20 nsec; rise/fall time, less than 20 nsec.
Operating Temperature: 0-40° C; calibrated at 25° C ±5%.
Power Required: 105-135 VAC, 57-63 Hz, 6 VA max.; 215-250 VAC, 50-60 Hz optional.
Size: 3" h. × 10" w. × 7" d.
Weight: 2.2 lbs.
Model 4001 Pulse Generator—Net Each **$235.00**

GLOBAL SPECIALTIES PROVIDES A FULL LINE OF BREADBOARDS AND TEST EQUIPMENT FOR PROTOTYPE DEVELOPMENT. THEIR USE WILL ALLOW YOU TO DEVOTE MORE TIME TO CIRCUIT DESIGN AND LESS TO CIRCUIT CONSTRUCTION.

MODEL LM-3 TRIGGERABLE LOGIC MONITOR



- High input impedance — .5 MegOhm at 6 pF
- 5 MHz speed — Captures 100 nsec events
- Works with all logic families: DTL, TTL, RTL, PMOS, NMOS, CMOS, ECL, HiNIL, HTL
- Four modes: Run. Retrig, Latch, Manual
- Selectable threshold: Fixed DTL/TTL; variable −5 to +10 Volts; CMOS 70% of sampled V_{CC}
- Monitor up to 40 logic points simultaneously

SPECIFICATIONS

Main Input: 40 channels through front-panel connector, 24" mating ribbon cable and 40 easy-clips: DC coupled.
Input Voltage: ±18 V max.
Input Impedance: 0.5 MegOhm, 6 pF at connector; 0.5 MegOhm, 30 pF with cable.
Response: Min. pulse width, 100 nsec; max. trigger frequency, 5 MHz.
Sensitivity: DC turn-on threshold voltage adjustable from −5 to +10 VDC.
Trig In: Front panel BNC. Slope switch selects +/− edge. Threshold identical to and tracks with main inputs.
V_{CC} In: Samples V_{CC} of circuit under test through front-panel banana jacks.
Output: Threshold Voltage test point; accepts Voltmeter probe; represents internal threshold Voltage within ±2%.
Threshold Reference: Threshold Voltage for the 40 input channels and the Trigger input for various settings of the Threshold Mode selector are determined as follows: TTL, Preset to 2.2 ±0.1 VDC, any channel may vary ±200 mV from reference; CMOS, V_{CC} input samples Voltage of circuit under test, threshold determined as 70% of V_{CC}; Variable, front-panel Threshold Set control adjust threshold over continuous −5 to +10 VDC range.
Run Mode: Data display follows input data; Ready LED lights up.
Retrig Mode: Ready LED lights up, data display follows input data until either a pulse transition appears at Trigger input or the Manual pushbutton is pressed, freezing data display and turning Ready LED off. Display updates with each new data on each subsequent Trigger pulse or Manual event; data must be stable a min. of 20 nsec before and 80 nsec after specified Trigger edge.
Latch Mode: Ready LED lights up. Data display follows input until next Trigger edge or Manual event occurs, which freezes data and turns off Ready LED; all further Manual or Trigger inputs are ignored until ARM pushbutton is pressed. Data must be stable a min of 20 nsec before and 80 nsec after specified Trigger edge.
Display: 40 discrete LEDs, legend indexed to input connector and input channels; LEDs in positions 8, 16, 24, 32 and 40 are green; all others are red.
Operating Temperature: 0-40° C.
Power Required: 105-135 VAC, 57-63 Hz, 40 VA max.; 215-250 VAC, 50-60 Hz optional.
Size: 4" h. × 10" w. × 7" d.

Weight: 5 lbs.
Model LM-3 Triggerable Logic Monitor—Net Each **$699.00**

LM-3 ACCESSORIES

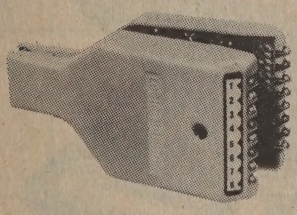
Model LMA-1 Input Ribbon Cable—40-conductor ribbon cable, 24" long, terminated on one end with 40 easy-clips; other end has dual in-line socket with gold-plated beryllium copper contacts, keyed to fit input connector of Model LM-3. Net Each **$132.00**

Model LMA-2 V_{CC}-Sense Input Cable—18" long cable with polarized dual banana plugs at one end; red and black vinyl-clad alligator clips at the other. Net Each **$4.95**

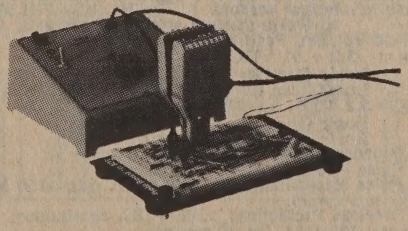
Model LMA-3 Input Ribbon Cable—40-conductor cable with two PC-16's and 8 easy-clips. Net Each **$74.10**

Model LMA-4 Input Ribbon Cable—40-conductor cable with one PC-40. Net Each **$57.85**

MODELS LM-1 AND LM-2 16-CHANNEL LOGIC MONITORS



LM-1



LM-2

- Ideal for DIP troubleshooting
- Circuit powered
- Automatically seeks power pins
- 16-channel logic state display clip
- Over 20 MegOhm impedance
- Five switch-selectable threshold levels

LM-1 SPECIFICATIONS

Input: Clips to 16 pins of DIP.
Input Impedance: 0.1 MegOhm.
Reference: Threshold Voltage, reference determines turn-on point for each of 16 discrete LEDs. Threshold corresponds to DTL, TTL or other logic families whose logic 1 to logic 0 differentials are 5-7 Volts.
Threshold: 2 ±0.2 VDC.
Mode: Single mode, single logic threshold.
Display: 16 discrete LEDs, numbered 1-16, each light up when logic 1 level appears at corresponding pin of DIP IC clip.
Power Required: 4 VDC min., 15 VDC max. across any two inputs; derived from circuit under test. Max. current drain, 200 mA at 10 VDC.
Operating Temperature: 5-45° C.
Size: 4" l. × 2" w. × 1 1/2" d.
Weight: 3 oz.

Model LM-1 16-Channel Logic Monitor—Net Each **$79.00**

LM-2 SPECIFICATIONS

Input: Clips to 16 pins of DIP.
Input Impedance: Over 20 MegOhms.
V_{CC} Input: Dual color-coded alligator clips sense V_{CC} of circuit under test to determine logic thresholds in CMOS mode.
References: Threshold Voltage reference determines turn-on point for each of 16 discrete LEDs.
Threshold: RTL, 1.2 ±0.1 VDC; DTL, 1.6 ±0.1 VDC; TTL, 2.4 ±0.1 VDC; HTL, 7.5 ±0.1 VDC; CMOS, 70% of sampled V_{CC} ±0.1 VDC.
Modes: Five modes; RTL, DTL, TTL, HTL, CMOS.
Display: 16 discrete LEDs, numbered 1-16, each light up when logic 1 level appears at corresponding pin of DIP IC clip.
Power Required: 105-135 VAC, 57-63 Hz, 10 VA max.; 215-250 VAC, 50-60 Hz optional; line powered through support console.
Operating Temperature: 5-45° C.
Size: 4" l. × 2" w. × 1 1/2" d.
Weight: 20 oz.

Model LM-2 16-Channel Logic Monitor—Net Each **$147.00**

GLOBAL SPECIALTIES

Digital Logic Probes

DIGITAL LOGIC PROBES

MODEL LP-1

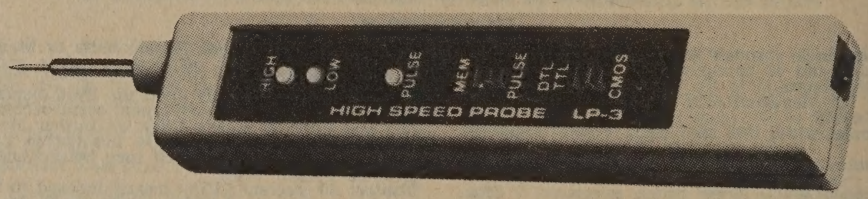
- **Use to 50 nanoseconds, 10 MHz**
- **Circuit powered and portable**
- **Compatible with most logic families**

Instant readings of logic levels for DTL, TTL and CMOS.
Input Impedance: 0.12 MegOhm.
Min. Detectable Pulse: 50 nsec.
Max. Input Signal Frequency: 10 MHz.
Pulse Detector (LED): High-speed train or single event.
Pulse Memory: Pulse or level transition detected and stored.
Input: Protected to 50 VDC, 117 VAC for 15 sec.
Controls: Threshold Select and Pulse Memory.
Display: Discrete High, Low, Pulse LEDs.
Model LP-1 Digital Logic Probe—Net Each **$50.00**

MODEL LP-2

- **High, constant input impedance minimizes circuit loading**
- **Use to 300 nanoseconds, 1.5 MHz**
- **Perfect for CMOS**

Economy version of Model LP-1.
Input Impedance: 1 MegOhm.
Min. Detectable Pulse: 300 nsec.
Max. Input Signal Frequency: 1.5 MHz.
Pulse Detector (LED): High-speed train or single event.
Input: Protected to 50 VDC, 117 VAC for 15 sec.
Controls: Threshold Select.
Display: Discrete High, Low, Pulse LEDs.
Model LP-2 Digital Logic Probe—Net Each **$32.00**



MODEL LP-3

- **High speed—use to 6 nanoseconds, 70 MHz**
- **Pulse memory stores pulse events**

Instant readings of logic levels for DTL, TTL and CMOS.
Input Impedance: 1.2 MegOhm.
Min. Detectable Pulse: 6 nsec.
Max. Input Signal Frequency: 70 MHz.
Pulse Detector (LED): High-speed train or single event.
Pulse Memory: Pulse or level transition detected and stored.
Input: Protected to 50 VDC, 117 VAC for 15 sec.
Controls: Threshold Select and Pulse Memory
Display: Discrete High, Low, Pulse LEDs.
Model LP-3 Digital Logic Probe—Net Each **$77.00**

MODEL LPK-1

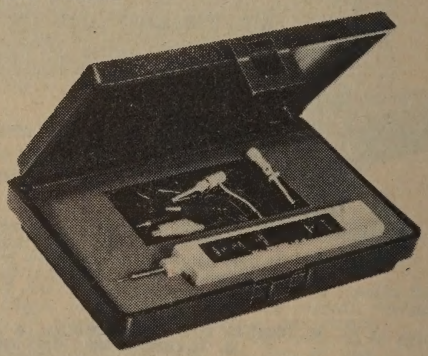
- **HI, LO, PULSE indicators**
- **No operating controls**
- **Universal logic thresholds 30%, 70% of V_{CC}**

Hi, Lo, pulse indicators. Universal logic threshold.
Input Impedance: 0.3 MegOhm.
Min. Detectable Pulse: 300 nsec.
Max. Input Signal Frequency: 1.5 MHz.
Pulse Detector (LED): High-speed train.
Input: Protected to 50 VDC, 117 VAC for 15 sec.
Controls: None.
Display: Discrete High, Low, Pulse LEDs.
Model LPK-1 Digital Logic Probe—Net Each **$23.00**

MODEL LP-4 ECL LOGIC PROBE

- **High speed—3 nanoseconds, over 100 MHz**
- **2 position slide switch for PULSE or MEMORY latch modes**
- **Easy to interpret readout**
- **HI, LO, PULSE indicators**
- **Pulse memory stores pulse events**

Threshold Voltage, Positive Logic:
$V_{EE} = -5.2 +.01$ VDC at 25° C ±3° C.
Logic One (1): −1.10 ±0.5 VDC.
Logic Zero (0): −1.50 ±0.05 VDC.
$V_{EE} = 5.2$ ±5%, T_A 10° C to 40° C.
Logic One (1): −1.10 ±0.1 VDC.
Logic Zero (0): −1.50 ±0.1 VDC.
Input Impedance: Greater than 10K Ohms.
Input Pulse Width: 3 nanoseconds, min.
Input Pulse Repetition Rate: 100 MHz, min. (150 MHz typical at 50% duty cycle).
Input Overload Protection: ±100 VDC, continuous; ±220 VDC, transients; 120 VAC for 30 seconds.
Model LP-4 Digital Logic Probe—Net Each **$150.00**

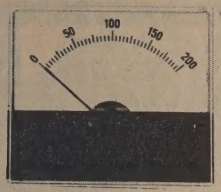


ACCESSORIES FOR LP-1, LP-2, LP-3, LP-4, AND LPK-1

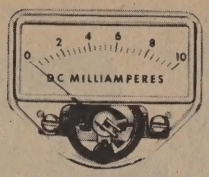
Model LDA-1 Probe Tip—1 1/2" probe tip. Net Each ...**$1.25**
Model LDA-2 Probe Tip—2 1/2" probe tip. Net Each ...**$1.25**
Model LDA-3 Easy-Clip Jumper—3" jumper, threaded to replace probe tip. Net Each **$5.30**
Model LDA-4 Easy-Clip Ground Wire—Plugs into connector adjacent to probe tip. 3.0". Net Each **$5.65**
Model LDA-5 Alligator Clip Ground Wire—Plugs into connector adjacent to probe tip. 3.0". Net Each **$3.70**
Model LDA-6 Easy-Clip Adapter—Slips over probe tip. Net Each **$4.95**
Model LDA-7 Banana Plug Adapter—Threaded to replace probe tip connector. Net Each **$2.00**
Model LDA-8 Power Cord With Alligator Clips—36" coaxial DC power connector to alligator clips. Net Each **$3.70**
Model LDA-9 Power Cord With Easy-Clips—36" coaxial DC power connector to easy-clips. Net Each **$8.70**
Model LDA-A Accessory Assortment—Includes LDA-2, LDA-3, LDA-4, LDA-5, LDA-6, LDA-7 and LDA-9. Net Each **$21.90**
Model LDA-10 BNC Input Adapter—Net Each **$10.00**
Model LDA-11 Wire Wrap Pin Input Adapter—3" long. Net Each **$4.95**
Model LDA-12 Wire Wrap Pin Ground Adapter—3" long. Net Each **$4.95**
Model LDA-B Accessory Assortment—Includes LDA-1, LDA-3, LDA-5, LDA-8, LDA-10, LDA-11, and LDA-12. Net Each **$28.50**

PRICES LISTED ARE FOR GUIDANCE ONLY

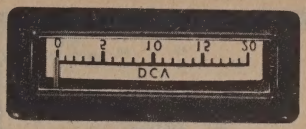
Jewell Panel Meters



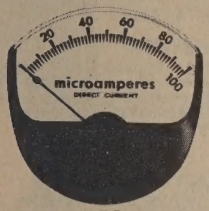
Series MS



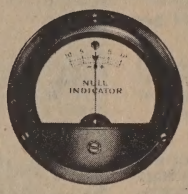
Series 80



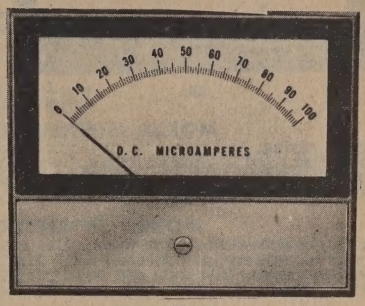
MCE1



Series MM



Series HS, Series 50



45

The JEWELL line offers fine quality meters in every shape and size. Suffix **T** indicates Auto-Torque taut band meters, frictionless and machine made for greater reliability; no suffix **T** indicates pivot and jewel types. Neat, contemporary styling enhances any equipment. Convenient, off-the-shelf delivery on most items. **Accuracy:** ±2% of full scale resistance tolerance; ±10% on current meters; ±5% on voltmeters. Meet or exceed requirements of ASA C39T.

SERIES MS METERS

Perfect for use on contemporary equipment. Clean-cut, easy-to-read, and precisely marked dials. Crystal-clear Plexiglass cover. Comes in three sizes, longer scale length and lance type pointer aid readability. Model MS1, 1½"; Model MS2, 2½"; Model MS3, 3½". **Panel Drilling:** Standard 3-hole.

SERIES 80 METERS

Maximum display in minimum of space. Mounts from behind panel without extra bezel; dial and flange attached directly to mechanism reducing space required behind panel. Plexiglass cover, 100° arc scale and tubular or knife edge pointer. Core-magnet type taut band mechanism is self-shielded. Meter can be mounted horizontally or vertically thru rectangular openings in panel. Model 81T, 1½"; Model 82T, 2½"; Model 83T, 3½".

SERIES MM METERS

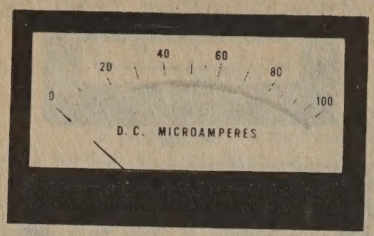
Brings appealing medallion shape to the instrument or panel. Special wedge-shaped scale markings and lance pointer add to the "different look" of meter. Plexiglass cover is unpainted along top edge to admit added light to dial. Available in three sizes; Model MM1, 1½"; Model MM2, 2½"; Model MM3, 3½". **Panel Drilling:** Standard 3-hole.

SERIES HS METERS

Rugged meters for heavy duty use. Mechanisms are mounted on rubber at three points. Special pivots, hair-springs and fastening techniques reduce effects of hard usage. One-piece sturdy steel case provides magnetic and electrostatic shielding; glass window is hermetically sealed to case. Model HS2Z, 2½" and Model HS3Z, 3½" round shaped meters conform to MIL-M-10304.

Range	Net Each											
	1½"				2½"				3½"			
	MS1T or MM1T	MS1 or MM1	81T	HS1	MS2T or MM2T	MS2 or MM2	82T	HS2Z	MS3T or MM3T	MS3 or MM3	HS3Z	83T
DC MICROAMMETERS												
0–20	.....	.....	.....	.....	.....	$40.00	.....	$83.95	.....	$43.35	$87.00	.....
0–50	$26.45	$42.25	$27.20	$52.55	$28.95	33.55	$28.85	54.75	$30.65	35.20	56.65	$30.65
0–100	25.80	37.00	26.45	47.65	28.10	30.55	28.10	49.55	29.90	32.20	51.65	29.90
0–200	24.60	29.35	25.35	42.55	27.05	27.75	27.00	47.65	28.85	29.30	49.65	28.85
0–500	23.05	28.95	23.95	41.00	25.40	27.05	25.45	44.55	27.20	28.70	46.60	27.20
50–0–50	26.10	38.10	26.90	49.00	28.70	31.20	28.45	51.05	30.40	32.20	53.15	30.40
100–0–100	25.05	29.80	25.70	43.70	27.30	27.85	27.30	49.00	29.05	29.55	48.65	29.05
500–0–500	22.50	27.45	23.40	39.50	24.80	26.50	25.10	44.80	26.65	27.25	46.85	26.65
DC MILLIAMMETERS												
0–1	$22.10	$26.55	$22.90	$37.70	$24.50	$25.35	$24.60	$42.60	$26.25	$27.10	$44.50	$26.25
0–5	22.10	26.55	22.90	37.70	24.50	25.35	24.60	42.60	26.25	27.10	44.50	26.25
0–10	22.10	26.55	22.90	37.70	24.50	25.35	24.60	42.60	26.25	27.10	44.50	26.25
0–25	23.65	27.45	23.95	38.65	26.05	26.10	25.45	46.70	27.80	27.75	49.95	27.20
0–50	23.65	27.45	23.95	38.65	26.05	26.10	25.45	46.70	27.80	27.75	49.95	27.20
0–100	23.65	27.45	23.95	38.65	26.05	26.10	25.45	46.70	27.80	27.75	49.95	27.20
0–200	23.65	27.45	23.95	38.65	26.05	26.10	25.45	46.70	27.80	27.75	49.95	27.20
0–500	23.65	27.45	23.95	38.65	26.05	26.10	25.45	46.70	27.80	27.75	49.95	27.20
DC AMMETERS												
0–1	$23.65	$27.45	$23.95	$38.40	$26.05	$26.10	$25.45	$49.85	$27.80	$27.75	$52.00	$27.20
0–5	23.15	27.10	23.95	38.40	26.05	26.10	25.45	49.85	27.80	27.75	52.00	27.20
0–10	23.15	27.10	23.95	38.40	26.05	26.10	25.45	49.85	27.80	27.75	52.00	27.20
0–25	23.15	27.10	23.95	38.40	26.05	26.10	25.45	45.50	27.80	27.75	47.65	27.20
0–50	23.15	27.10	23.95	38.40	26.05	26.10	25.45	45.50	27.80	27.75	47.65	27.20
DC VOLTMETERS												
0–1	$23.25	$29.60	$23.95	$37.70	$25.40	$27.75	$25.45	$47.65	$27.20	$29.50	$49.65	$27.20
0–5	23.25	29.60	23.95	37.70	25.40	27.75	25.45	47.65	27.20	29.50	49.65	27.20
0–10	23.25	29.60	23.95	37.70	25.40	27.75	25.45	47.65	27.20	29.50	49.65	27.20
0–15	23.25	29.60	23.95	37.70	25.40	27.75	25.45	47.65	27.20	29.50	49.65	27.20
0–25	23.25	31.85	23.95	37.70	25.40	27.75	25.45	47.65	27.20	29.50	49.65	27.20
0–30	23.25	31.85	23.95	37.70	25.40	27.75	25.45	47.65	27.20	29.50	49.65	27.20
0–50	23.25	31.85	23.95	37.70	25.40	27.75	25.45	47.65	27.20	29.50	49.65	27.20
0–100	23.25	31.85	23.95	37.70	25.40	27.75	25.45	47.65	27.20	29.50	49.65	27.20
0–150	23.25	31.85	23.95	37.70	25.40	27.75	25.45	47.65	27.20	29.50	49.65	27.20
0–200	23.25	31.85	23.95	37.70	25.40	27.75	25.45	47.65	27.20	29.50	49.65	27.20
0–500	23.25	34.15	23.95	37.70	25.40	27.75	25.45	42.60	27.20	29.50	49.65	27.20
DC MILLIVOLTMETERS												
0–50	$23.15	$27.10	$23.95	$38.40	$25.40	$26.10	$25.45	$45.50	$27.20	$27.75	$47.65	$27.20
AC VOLTMETERS (RECTIFIED)												
0–150	$31.00	$36.10	$31.20	.....	$33.10	$34.05	$32.85	$52.55	$34.95	$37.75	$54.75	$34.95
0–300	31.00	.....	31.20	.....	33.10	34.05	32.85	54.75	34.95	37.75	56.65	34.95

Jewell Panel Meters



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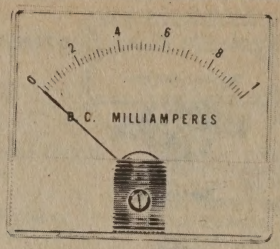
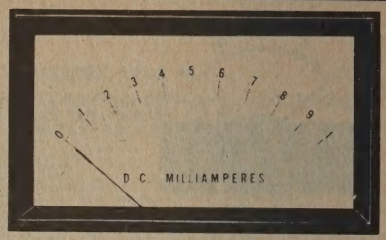


Series 70



Series 70 (Bezel)

MODEL MCE1 METERS

Space saving, 1½" edgewise meter fits into panel cutout. Metal mounting bezel is adjustable for panel thickness up to ¼". Curved Plexiglass cover in black thermosetting plastic case. Vertical or horizontal mounting.

MODEL 45 METERS

Large, easy-to-read dial is framed like a picture. 5" rectangular meter mounts easily on front of panel with four studs. Knife-edge pointer and fine-line scale add to readability. Dull black thermosetting plastic case and cover, glass window.

SERIES 50 METERS

Black-cased meters used for many years on all kinds of high quality equipment. Round or square design. Come in three sizes: Model 52, 2½"; Model 53, 3½"; Model 55, 5".

MODEL 65 METERS

Beautifully-styled rectangular meter is mounted from behind the panel. Zero adjustment screw is in front of panel. Almost flush dial avoids any tunneling effect. Knife-edge pointer, mirrored scale and fine division lines add to readability and appearance. Dull black thermosetting plastic cover has glass window.

SERIES 70 METERS

Meters with the "just plain" look, do not draw attention away from other elements on the panel. Clear Plexiglass cover has slightly rounded corners. Serrated area covers only unusable parts of dial. Meters can be mounted on front of panel in all sizes. Bezel mounted meters can be illuminated. Comes in five sizes: Model 71, 1½"; Model 72, 2½"; Model 73, 3½"; Model 75, 4½"; Model 76, 6".

Range	Net Each										
	1½"		2½"		3½"		4½"	5"			6"
	MCE1	71T	52T or 52	72T or 72	53T or 53	73T or 73	75T or 75	45T or 45	55T or 55	65	76
DC MICROAMMETERS											
0–20	.....	.....	$43.35	$26.45	$51.15	$41.05	$44.35	$55.00	$55.00	$54.85	$52.85
0–50	$46.70	$25.30	37.55	26.70	41.40	28.10	30.15	44.80	44.80	45.35	43.30
0–100	40.75	24.70	35.20	25.90	37.25	27.30	29.35	40.55	40.55	39.25	40.00
0–200	31.65	23.50	29.90	24.70	31.85	26.25	28.25	37.60	37.60	38.10	36.65
0–500	30.80	22.00	29.90	23.15	31.85	24.70	27.00	37.60	37.60	38.10	33.65
50–0–50	42.15	25.20	35.35	26.25	37.25	27.80	29.80	40.55	40.55	41.00	41.15
100–0–100	32.45	24.00	29.90	25.20	31.85	26.65	28.90	37.60	37.60	38.10	36.85
500–0–500	30.00	21.25	28.45	22.60	31.00	24.10	26.10	36.65	36.65	37.00	33.55
DC MILLIAMMETERS											
0–1	$29.00	$22.00	$28.45	$22.15	$31.00	$23.85	$25.80	$33.70	$33.70	$34.20	$32.60
0–5	29.00	22.00	28.45	22.15	31.00	23.85	25.80	33.70	33.70	34.20	32.60
0–10	29.00	22.00	28.45	22.15	31.00	23.85	25.80	33.70	33.70	34.20	32.60
0–25	30.00	22.60	32.10	23.75	33.30	25.30	27.25	35.05	35.05	37.50	37.40
0–50	30.00	22.60	32.10	23.75	33.30	25.30	27.25	35.05	35.05	37.50	37.40
0–100	30.00	22.60	32.10	23.75	33.30	25.30	27.25	35.05	35.05	37.50	37.40
0–200	30.00	22.60	32.10	23.75	33.30	25.30	27.25	35.05	35.05	37.50	37.40
0–500	30.00	22.60	32.10	23.75	33.30	25.30	27.25	35.05	35.05	37.50	37.40
DC AMMETERS											
0–1	$30.00	$22.60	$32.10	$23.75	$33.30	$25.30	$27.25	$35.05	$35.05	$37.50	$37.40
0–5	29.65	22.35	32.10	23.75	33.30	25.30	27.25	35.05	32.05	37.50	37.40
0–10	29.65	22.35	32.10	23.75	33.30	25.30	27.25	35.05	32.05	37.50	37.40
0–25	29.65	22.35	32.10	23.75	33.30	25.30	27.25	35.05	32.05	37.50	37.40
0–50	29.65	22.35	32.10	23.75	33.30	25.30	27.25	35.05	32.05	37.50	37.40
DC VOLTMETERS											
0–1	$32.55	$22.35	$29.90	$23.15	$31.85	$24.70	$26.70	$36.65	$36.65	$37.00	$36.65
0–5	32.55	22.35	29.90	23.15	31.85	24.70	26.70	36.65	36.65	37.00	36.65
0–10	32.55	22.35	29.90	23.15	31.85	24.70	26.70	36.65	36.65	37.00	36.65
0–15	32.55	22.35	29.90	23.15	31.85	24.70	26.70	36.65	36.65	37.00	36.65
0–25	34.85	22.35	29.90	23.15	31.85	24.70	26.70	36.65	36.65	37.00	36.65
0–30	34.85	22.35	29.90	23.15	31.85	24.70	26.70	36.65	36.65	37.00	36.65
0–50	34.85	22.35	29.90	23.15	31.85	24.70	26.70	36.65	36.65	37.00	36.65
0–100	34.85	22.35	29.90	23.15	31.85	24.70	26.70	36.65	36.65	37.00	36.65
0–150	34.85	22.35	29.90	23.15	31.85	24.70	26.70	36.65	36.65	37.00	36.65
0–200	34.85	22.35	31.00	23.15	32.85	24.70	26.70	36.65	36.65	37.00	36.65
0–500	37.75	22.35	31.85	23.15	33.80	24.70	26.70	38.65	38.65	39.00	36.65
DC MILLIVOLTMETERS											
0–50	$29.65	$22.35	$28.45	$23.15	$31.00	$24.70	$26.70	$34.80	$34.80	$35.15	$34.80
AC VOLTMETERS (RECTIFIED)											
0–150	$39.25	$29.80	$41.95	$31.00	$44.90	$32.40	$34.45	$48.25	$48.25	$48.70	$46.35
0–300	.....	29.80	41.95	31.00	44.90	32.40	34.45	48.25	48.25	48.70	46.35

*Not normally available; consult factory.

VU METERS

For monitoring volume levels in broadcast, recording and communication applications. Meter is essentially a rectifier-type AC voltmeter of high sensitivity.

Model	Size	Net Each
MM1 or MS1	1½"	$52.30
MM2 or MS2	2½"	45.25
MM3 or MS3	3½"	46.80
45 or 55	5"	47.65
HS2Z	2½"	64.55
HS3Z	3½"	66.25

NULL INDICATORS

Specifically designed to give null determination over a wide range of unbalance than a standard center zero meter used in a nulling circuit. Large amount of unbalance in a bridge or other detection circuit can be observed. No danger of overloading the meter.

Model	Size	Net Each
MCE1	1½"	$52.30
MM1 or MS1	1½"	52.30
MM2 or MS2	2½"	52.30
HS2Z	2½"	67.75
HS3Z	3½"	82.35

BEZEL AND LIGHTING KITS

Model	Bezel Kit Number	Net Each
72, 72T	871172-001	$3.90
73, 73T	870984-001	4.10
75, 75T	871171-001	4.45

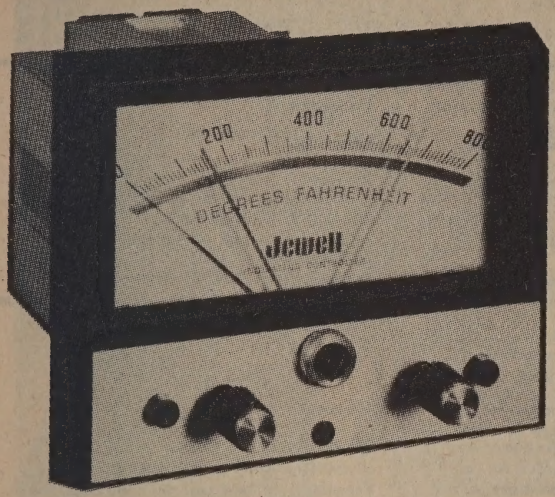
Model	Lighting Kit Number	Net Each
72, 72T	871169-001	$1.30
73, 73T	870537-001	1.30
75, 75T	871170-001	2.55

FOR FULL DETAILS ASK FOR CATALOG 35

PRICES LISTED ARE FOR GUIDANCE ONLY

Jewell Meter Relays

VERSATILE SOLID-STATE METER RELAYS FOR PROCESS APPLICATIONS



- **On-Off or Time Proportioning.**
- **Horizontal or Vertical Mounting.**
- **Reorder Output.**
- **4″ Mirror-Backed Scale.**
- **Push-to-Set Knob.**
- **Plug-In DPDT Relay.**
- **Plug-In Power Supply.**
- **¼ DIN Housing.**
- **Thermocouple Break Protection.**
- **Latching With Manual Reset.**
- **Fixed Setpoints.**
- **Slave Setpoint.**
- **Triac Output.**
- **Screwdriver Setpoint Adjust.**
- **Single or Double Setpoints.**

UNITIZED DESIGN

Unitized design offers Mod Center customizing to your needs for fast response to a wide range of control applications. One ¼ DIN panel cutout; no screw holes. Front-of-panel mounting in rugged aluminum case. Only 5⅜″ behind panel.

OPERATION

The meter indicates actual process condition. The clutch-operated setpointer(s) trim(s) the solid-state sensing and control circuit to high, low or proportional band limits. Should meter be damaged, control still functions.

SERVICE CONVENIENCE

Virtually all components at your fingertips without touching a wire. Control modules unlock and unplug after releasing the front screw and sliding meter and control out of case.

SPECIFICATIONS

Calibration: ±1% of span for central 80% (at 25°C); AC ranges.
Accuracy: ±3% of span for central 80% (at 25°C and 50 or 60 Hz).
Dead Band: 0.5% of span at 25°C.
Coincidence: ±0.75% of span at 25°C.
Control Function: Single or double setpoints (on-off or proportional band.
Setpoint Adjustability: Single or double setpoints are adjustable over full scale.
Standard Relay Action: The low relay energizes above the setpoint; the high relay energizes below the setpoint; others optional.
Output: DPDT relay for each setpoint.
Relay Rating: 5 Amps, 120 VAC for resistive load.
Operating Temperature Range: 32°F to 140°F (0°C to 60°C).
Meter Response Time: 1 second maximum.
Supply Voltage: 105/130, 180/225 or 210/260 VAC, 50/60 Hz.
Power Consumption: 5 Watts nominal.
Termination: Barrier strips on real panel.
Panel Cutout: 3⅝″ (92 mm) square.
Depth Behind Panel: 5⅜″.

OPTIONS

Control Disable Switch: Switch disables the output relays. Switch and function light are mounted on front panel.

Latching With Manual Reset Switch (one or both relays): Upon relay activation, the relay(s) remain(s) activated regardless of pointer position until reset switch is pushed. Switch is mounted on front panel.

Time Proportioning Output (single or double setpoints): When the process approaches the setpoint, the output switches on and off automatically, providing the right proportion of "on" time vs. "off" time to keep the process at the control point. Proportional band is adjustable 3% to 10% (shipped set at 6% unless otherwise specified) and cycle time adjustable 2 to 20 seconds (shipped set at 6 seconds unless otherwise specified).

Fixed Setpoint (single or double setpoint units): Control function is on-off or time proportioning. Setpoint is preset at the desired level before shipment. This internal adjustment can be changed in the field when necessary. Setpoint function light is mounted on the front panel.

Slave Setpoint: This second setpoint is adjustable from 0 to ±50% of span. It is internally set at a specified differential before shipment and will track the adjustable setpoint by this amount. (The control function is On-off. Slave will not operate beyond scale extremes.) The function light for this second setpoint is mounted on the front panel.

Recorder Output: The 0 to 1 VDC output is available at the rear terminals for connection to an auxiliary recorder which must have a minimum input impedance of 50,000 ohms. When supplied on a double setpoint controller, the high relay output is SPDT.

Solid-State Switch; Triac (single or double setpoint units): Replaces conventional DPDT relay with a zero starting single pole, normally open switch. Rated 5 amps continuous up to 240 volts. Inrush capacity, 50 amps. Leakage current, 5 mA. Load and controller need not operate from same power source.

Suppressed Ranges: Available up to 2X span. For example, if span is 75 with max. suppression, dial would read 150 to 225.

Offset Ranges: Zero can be positioned anywhere on the dial.

Blank Dial: Available with 30, 40, 50, 60, 75 or 80 divisions or completely blank.

Special Dial: Available on special order. Information on request.

Non-Standard Relay Action (single or double setpoint): Any combination of relay action above or below setpoint is available. Information on request.

24 VAC Power Supply: Replaces conventional plug-in power supply. Operating range, 22 to 26 VAC, 50/60 Hz.

Screwdriver Setpoint Adjust (single or double setpoint): Replaces push-to-set knob on front panel. Slotted potentiometer shaft is covered with protective screw-on cap. Push-to-set action is retained.

PRICING INFORMATION

MODEL 368 DC RANGES

Range	Net Ea., 1-24	Range	Net Ea., 1-24
MICROAMPERES		**MILLIAMPERES**	
0–5	$210.00	0–1	$210.00
0–10	210.00	0–5	210.00
0–20	210.00	0–10	210.00
0–50	210.00	4–20	210.00
0–100	210.00	0–25	210.00
0–200	210.00	0–50	210.00
0–500	210.00	0–100	210.00
AMPERES		**AMPERES**	
0–1	$210.00	0–50	$210.00
VOLTS		**VOLTS**	
0–1	$210.00	0–50	$210.00
0–5	210.00	0–150	210.00
0–10	210.00	0–300	210.00
0–30	210.00		
MILLIVOLTS		**MILLIVOLTS**	
0–5	$210.00	0–50	$210.00
0–10	210.00	0–100	210.00

MODEL 369 AC RANGES

Range	Net Ea., 1-24	Range	Net Ea., 1-24
AMPERES		**VOLTS**	
0–5	$230.00	0–150	$230.00

MODEL 370 TEMPERATURE RANGES

Range, °F	Type	Net Ea., 1-24	Range, °C	Type	Net Ea., 1-24
0–300	J	$245.00	0–150	J	$245.00
0–600	J	245.00	0–300	J	245.00
0–800	J	245.00	0–500	J	245.00
0–1000	J	245.00	0–800	K	245.00
0–1600	K	245.00	0–1000	K	245.00
0–2000	K	245.00	0–1500	K	245.00
0–2500	K	245.00			

OPTIONS AND ACCESSORIES

Description	Net Ea.
Double Setpoint	$45.00*
Control Disable Switch	6.40*
Latching With Manual Reset Switch	4.90§
Fixed Setpoint (Lower)	6.40*
Fixed Setpoint (Upper)	45.70*
Slave Setpoint	45.70*
Extender Board Kit	22.40
Recorder Output	5.00*
Solid-State Switch (Triac)	33.20*§
Screwdriver Setpoint Adjust	6.00*§
24 VAC Power Supply	34.65*
AC Current Time Delay	3.20*
Special Dial.....Consult Modification Center or Factory	

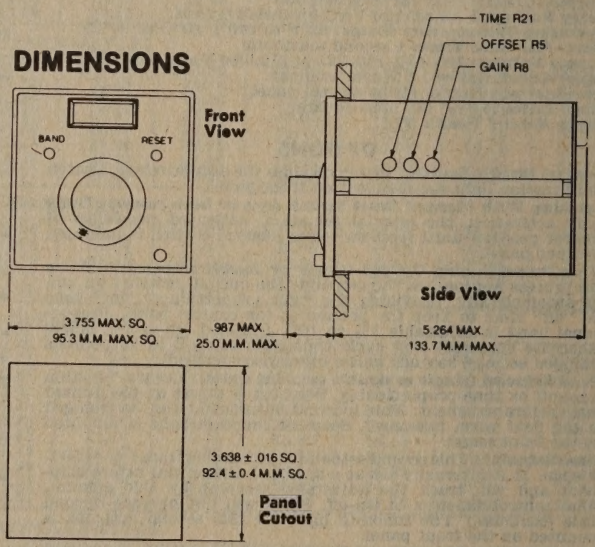
*Add to price of selected controller. §Net per Setpoint.

Jewell Temperature Controllers

A FAMILY OF SIX LOW COST 1/4 DIN THERMOCOUPLE CONTROLLERS–SERIES 371

Setpoint Accuracy:	±1% of span
Setpoint Stability:	Typically 6μV/°F
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Control Point Stability With Line:	±.75% of span for a ±10% change
Operating Voltage:	120/240 VAC, 50-60 Hz
Setpoint:	Analog, single turn potentiometer, 260° rotation
Control Function:	Single setpoint, ON/OFF control
Output:	SPDT relay, rated 10 amps, 240 VAC maximum resistive load
Thermocouple Break Protection:	Upscale
External Thermocouple Resistance:	100 ohms maximum
Cold Junction Compensation:	Standard
Indicating LED:	Illuminated when output is energized
Construction:	Extruded aluminum case with molded front panel
Weight:	1.5 pounds
OPTIONS	
Deviation Meter:	Range ± 10% of span
Triac Output:	SPST (n.o.) 5 amps 120 VAC maximum resistive load
Time Proportioning	
Bandwidth:	2 to 10% of span
Cycle Time:	2 to 20 seconds
Manual Reset:	±5% of span, typical

DIMENSIONS



Model Number to Order	MODEL — FEATURES AVAILABLE — PRICES					
	ON/OFF	Time Proportioning	Deviation Meter	Relay Output	Triac Output	Net Ea., 1-9
371-1	YES	N/A	N/A	YES	N/A	$100.00
371-2	YES	N/A	YES	YES	N/A	$110.00
371-3	N/A	YES	YES	YES	N/A	$120.00
371-4	YES	N/A	N/A	N/A	YES	$110.00
371-5	YES	N/A	YES	N/A	YES	$120.00
371-6	N/A	YES	YES	N/A	YES	$130.00

SPECIFY RANGE*

0-400 °F (J)	0-200 °C (J)
0-800 °F (J)	0-400 °C (J)
0-1000 °F (J)	0-600 °C (J)
500-1500 °F (K)	0-1000 °C (K)
0-2000 °F (K)	

***Temperature range and thermocouple type must be specified when ordering.**

Non-standard ranges also available.

OEM discounts available upon request.

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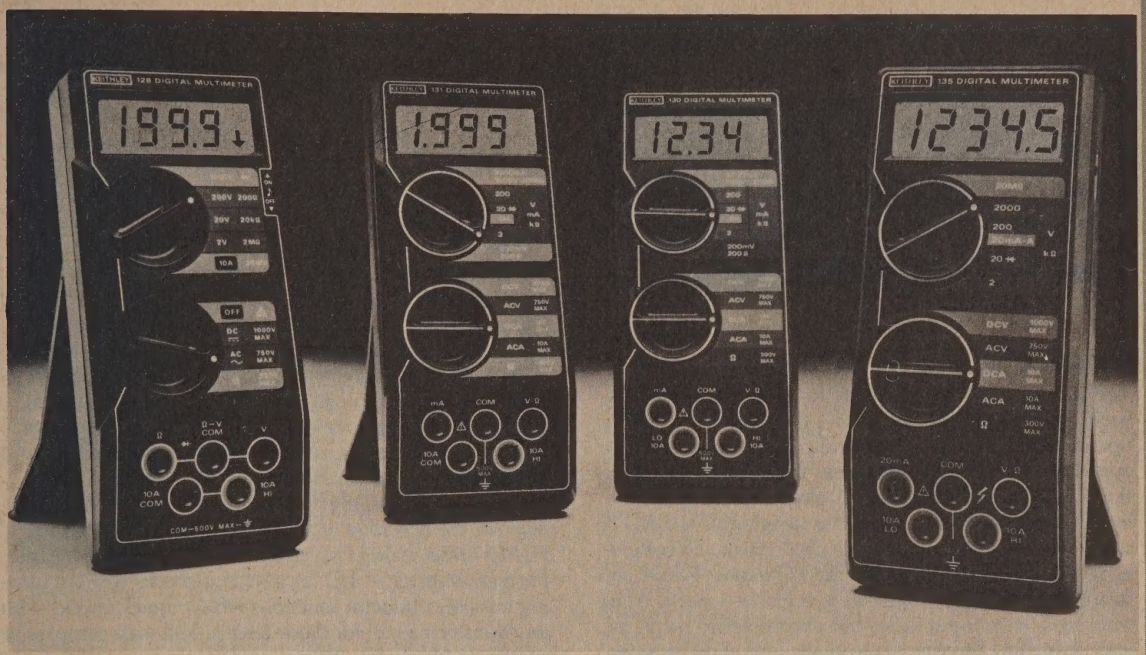
Handheld Digital Multimeters

KEITHLEY



One of Keithley's handheld meters will help you do the job for a price you can afford. They're easy to use, easy to live with and easily available from your Keithley distributor.

Models 130-131

The 130 is a rugged, hard working handheld DMM designed to replace and outperform your old analog unit. It offers ±0.5% DCV accuracy and 5 full functions that are easy to use. It has 10MΩ input impedance, diode check capability, auto polarity and current measurements through 10A. The shock mounted PC board is surrounded by a tough 0.1" thick ABS plastic case. Yet the 130 is price competitive with quality analog meters. $129

The 131 offers all the features of the 130 with 0.25% DCV accuracy and enhanced bandwidth on the top ACV ranges. $139

Model 135

The 135 offers bench meter sophistication in a handheld format. It is both the most precise handheld DMM on the market and the lowest priced industrial grade 4½ available today. Compared to ordinary handhelds, the 135 has 3 to 4 times better accuracy and 10 times better resolution. Yet it is a rugged unit, designed for years of service in the field or on the bench. In short, the 135 is the most sophisticated hand-held DMM you can buy. And it is an unbeatable value. $239

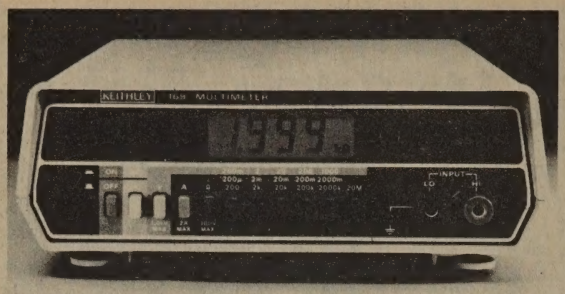
Model 128

A smart choice for field service, the 128 beeper DMM is designed for the real world of hard knocks. The see/hear display includes a large, 0.6" LCD, over/under threshold indicator arrows and audible tone. The beeper operates on all ranges and functions, and its threshold is adjustable to suit various applications. Use the 128 for continuity checks, logic levels or hot tests - it's loaded with practical capabilities, not expensive frills. $139

See following Keithley pages for specifications.

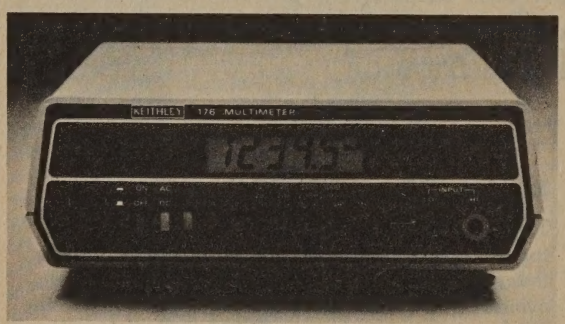
Bench/Portable Digital Multimeters

KEITHLEY



Model 169

The sturdy, easy-to-use, simple to maintain 169 is a basic, no-frills, 0.25% DCV, 3½-digit line or battery operated DMM ideal for general purpose measurement applications and educational use. Excellent input protection on all 5 functions prevents electrical damage. Its low parts count and no-nonsense design give it a MTBF of 20,000 hours. Should it ever need repair, all components are easily accessible on one PC board. Range and function annunciators tell you at a glance what is being measured. Two input jacks and auto polarity mean no lead changing. Zeroing is automatic. Alkaline batteries give 2000 hours (1 year) of operation. The 1766 internal AC power supply option replaces the batteries for safe line operation. Only one adjustment is required at the annual calibration. **$189**



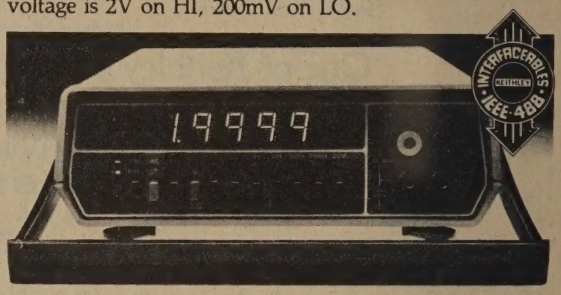
Model 176

The 176 has the same ease-of-use features as the 169 — annunciators, two input jacks, portability, color-coded front panel — but offers enhanced electrical performance. Its 4½-digit resolution gives 10 times the dynamic range of a 3½. DCV accuracy of 0.05% is 3 to 4 times better than that of the best 3½. Bandwidth is 20kHz on lower ranges. Alkaline batteries deliver 1000 hours of operation; safe line operation with the 1766 internal AC power supply is available. Feature for feature, the 176 is a smart way to move up from a 3½, or replace your old 4½ for less than it could cost to repair. **$279**

Top of the 4½'s/179A.

For 4½-digit versatility, you can't beat the 179A. From its large, bright LED display to its reliability and performance, the 179A is the outstanding meter in its class. 10μV AC/DC sensitivity and 20A capability offer vast measurement flexibility. The extra 20A range uses separate input terminals and allows continuous AC/DC measurements of up to 15A or periodic measurements up to 20A.

The 179A is needed for many applications that are beyond the 2A range of most DMMs, such as measurement of the 5V, 10A logic supply of a computer mainframe or peripheral, measurement of the output of a current transformer, or to monitor battery charging. **TRMS ACV** measurement capability allows accurate measurement of complex waveforms over the 45Hz to 20kHz audio range, for applications such as solid-state regulator design, measurement of power transformer input currents and capacitor ripple currents. TRMS AC is necessary since as little as 2% distortion can seriously degrade the accuracy of an average-responding meter. **HI-LO ohms** makes two applied voltage levels available for measurement — LO for in-circuit checks without turning on semiconductor junctions, HI for quick checks with junctions turned on for diode testing. Full scale compliance voltage is 2V on HI, 200mV on LO.



The 179A is easy to use and maintain. Input protection of 1kV on Ω and full protection on other functions keep downtime to a minimum. A calibration shield helps keep annual calibrations short. All internal wiring is Teflon coated, and most components are available off-the-shelf. Overall, there isn't a better 4½-digit DMM than the 179A.

IEEE-488 Interface.

Whether your need is current or in the future, the optional, field installable Model 1793 IEEE-488 Interface extends applications beyond standard bench measurements. Interfaced with a low cost controller such the Apple or HP-85, you can incorporate the 179A into your test system and save time wasted by manually recording, transcribing and entering extensive amounts of measurement data. To order the 179A with the 1793 factory installed, specify Model 179A/1793.

Model 179A . . . **$359**
1793 option **$325**

See following Keithley pages for specifications.

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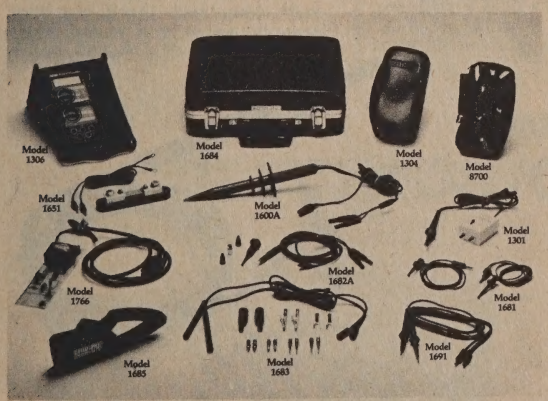
Specifications/Multimeters

Handheld

	128	130	131	135
Digits	3½	3½	3½	4½
DC VOLTS				
Sensitivity	1mV	100μV	100μV	100μV
Maximum Reading	1000V	1000V	1000V	1000V
Basic Accuracy ±(%rdg+digits)	0.5%+1	0.5%+1	0.25%+1	0.05%+1
Input Impedance	10MΩ	10MΩ	10MΩ	10MΩ
Overload Protection	1000V	1000V	1000V	1000V
NMRR	> 46dB	> 46dB	> 46dB	> 60dB
CMRR	> 100dB	> 100dB	> 100dB	> 120dB
AC VOLTS				
Method	Average	Average	Average	Average
Sensitivity	1mV	100μV	100μV	100μV
Maximum Reading	750V	750V	750V	750V
Basic Accuracy ±(%rdg+digits)	(45-500Hz) 1.0%+5	(45-120Hz) 1.0%+5 (500Hz up to 20V)	(45-500Hz) 1.0%+3	(45-500Hz) 1.0%+15 (45-20kHz, 2V range)
Input Impedance	10MΩ <100pF	10MΩ <100pF	10MΩ <100pF	10MΩ <100pF
Overload Protection	750V	750V	750V	750V
OHMS				
Special Features	Diode test. Audible continuity.	Diode test.	Diode test.	Diode test.
Sensitivity	100mΩ	100mΩ	100mΩ	100mΩ
Maximum Reading	20MΩ	20MΩ	20MΩ	20MΩ
Basic Accuracy ±(%rdg+digits)	0.5%+1	0.5%+1	0.2%+1	0.25%+2
Open Circuit Voltage	3.2V	1.5V	1.5V	3.5V
Overload Protection	300V	300V	300V	300V
AC/DC AMPS				
Sensitivity	10mA	1μA	1μA	10μA
Maximum Reading	10A	10A	10A	10A
Basic Accuracy ±(%rdg+digits) AC	2.0%+5	2.0%+5	2.0%+2	1.5%+5
Basic Accuracy ±(%rdg+digits) DC	1.5%+1	1.0%+1	0.75%+1	0.5%+2
GENERAL				
Battery Life (alkaline)	350 hr.	200 hr.	200 hr.	100 hr.
Environment	**Operating:** 0°C to 50°C. **Storage:** −35°C to +60°C			
Dimensions	7.0" long × 3.1" wide × 1.5" thick (178mm × 78mm × 38mm)			
Weight	11 oz. (300gm)	10 oz. (282gm)	10 oz. (282gm)	10 oz. (282gm)



Bench/Portable

	169	176	179A
Digits	3½	4½	4½
Display	LCD	LCD	LED
DC VOLTS			
Sensitivity	100μV	100μV	10μV
Maximum Reading	1000V	1000V	1200V
Basic Accuracy ±(%rdg+digits)	0.25%+1	0.05%+1	0.04%+1
Input Impedance	10MΩ	10MΩ	10MΩ
Overload Protection	1000V	1000V	1200V
NMRR	> 50dB	> 60dB	> 60dB
CMRR	> 100dB	> 120dB	> 120dB
AC VOLTS			
Method	Average	Average	TRMS
Sensitivity	100μV	100μV	10μV
Maximum Reading	1000V	1000V	1000V
Basic Accuracy ±(%rdg+digits)	(45Hz-5kHz) 0.75%+5	(45Hz-20kHz) 1.0%+15	(45Hz-20kHz) 0.6%+15
Input Impedance	10MΩ <100pF	10MΩ <100pF	1MΩ <75pF
Overload Protection	1000V	1000V	1000V
OHMS			
Special Features	Diode test.	Diode test.	HI-LO
Sensitivity	100mΩ	100mΩ	100mΩ
Maximum Reading	20MΩ	20MΩ	20MΩ
Basic Accuracy ±(%rdg+digits)	0.2%+1	0.2%+2	0.04%+1
Open Circuit Voltage	1.5V	5V	5V
Overload Protection	300V	300V	1000V
AC/DC AMPS			
Sensitivity	100nA	1μA	10nA
Maximum Reading	2A	2A	20A
Basic Accuracy ±(%rdg+digits) AC	1.5%+5	1.5%+5	1.0%+15
Basic Accuracy ±(%rdg+digits) DC	0.75%+1	0.5%+2	0.2%+2
GENERAL			
Power	Battery std. Line opt.	Battery std. Line opt.	Line std. Battery opt.
Battery Life (alkaline)	2000 hr.	1000 hr.	6 hour rechargeable
Environment	**Operating:** 0°C to 50°C. **Storage:** −35°C to +60°C		
Dimensions	3½" high × 9¼" wide × 10¾" deep (85mm × 235mm × 275mm)		
Weight	3.0 lb. (1.4kg)	3.6 lb. (1.7kg)	4.0 lb. (1.8kg)

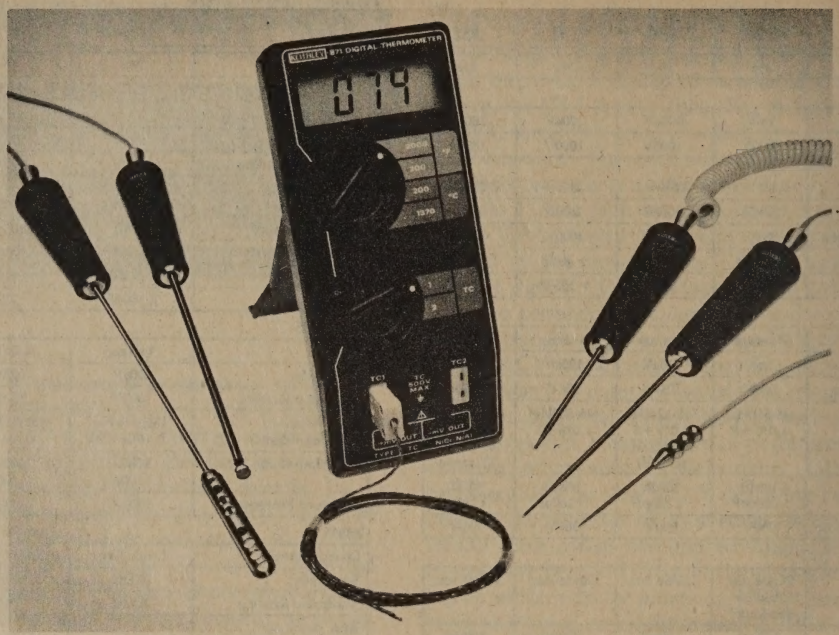
DMM ACCESSORIES

* Model 1010: Single Rack Mounting Kit (bench DMMs) $70
* Model 1017: Dual Rack Mounting Kit (bench DMMs) $115
Model 1301: Temperature Probe (−55° - 150°C) $89
Model 1304: Soft Carrying Case & Stand (handhelds) $10
Model 1306: Heavy Duty Carrying Case (handhelds) $25
Model 1600A: High Voltage Probe (40kV) $79
Model 1651: 50-Ampere Shunt $50
Model 1682A: RF Probe (250MHz) $79
Model 1684: Hard Shell Carrying Case (bench DMMs) $55
Model 1685: Clamp-On AC Probe (200A) $85
Model 1681: Clip-on Test Lead Set . . . . . $ 6
Model 1683: Universal Test Lead Kit $10
Model 1691: General Purpose Test Lead Set . . . . . $ 6
* Model 1766: AC Power Supply for 169 and 176 . . . . . $40
* Model 1788: Rechargeable Battery Pack for 179A $89
Model 1793: IEEE-488 Interface for 179A $325
* Model 7008: IEEE-488 Digital Cable $75

*Not illustrated.

Digital Thermometer

KEITHLEY



The thermometer/871.

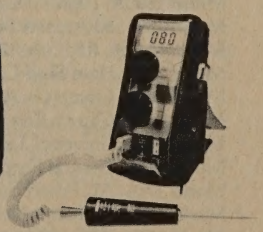
Keithley's experience with high performance scientific instruments as well as low-cost DMMs shows through with the 871 thermocouple (TC) based thermometer. The 871's type K (NiCr-NiAl) TCs offer low cost, good chemical inertness, physical durability and wide temperature span. ±(0.25% rdg + 1°C) accuracy, ±0.2°C repeatability and 0.1°C resolution is achieved through special electronic cold junction compensation circuitry which automatically compensates for ambient temperature changes. A special integrating A/D converter corrects for TC non-linearity. Both °C and °F scales offer two ranges with wide temperature span - from −40° to 1999°F and from −40° to 1370°C. Dual input capability permits two-point temperature measurements; analog output allows interfacing with chart recorders or data acquisition systems. Purchase price includes a 0.9m (3') beaded junction TC sensor. **$225**

THERMOMETER/871 ACCESSORIES

Model 1304: Soft Carrying Case & Stand	$10
Model 1306: Heavy Duty Carrying Case	$25
Model 8700: See-Thru Case w/Belt Clip & Holster	$15
* Model 8711A: Thermocouple Kit	$45
Model 8712: TC Sensor (one included w/871)	$12
Model 8713: General Purpose Probe	$65
Model 8714A: Penetration Probe w/Coiled Cable	$75
Model 8715: Surface Probe	$65
Model 8716: Air Probe	$65
Model 8717: Hypodermic Probe	$65

Model 1306

Model 1304

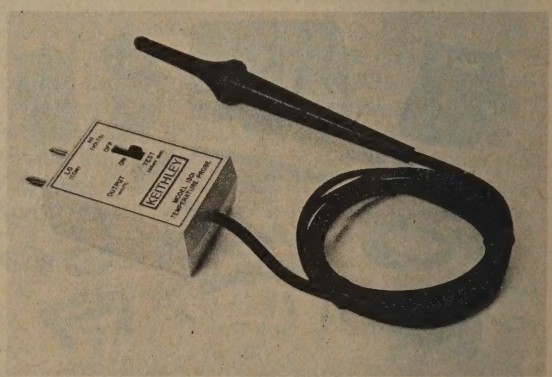


Model 8700

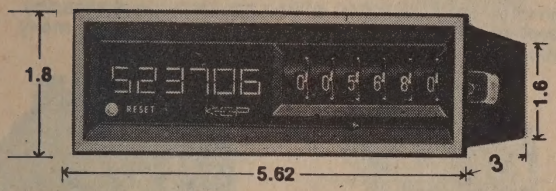
*Not illustrated.

Temperature Probe/1301.

Temperature measurement capability can be added to your DMM with the Model 1301 Temperature Probe. This unit plugs directly into the DC Volts input, and your DMM reads out directly in °C. Readout resolution is 0.1°C on most Keithley DMMs; range is −55°C to 150°C. **$89**

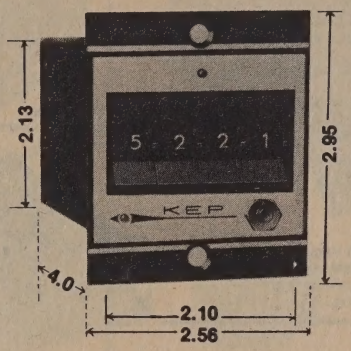


ELECTRONIC PREDETERMINING COUNTERS



SCP-16

With or without visual display. Up to 6 digits of preset. Built in 110 VAC power supply. Counts up to preset number or down from the preset number. Multiple presets available. Crystal time bases. Paralell BCD output. Current available to power all KEP input devices. In stock.



EL-4

TACHOMETERS, TOTALIZERS, TIMERS ADD/SUBTRACT COUNTERS

The SC Series — for high speeds, BCD output, memory, battery standby circuitry, a .400 display, and built in power supply. The series that is ideal for totalizing events, recording precise elasped time, monitoring rate, comparing speeds of two variables, adding and subtracting, or monitoring position.

SC-116

TOTALIZER /ADD SUBTRACT

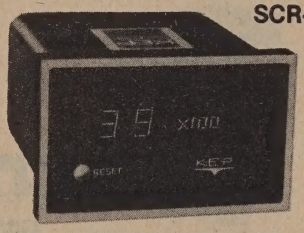
BCD • 10 megahertz • c/MOS • 110 VAC Supply • Phase Discrimination • Small Handsome Aluminum Case • High Noise Immunity • Low Price • In stock

SCTS-16

TIMERS

Line Controlled • Crystal Controlled • Any Resolution to milliseconds • BCD • Splits • Taylor • Built in 110 VAC Power Supply • C/MOS • 4 Digits • Low Cost • In Stock

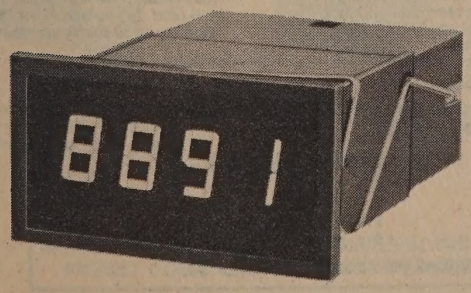
SCR-12



RATE METER/TACHOMETER

4 Digits or fewer • Pulsed by KEP Inputs • Updates once per second • No display change without rate change • 110 VAC Supply Built In • Various Mounting Styles • BCD Output

Low Cost ELECTRONIC COUNTERS



- **Interchangeable with electromechanical counters. Fits 1.97 x .98 panel cutout.**
- **Up to 8 digits.**
- **Add Subtract option.**
- **Built-in Battery holds count if power fails for 6 months.**
- **Power with 5 - 30VDC**
- **Pulse with 2 - 30VDC**
- **8 digits .170"; 4 digits .400"**
- **Up to 5 megahertz count speed.**

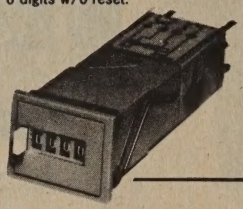
ADDING-TOTALIZING COUNTERS

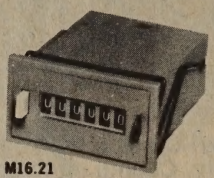
LOW COST — STOCK DELIVERIES

These high performance totalizing counters are designed for long life - 250 million counts - and accuracy even at speeds up to 50 counts/sec. They can be supplied for any voltage in 5 mounting styles with many options.

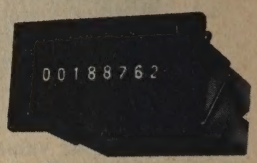
M13.21
3 digits with manual or electrical reset — 4 digits with no reset. Available in gray or black housing.

M14.23
4 digit with push button reset. Electrical reset optional. 5 or 6 digits w/o reset.



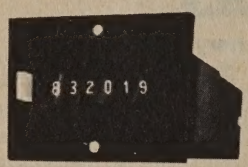


M16.21
6 digit with push button reset. Electrical reset optional. Black or gray housing. Mounts in 1.97 x .98 panel cutout.



M18.20
8 digit non reset. Spring clip mount. Black or gray housing. 1.97 x .98 panel cutout.

OPTIONAL MOUNTING STYLES



M16.11
Mounts with 2 screws.

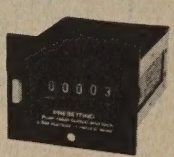
ALM16.01
Base or surface mount.

M16.01
Plugs into F1 frame & socket.

PREDETERMINING COUNTERS

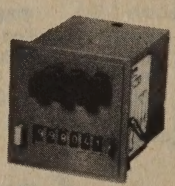
GIVES SWITCH OUTPUT AT END OF COUNT

EVS13.11

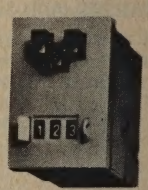


EVS15.13

These two predetermining counters count down from the manually preset number to operate a built-in SPDT switch as the number wheels pass from all zeros to all 9's. Manual or optional electrical or automatic reset returns wheels to preset number and counter is ready to start again. Numbers are preset by holding in reset button, lifting locking bar and indexing number wheels to preset position with small rod supplied.



MVS 16.
New 6 digit predetermining subtracting counter features large staggered buttons for easy preset — manual and electrical reset. Fits 1.97" square panel cutout. Extra internal presignal switch optional.



MVS13.21
New 3 digit predetermining counter. Identical functionally to 6 digit unit on left, but is narrower to take up less panel space. All mounting options available, also manual and electrical reset. Any voltage, AC or DC at speeds up to 50 counts per second.

HOW TO ORDER

The basic catalog number, i.e. M13, M14 through M18 or MVS13, 16 and EVS13, 15 counters followed by:

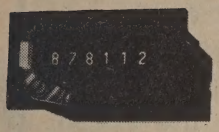
1st Number: M16.2—
0 = Small Faceplate rear mount
1 = Large Faceplate panel mount by 2 screws
2 = Spring clip mount – eliminates 2 screws

2nd Number: M16.—2
0 = No reset
1 = Manual Reset Only
2 = Electrical reset only
3 = Manual and Electrical

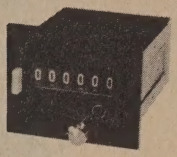
Followed by: Voltage required and count speed per second; 10, 25, or 50.

PRICES LISTED ARE FOR GUIDANCE ONLY

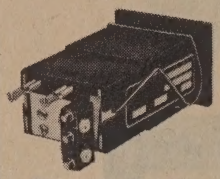
Some Optional Features



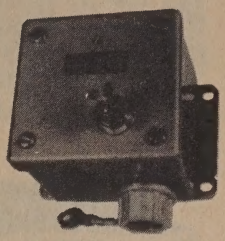
Locking lever rotates to prevent accidental reset



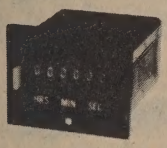
Spade key reset to prevent unauthorized reset



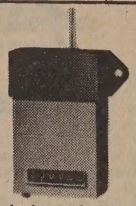
Micro switch operated by manual or electrical reset



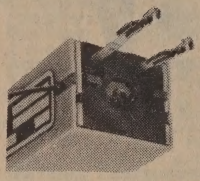
Nema 4 Water-tight & Weather proof. Nema 7 explosion proof also available



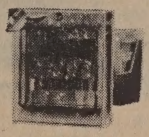
Special number wheels read out in time, money and reverse colors.



Top viewing-surface mount type ALM 16.01 saves space behind or in front of panel



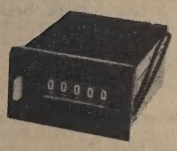
Quick Disconnect terminals or solder terminal are standard. Terminal block optional.



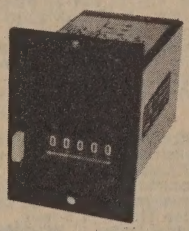
Transparent polycarbonate cover makes any counter water and dust proof.

ADD SUBTRACT COUNTERS

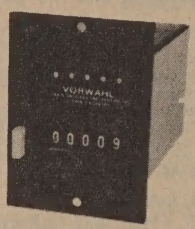
These rugged units have proved extremely reliable for differential counting - they are all in stock for fast delivery.



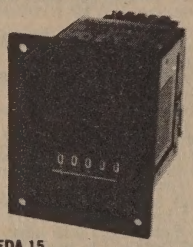
ED15.21
Available with or without manual or electrical reset. Count speed 10, 25, 40/sec.



ED25.11
Provides zero switch output with or w/o manual resets.



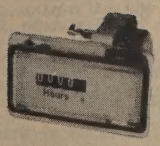
EDVS25.11
Add subtract predetermining. Reset point may be changed in the field.



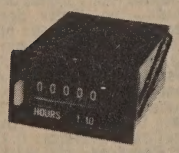
EDA 15
Add subtract counter. Provides 10 line or BCD electrical read out.

ELAPSED TIME METERS

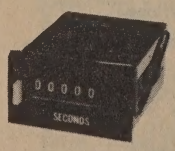
Accurate long life and attractive styling are features of these units.



Type B2 for 110 or 220 VAC. 60 HZ or 50 HZ. Attractive rear mounting. Hours only.



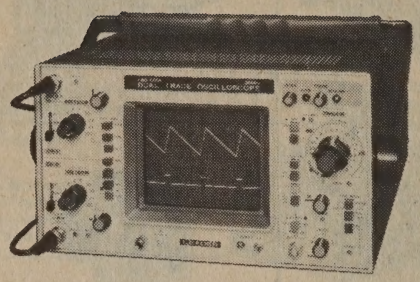
ETH15.21
110V 60 HZ with or without electrical and manual reset. Available in hours, minutes or seconds. Identical DC units available.



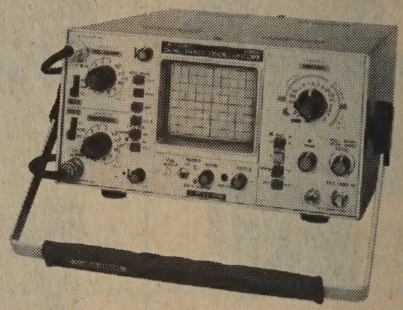
EZ16.21
Stop clock reads seconds and 10ths directly from 50 or 60 HZ line.

ETMVS15.11
Predetermining Elapsed Time Counter: Operates SPDT switch as numbers pass from 00000 to 9999. AC or DC models. Hrs., Min., or Secs.

MINIATURE ELECTRONIC TOTALIZERS/ADD SUBTRACT COUNTERS/ELECTRO-MECHANICAL PRESET COUNTERS/TOTALIZERS/ELASPED TIME INDICATORS/PNEUMATIC COUNTERS



LBO-520A



LBO-308S/PL

MODEL LBO-520A 35 MHz 5" DUAL-TRACE OSCILLOSCOPE

Built-in delay provides easy viewing of the leading edge of a pulse. 5 mV sensitivity provides accurate signal viewing from low-level sources. Single shot trigger (CH-1 and CH-2) captures transient phenomena; no guesswork; no "double takes". 5" P-D-A CRT assures brighter trace at all sweep speeds; P7 phosphor available as an option. 20 nsec./cm sweep capability plus 11.7 nsec. rise time. Unit comes complete with two LP-16AX deluxe 1:1/10:1 deluxe probes.

SPECIFICATIONS

Vertical Amplifier:
- **Bandwidth:** DC-35 MHz (8 cm base, −3 dB).
- **Sensitivity:** 5 mV/cm to 5 V/cm, calibrated in 10 ranges, 1-2-5 sequence; uncalibrated, continuously variable between steps.
- **Accuracy:** ±3%.
- **Input Impedance:** 1 megohm, 35 pF.
- **Max. Input Voltage:** 600 volts (DC plus AC peak).
- **Rise Time:** 10 nsec.
- **Display Modes:** CH-1, CH-2, Alt., Add, Subtract (CH-2 invert), X-Y (CH-1 = X; CH-2 = Y).
- **Chop Frequency:** 230 kHz.
- **Signal Delay:** 120 nsec.

Horizontal Amplifier:
- **Bandwidth:** DC, DC to 1 MHz; AC, 2 Hz to 1 MHz.
- **Sensitivity:** 5 mV/cm to 5 V/cm, X-axis and Y-axis; 1-2-5 steps.
- **X-Y Phase Difference:** Within 3° at 100 kHz.
- **Calibration Output:** 0.5 Vp-p.

Time Base:
- **Sweep Speeds:** 0.2 μsec./cm to 0.5 sec./cm, calibrated in 20 steps, 1-2-5 sequence; uncalibrated, continuously variable between steps.
- **Magnification:** 10X (20 nsec./cm max. sweep speed), ±5%.
- **Triggering:** CH-1, CH-2.
- **Sweep Modes:**
  - **Automatic:** Synchronized to repeated waveforms over 20 Hz; free-run below 20 Hz and under no-trigger conditions.
  - **Normal:** No sweep under no-trigger conditions.
  - **Single:** One time sweep only.
- **Signal Source:** Internal CH-1 and CH-2; external.
- **Polarity:** Plus and minus.

Calibration Waveform: 0.5 Vp-p, 1 kHz square wave.
Power Required: 115/230 VAC, 50/60 Hz, 40 VA.
Size: 11 1/2" w. × 6 1/4" h. × 14 3/4" d.
Weight: 22 lbs.

Leader Model LBO-520A Dual-Trace Oscilloscope—
Net Each **$1250.00**

MODEL LBO-308S/PL 20 MHz 3" DUAL-TRACE OSCILLOSCOPE

A versatile, rugged instrument for lab or field use. Model LBO-308PL has 120 ns signal delay lines for viewing the leading edge of input signals and 10 kV accelerating potential for a bright, sharp display. Both models feature 2 mV/div. sensitivity. 12 ranges in 1-2-5 sequence, with continuously variable control. 17.5 nsec. rise time. 0.2 sec./div. to 0.5 μsec./div. sweep speed. 5X magnifier. Comprehensive trigger controls include CH-1, CH-2, plus and minus slope, Norm./Auto. and Int./Ext. X-Y operation with CH-1 for X-axis and CH-2 for Y-axis; phase difference within 3° at 100 kHz. 3" dia., P31 phosphor CRT; P7 phosphor available as an option. Unit comes with two LP-16AX Direct/10:1 low-cap probes. Optional carrying case and rechargeable battery pack (LBO-308S only) available at extra cost.

SPECIFICATIONS

Vertical Amplifier:
- **Sensitivity:** 2 mV/div. to 10 V/div.
- **Attenuator:** 12 ranges; 1-2-5 sequence, continuously variable.
- **Accuracy:** ±3%.
- **Frequency Response:** DC or 2 Hz to 20 Hz.
- **Rise Time:** 17.5 nsec.
- **Signal Delay (LBO-308PL only):** 120 ns.
- **Input Impedance:** 1 megohm, 35 pF.
- **CH-2 Polarity:** Invertible.
- **Display Mode:** CH-1, CH-2, Dual (Chop, 0.2 sec./div. to 0.5 msec./div.; Alt., 0.2 msec./div. to 0.5 μsec./div.).

Time Base:
- **Sweep Speed:** 0.2 sec./div. to 0.5 μsec./div.; 18 ranges, 1-2-5 sequence, continuously variable.
- **Accuracy:** ±5%.
- **Magnifier:** 5X (0.1 μsec./div. max. sweep speed).

Trigger:
- **Mode:** Norm./Auto.
- **Trigger Source:** Int. (CH-1 or CH-2, selectable); Ext. (DC coupling); TV-V.
- **Slope:** Plus or minus.
- **Sensitivity:**
  - **Norm.:** Int., 1 div. deflection; Ext. 500 mV p-p.
  - **Auto.,** Int., 1 div. deflection; Ext., 400 mV p-p.
- **Frequency Response:** Norm., 2 Hz to 20 MHz; Auto., 50 Hz to 20 MHz.

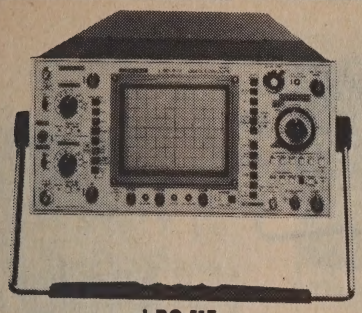
X-Y Operation:
- **Sensitivity:** 2 mV/div. (both channels).
- **Frequency Response:** X-axis (CH-1), DC or 2 Hz to 1 MHz; Y-axis (CH-2), DC or 2 Hz to 20 MHz.
- **Phase Difference:** Within 3° at 100 kHz.

Calibration Waveform: 0.1 Vp-p, ±3%, 1 kHz square wave.
Power Required: 100/117/200/217/234 VAC, 50/60 Hz; external 12 VDC or 12-volt battery pack (optional).
Size: 9 1/8" w. × 4 3/8" h. × 12 1/4" d.
Weight: 10 lbs.

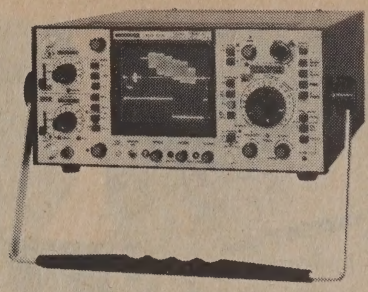
Leader Model LBO-308S Dual-Trace Oscilloscope—
Net Each **$995.00**
Leader Model LBO-308PL Dual-Trace Oscilloscope—
Net Each **$1345.00**

"ALL LEADER PRODUCTS ARE BACKED BY A 2-YEAR WARRANTY"

PRICES LISTED ARE FOR GUIDANCE ONLY



LBO-517



LBO-515B

MODEL LBO-517 50 MHz DUAL TRACE DUAL TIME BASE OSCILLOSCOPE

The LBO-517 is a high-performance 50 MHz oscilloscope with 1 mV sensitivity up to 10 MHz and 5 mV sensitivity up to 50 MHz. Dual time bases permit detailed observations and accurate time interval measurements. The two time bases may be alternately displayed for simultaneous viewing of both the main time base (with displayed portion intensified) and the delayed time base for both input channels. Composite triggering permits stable triggering on two asynchronous signals. A trigger viewing function also displays the trigger waveforms for both time bases. The LBO-517 uses a new dome mesh CRT with 20 kV accelerating potential for bright, clearly defined displays, even with very low repetition rates.

SPECIFICATIONS

Vertical Deflection:
- **Bandwidth** (−3 dB, 8 div.): DC: 0 Hz to 50 MHz; AC: 10 Hz to 50 MHz.
- **Rise Time:** 7 nanoseconds.
- **Deflection Coefficients:** 5 mV/cm in 10 steps, 1-2-5-sequence, continuously variable between steps, uncalibrated warning lights, × 5 multiplier provides 1 mV/cm sensitivity up to 10 MHz.
- **Accuracy:** ±3% (0-40°C), ±5% with × 5 magnification.
- **Input Impedance:** 1 megohm, ±2%, 35 pF ±3 pF.
- **Maximum Input:** 600V (DC plus AC peak).
- **Signal Delay:** Leading edge can be observed.
- **Display Modes:** CH-1, CH-2, alternate, chop, add, subtract (CH-2 invert), triple, quad.
- **Common Mode Rejection Ratio:** 26 dB at 1 KHz.
- **Output:** CH-1 output on rear of panel of 0.1 mV/cm.

External Horizontal Deflection (X-Y mode):
- **Input:** Via CH-1 vertical amplifier.
- **Bandwidth** (−3 dB, 10 cm): DC: 0 Hz to 1 MHz; AC: 10 Hz to 1 MHz.
- **Rise Time:** 350 nanoseconds.
- **Phase Shift:** Less than 3° at 100 KHz.

All other external horizontal deflection specifications are identical to vertical deflection.

Internal Horizontal Deflection (sweep mode):
- **Display Modes:** Main time base; main time base intensified by delayed time base; alternate main and delayed time base; delayed time base.
- **Main Time Base:** 0.5 μs/cm in 22 steps, 1-2-5-sequence, continuously variable between steps, uncalibrated warning light.
- **Delayed Time Base:** 0.05 μs/cm to 0.1 s/cm in 20 steps, 1-2-5-sequence.
- **Magnifier:** × 10 magnifier extends maximum sweep rate to 5 ns/cm.
- **Accuracy:** ±3% (±5% with magnifier).

Main Time Base Triggering (CH-3):
- **Sources:** Internal: CH-1, CH-2, alt., line; external: ÷1 or ÷10.
- **Modes:** Auto (Greater than or equal to 20 Hz); normal; signal.
- **Coupling:** AC, DC, IF reject, HF reject, TV vertical, TV horizontal.
- **Slope:** + or −
- **Sensitivity:** Internal: 1.5 cm (0.5 cm, 30 Hz-10 MHz); external: 0.2 V p-p or 2 V p-p switchable.
- **External Input:** Impedance: 1 megohm, 30 pF; Max. Level: 300 V (DC plus AC peak).
- **Hold-Off:** Variable sweep hold-off control with B-ends-A-switch.

Delayed Time Base Triggering (CH-4):
- **Modes:** Immediate: delayed time base begins immediately after delay time. Triggered: Delayed time begins on the first trigger after the delay time.
- **Delay Time Jitter:** 0.01% (1 part in 10,000) of 10 times the main time base (A TIME/DIV) setting. All other delay time base specifications are identical to main time base.

Z-axis (intensity) Modulation:
- **Input Level:** TTL compatible, DC coupled. Max. input: 50 V p-p.

Internal Calibrator:
- **Output:** 0.5 V p-p, ±2%.
- **Wave Shape:** Square wave, 1 KHz nominal.

CRT Display:
- **Phosphor:** P31 (P-7 optional).
- **Graticule:** Internal, illuminated, 8 × 10 divisions (1 div. = 1 cm).
- **Accelerating Potential:** 2 KV.
- **Trace Alignment:** Front panel trace rotation control.

Power Requirements:
100, 117, 200, 217, 234 VAC, ±13%, 50 to 60 Hz.

Physical:
- **Size (W × H × D) and Weight:** 11 1/4" × 6 1/4" × 14 3/4" (290 × 160 × 375 mm); 25.5 Lbs. (11.5 kg.).
- **Operating Temperature:** 0-40°C

Supplied Accessories:
Instruction manual; two (2) PL-011 switchable X1/X10 probes.

Optional Accessories:
LP-2010 probe pouch; **LC-2009** protective front cover; **LRA-517** rack mounting adapter.

Leader Model LBO-517 Dual Trace Oscilloscope—
Net Each **$1995.00**

MODEL LBO-515B 30 MHz DUAL-TRACE OSCILLOSCOPE

Variable, delayed sweep permits precise time interval measurements and accurate viewing of complex waveforms, including the leading edge of the triggering waveform. Variable trigger hold-off provides stable triggering on complex waveforms. Twenty calibrated ranges cover 0.2 μsec./div. to 0.5 sec./div. with ±3% accuracy. 10X magnifier extends sweep to 20 nsec./div. with ±5% accuracy. Bright, P31 phosphor screen; P7 phosphor available as an option. Internal graticule calibrated in 8 × 10 division (64 × 80 mm) format. Unit comes with two LP-16AX deluxe 1:1/10:1 probes and two terminal adapters.

SPECIFICATIONS

Vertical Amplifier:
- **Bandwidth:** DC, DC to 30 MHz; AC, 2 Hz to 30 MHz.
- **Sensitivity:** 5 mV/div. in 10 ranges, each variable.
- **Accuracy:** Within ±3% from 0°C to +40°C.
- **Input Impedance:** 1 megohm, 35 pF.
- **Max. Input Voltage:** 600 volts (DC plus AC peak).
- **Modes:** CH-1, CH-2, Alt., Chop (250 kHz), Add, X-Y (CH-1 = X; CH-2 = Y).
- **Rise Time:** 11 nsec.
- **Trigger Selection:** CH-1 or CH-2.

Horizontal Amplifier:
- **Sweep Speeds:**
  - **CH-A:** 0.2 μsec./div. to 0.5 sec./div. in 20 steps.
  - **CH-B:** 0.2 μsec./div. to 0.1 sec./div. in 18 steps.
- **Sweep Magnifier:** 10X.
- **Sweep Delay:** 1 μsec. to 5 sec.
- **Delay Jitter:** 10,000:1.

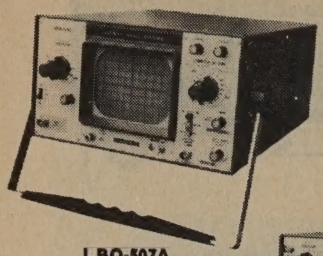
External Sweep (X-Y Operation):
- **Sensitivity:** 5 mV/div. to 5 V/div.
- **X Bandwidth:** DC to 1 MHz.
- **X-Y Phase Difference:** Less than 3° at 100 kHz.

Synchronization:
- **Mode:** Auto (auto triggering over 20 Hz; free-running below 20 Hz or in untriggered condition); Normal (sweep does not run in untriggered condition).
- **Signal Source:** Int./Ext.
- **Level:** Any triggering signal point can be chosen.
- **CH-A Trigger Hold-Off:** Hold-off time is variable.
- **Sensitivity:** Internal, 0.5 div.; External, 0.1 Vp-p; HFRE, 20 Hz to 10 kHz; TV, 1 div.
- **External Triggering:** 1 megohm, 35 pF, 600 volts (DC plus AC peak).

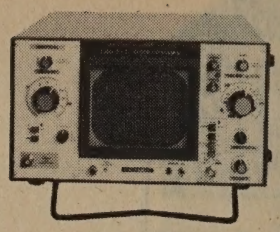
Calibration Waveform: 0.5 Vp-p, ±3%, approx. 1 kHz square wave.
Power Required: 115/230 VAC, 50/60 Hz, 40 VA.
Size: 11 3/8" w. × 5 1/4" h. × 14 1/8" d.
Weight: 20 lbs.

Leader Model LBO-515B Dual-Trace Oscilloscope—
Net Each **$1580.00**

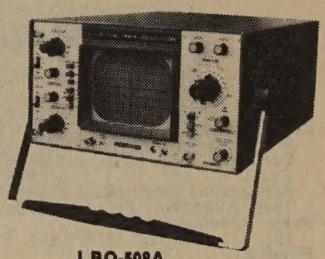
LEADER Instruments Corp. Oscilloscopes



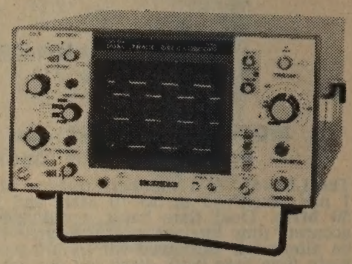
LBO-507A



LBO-513



LBO-508A



LBO-514

MODELS LBO-507A (SINGLE-TRACE) AND LBO-508A (DUAL-TRACE) 20 MHz 5" OSCILLOSCOPES

Versatile, economical, 20 MHz oscilloscopes provide sound, reliable performance; stable, easy-to-read displays. Conveniently placed, logically grouped, front panel controls provide quick, easy operation. Add and subtract modes (with CH-2 inverted), permit differential measurements (Model LBO-508A only). Front panel X-Y operation ideal for phase-shift analysis, sweep alignment and vectorscope service (Model LBO-508A only). 17.5 nsec. rise time for easy viewing of high speed pulses and waveforms. Automatic trigger from either channel of Model LBO-508A, including TV sync., extends convenience and versatility. 0-3 V Z-axis input is TTL compatible. Model LBO-508A comes complete with two LP-16AX deluxe 1:1/10:1 probes. Model LBO-507A comes with one LP-16AX probe.

SPECIFICATIONS

Vertical Amplifier:
- **Sensitivity:** 10 mV/cm to 20 V/cm, calibrated in 11 steps, 1-2-5 sequence; up to 50 V/cm with variable control.
- **Accuracy:** ±3%.
- **Bandwidth:** DC, DC to 20 MHz; AC, 2 Hz to 20 MHz.
- **Rise Time:** 17.5 nsec.
- **Input Impedance:** 1 megohm, shunted by 35 pF, ±5 pF.
- **Max. Input Voltage:** 600 volts (DC plus AC peak).
- **CH-2 Polarity (Model LBO-508A only):** Inverted.

Time Base:
- **Sweep Speed:** 0.5 μsec./cm to 200 msec./cm, 18 steps, 1-2-5 sequence.
- **Accuracy:** ±5%.
- **Magnification:** 5X, ±5% (100 nsec./cm max. sweep speed).

Dual-Trace Display (Model LBO-508A Only):
- **Modes:** CH-1, CH-2, X-Y, Dual, Add, Subtract (CH-2 inverted).
- **Chop (Auto. Select In Dual Mode):** 200 msec./cm to 0.5 msec./cm; chop rate, 250 kHz (approx.).
- **Alternate (Auto. Select In Dual Mode):** 200 μsec./cm to 0.5 μsec./cm.
- **Add:** Sum or difference (with CH-2 inverted).

Horizontal Amplifier:
- **Sensitivity:** Model LBO-507A, 200 mV/cm to 5 V/cm; Model LBO-508A, 10 mV/cm to 20 V/cm.
- **Bandwidth:** Model LBO-507A, DC to 250 kHz: Model LBO-508A, DC to 800 kHz.
- **Impedance:** Model LBO-507A, 1 megohm, 20 pF; Model LBO-508A, 1 megohm, 35 pF.
- **Phase Shift (Model LBO-508A only):** Less than 3° at 100 kHz.

Synchronization:
- **Mode:** Trigger, Automatic.
- **Signal Source:** Internal (CH-1 or CH-2 of Model LBO-508A) or external, plus or minus slope.
- **Trigger Sensitivity:**
  - **Triggered:** Internally, 2 Hz to 15 MHz at 1 cm; externally, 2 Hz to 15 MHz at 100 mV p-p.
  - **Automatic:** Internally, 50 Hz to 15 MHz at 1 cm; externally, 50 Hz to 15 MHz at 100 mV p-p.
- **Calibration Waveform:** 0.5 Vp-p, ±3%, line frequency square wave.
- **CRT:** 130BXB31 or C5SGP31 (P7 phosphor is available as an option).

Power Required: 115/230 VAC, 50/60 Hz, 32 VA.
Size: 10 3/8" w. × 6 3/8" h. × 14 3/4" d.
Weight: Approx. 15 lbs.

Leader Model LBO-507A Single-Trace Oscilloscope—
Net Each $625.00
Leader Model LBO-508A Dual-Trace Oscilloscope—
Net Each $880.00

MODEL LBO-513 (SINGLE-TRACE) AND LBO-514 (DUAL-TRACE) 10 MHz 5" OSCILLOSCOPES

Low cost, high performance scopes for production, education and service applications. 5 mV sensitivity; 1 mV with 5X vertical magnifier. Sweep speeds of 0.2 sec./cm to 0.5 μsec./cm in 18 ranges plus 5X horizontal magnifier. Z-axis modulation. Bright, 8 × 10 cm display. Comprehensive triggering controls. Front panel X-Y mode with 1 mV sensitivity (Model LBO-514 only). P7 phosphor CRT available as an option. Model LBO-514 comes with two LP-16X deluxe 1:1/10:1 probes, two binding posts and a slow-blow fuse; Model LBO-513 comes with one of each.

SPECIFICATIONS

Vertical Amplifier:
- **Sensitivity:** 5 mV/cm to 10 V/cm.
- **Attenuator:** 11 ranges, 1-2-5 sequence; continuously variable.
- **Accuracy:** ±3%.
- **Bandwidth:** DC to 10 MHz.
- **Rise Time:** 35 nsec.
- **Input Impedance:** 1 megohm, 35 pF.
- **Max. Input Voltage:** 600 volts (DC plus AC peak).
- **Mode (Model LBO-514 only):** CH-1, Chop, Alt., CH-2.

Time Base:
- **Sweep Time:** 0.2 sec./cm to 0.5 μsec./cm in 18 ranges, 1-2-5 sequence, continuously variable.
- **Accuracy:** ±5%.
- **Magnifier:** 5X (0.1 μsec./cm max. sweep speed).

Trigger:
- **Function:** Normal/Auto.
- **Trigger Source:** Internal (CH-1 or CH-2, selectable); External, plus or minus slope.
- **Sensitivity (Norm. or Auto.):** Internal, 1 cm deflection; external, 200 mV p-p.
- **Frequency Response:** Normal, 2 Hz to 10 MHz; Auto., 50 Hz to 10 MHz.

X-Y Operation (Model LBO-514 only):
- **Sensitivity:** 5 mV/cm to 10 V/cm.
- **Frequency Response:** X (CH-1), DC or 2 Hz to 800 kHz; Y (CH-2), DC or 2 Hz to 10 MHz.
- **X-Y Phase Difference:** Less than 3° at 100 kHz.

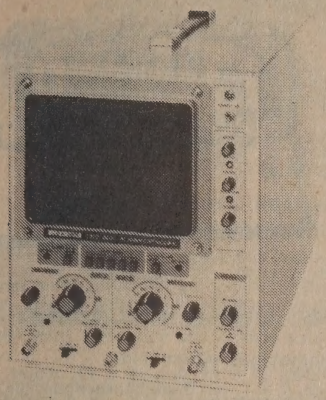
Z-Axis (Intensity Modulation):
- **Sensitivity:** 3 Vp-p or more.
- **Polarity:** Negative.
- **Max. Input Voltage:** 50 volts (DC plus AC peak).

Calibration Waveform: 0.5 Vp-p, ±3%, 1 kHz square wave.
Power Required: 115 VAC, 50/60 Hz, 33 VA.
Size: 11 1/2" w. × 5 1/2" h. × 15" d.
Weight: 13 lbs.

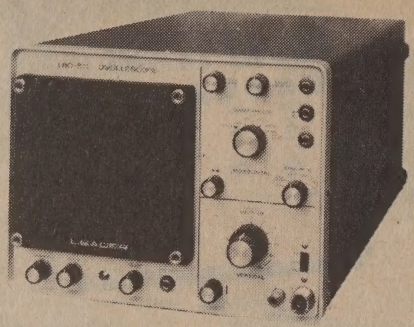
Leader Model LBO-513 Single-Trace Oscilloscope—
Net Each $550.00
Leader Model LBO-514 Dual-Trace Oscilloscope—
Net Each $695.00

"ALL LEADER PRODUCTS ARE BACKED BY A 2-YEAR WARRANTY"

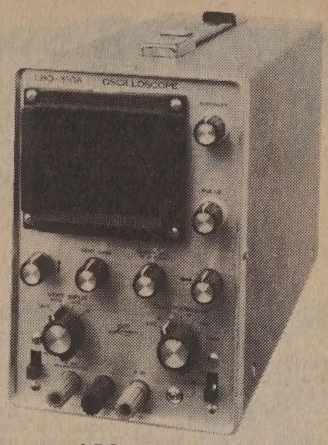
PRICES LISTED ARE FOR GUIDANCE ONLY



LBO-801/802



LBO-511



LBO-310A

LBO-801 AND LBO-802 OSCILLOSCOPES

The Single Trace display LBO-801 and Dual Trace display provide convenient, accurate methods to obtain response curves in swept frequency measurement systems. They offer more versatility and a larger display than is possible with conventional oscilloscopes. Vertical sensitivities or 200 μV/div. to 0.5 V/div. are possible in 11 calibrated steps, permitting direct connection to RF/microwave detector outputs. Horizontal sensitivity is adjustable from 20 mV/div. to 20 V/div. with reversible polarity for direct compatibility with virtually any sweep generator/detector combination. The high input impedance and 300 kHz bandwidth of both vertical and horizontal inputs clearly displays the fine detail in response curves. An external marker input permits superimposing frequency markers on the response curve(s), and a Z-axis input provides for intensity modulation of the display. A vertical clamping function fixes the position of the response curve's base line on the display independent of the curve's shape and/or DC component. The LBO-802 Dual Trace oscilloscope accomplishes channel switching either on alternate sweeps, at a chop frequency of 2.5 kHz, or with an external switching signal.

SPECIFICATIONS

CRT Display Type C8S30P1:
Acceleration Voltage: 4.5 kV/1.5 kV.
Effective Display Area: 10 × 14 div. (1 Div. = 10 mm).
Vertical Axis:
Sensitivity: 200 μV/div. - 0.5 V/div.; 11 calibrated steps; 1-2-5 sequence. Variable control with detented calibrated position provides deflection factors between settings.
Deflection Accuracy: ±5%.
Bandwidth:
DC—300 kHz (−3 dB); AC—2 Hz-300 kHz (−3dB).
Input Impedance: 1 megohm, 70 pF.
Input Coupling: AC - GND - DC.
DC Clamping: Available with ON-OFF switch. Clamping time can be set in synchronization with horizontal input signal or external signal (square wave of over 5 V p-p) with positive or negative setting of switch.
Horizontal Axis:
Sensitivity: 20 mV/div. minimum.
Attenuation: 3 steps—1/1, 1/10, and 1/100. Uncalibrated Variable control (at 1/10) provides continuously variable deflection up to 20 V/div. LBO-802 X-Y Amplification: One amplifier channel can be used to drive the X axis; specs. for the Horizontal Axis are the same as for the Vertical Axis.
Bandwidth: DC—300 kHz (−3 dB); AC—2 Hz (−3 dB).
Input Impedance: 500 kilohms.
Input Coupling: AC - GND - DC.
Z-Axis: Intensity Modulation Termination.
Sensitivity: 3 V p-p minimum, continuously variable.
Input Impedance: 50 kilohms.
External Marker Input:
Sensitivity: 100 mV/div. minimum.
Attenuation: Continuously variable to zero.
Bandwidth: DC—300 kHz.
Input Impedance: 50 kilohms.
Calibrator:
Waveform:
Approx. 1 kHz square wave. Voltage 10 mV ±3%.
Power Supply: 117 V ±10%, 50/60 Hz; 100 V, 200 V, 217 V, or 234 V available by changing tap wiring of transformer. Power consumption approx. 30 W.
Size and Weight: 11 13/16" w. × 7 7/8" h. × 15 3/4" d.
Leader Model LBO-801, Single Trace—Net Each **$1250.00**
Leader Model LBO-802, Dual Trace—Net Each **$1450.00**

MODEL LBO-511 10 MHz 5" OSCILLOSCOPE

Automatic synchronization with high linearity sweep for dependable, accurate performance. Calibrated vertical input plus 0 to 140° phasing control. 20 mVp-p/cm to 10 Vp-p/cm vertical sensitivity. DC coupling. Push-pull amplifiers. Special circuitry permits use as a vectorscope for all color TV testing. Unit comes with LP-8Y combination Direct/Lo Cap probe, terminal adapter and test leads.

SPECIFICATIONS

Vertical Amplifier:
Sensitivity: 20 mV/cm to 10 V/cm in 9 steps, 2-5-10 sequence, with ±3% accuracy.
Bandwidth: DC, DC to 10 MHz; AC, 2 Hz to 10 MHz.
Input Impedance: 1 megohm, 40 pF.
Calibration Voltage: 1 Vp-p, 1 kHz square wave.
Horizontal Amplifier:
Sensitivity: To 300 mV/cm, continuously variable with horizontal gain control.
Bandwidth: DC to 250 kHz, −3 dB.
Input Impedance: 100,000 ohms, shunted by 40 pF.
Sweep Circuit:
Sweep Frequency: 10 Hz to 100 kHz in 4 ranges, TV-H, H-IN, Line sweep.
Synchronization: Int., plus and minus slope, Ext., line.
Method: Signal display, automatic with 1 cm signal (internal) or 1 Vp-p (external).
Phasing Control: 0 to 140° continuous.
Vector Display: Rear input terminals for R-Y, B-Y.
Power Required: 115/230 VAC, 50/60 Hz, approx. 25 VA.
Size: 9 7/8" w. × 7 3/8" h. × 16 1/2" d.
Weight: 15 lbs.
Leader Model LBO-511 Oscilloscope—Net Each **$420.00**

MODEL LBO-310A 4 MHz 3" SOLID-STATE OSCILLOSCOPE

Designed for general purpose applications in industry, service, education and communications. Solid-state design delivers 4 MHz vertical bandwidth plus 20 mVp-p/div. vertical sensitivity. 10 Hz to 100 kHz sweep frequency in 4 ranges, continuously variable between steps. Bright, easy-to-read display. P7 phosphor CRT available as an option.

SPECIFICATIONS

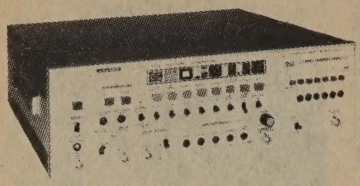
Vertical Amplifier:
Sensitivity: 20 mVp-p/div.
Bandwidth: DC, DC to 4 MHz; AC, 2 Hz to 4 MHz.
Input Control: X1, X10, X100, with continuous adjustment.
Input Impedance: 1 megohm, 40 pF.
Direct Connection: Connector for display of signal to 450 MHz.
Max. Input Voltage: 600 volts (DC plus AC peak).
Horizontal Amplifier:
Sensitivity: 300 mVp-p/div.
Bandwidth: DC to 200 kHz.
Input Control: 0 to 300 mVp-p/div., continuous fine adjustment.
Input Impedance: 1 megohm, 40 pF.
Time Base:
Sweep Frequency: 10 Hz to 100 kHz in 4 ranges.
Synchronization: Internal.
Power Required: 115/230 VAC, 50/60 Hz, approx. 12 VA.
Size: 5" w. × 7 7/8" h. × 12" d.
Weight: 10 lbs.
Leader Model LBO-310A Solid-State Oscilloscope—
Net Each **$305.00**

"ALL LEADER PRODUCTS ARE BACKED BY A 2-YEAR WARRANTY"

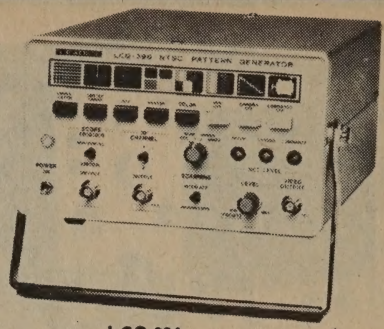
CURRENT PRICES WILL APPLY ON ALL LINES

LEADER Instruments Corp.

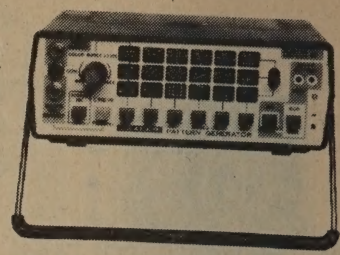
Video Generators



LCG-400M



LCG-396



LCG-397

MODEL LCG-396
NTSC COLOR BAR/PATTERN GENERATOR

Provides signals necessary to precisely time, test and evaluate VTR, MATV, CATV, color and B&W video systems. Chroma and luminance components variable by 20%; set-up level variable by 10%. Provides full-field or IQW insertion plus on-off control of chroma and luminance. Better checking and adjusting of purity and white balance via red, blue and white rasters. Adjustable scanning control permits interlaced or progressive scan to eliminate flicker. 75-ohm video (1 volt, fixed) and RF output for all TV and VTR equipment. Equalizing pulse phase locked to color sub-carrier.

SPECIFICATIONS

Patterns:
- **Color Bar:** NTSC color bars at 75% amplitude.
- **IQW Off:** Full field color bars in which color bars of upper picture are inserted instead of Q-I of lower frame; 100% amplitude, white.
- **Chroma Off:** Pattern with luminance only, via removal of chroma from color bar pattern.
- **Luminance Off:** Pattern with chroma only via removal of luminance from color bar pattern.
- **Crosshatch:** 21 (vert.) × 15 (horiz.).
- **Rasters:** Red, blue, green and white.
- **Center Cross:** Single 1 (vert.) × 1 (horiz.), centered on raster.

Video Output:
- **Output Voltage:** Fixed, 1 Vp-p (75-ohm load); continuously variable, 0-1.5 Vp-p (75-ohm load).

RF Output:
- **Picture Carrier Frequency:** CH-5, CH-6.
- **Output Voltage:** 10 mV rms (no load).

Scope Trigger Output:
- **Frequency:** Horiz. or vert. frequency.

Subcarrier Output:
- **Frequency:** 3.759545 MHz.
- **Output Voltage:** 1 Vp-p (no load).

Synchronization: 60 Hz field of 525 lines.
- **Horizontal Scanning Frequency:** 15.734 kHz interlaced.
- **Vertical Scanning Frequency:** 59.94 Hz interlaced; 60.05 Hz. progressive.
- **Horiz. Blanking:** 11.3 μsec.
- **Vert. Blanking:** 1.24 msec. interlaced; 1.21 msec. progressive.
- **Horiz. Sync:** 4.61 μsec.
- **Front Porch:** 1.3 μsec.
- **Burst:** 8 cycles min.

Power Required: 100, 117, 200, 234 VAC, ±10% as specified, 50/60 Hz; approx. 18 VA.
Size: 7 9/10" w. × 4 3/4" h. × 12" d.
Weight: Approx. 7 lbs.
Leader Model LCG-396 NTSC Color Bar/Pattern Generator—
Net Each **$995.00**

MODEL LCG-400MS NTSC VIDEO PATTERN GENERATOR

Provides both gen-lock and internal synchronization with the full range of video signals needed for testing and adjusting monitors, cameras, VTRs, and overall performance of both color and B&W TV systems. Available with either multiburst (LCG-400M) or sweep marker (LCG-400S) generator. Model LCG-400 will sync with all standard composite video signals, including those from quad head and helical scan VTRs. Patterns include EIA and full field color bars, 5-step staircase, 8 color rasters, crosshatch and dot convergence, circle and corner marker with on/off control of chroma and luminance. Both interlace and progressive scanning provided. Outputs include composite video, sub-carrier, black burst, vertical and horizontal drive and CH5/6 RF. Units supplied with cable with BNC connector and alligator clips. Available for bench or rack mounting.

SPECIFICATIONS

Patterns:
- **EIA Color Bars:** EIA Standard RS-189A, 75% amplitude, 100% saturated color bars with gray (75% white), yellow, cyan, green, magenta, red, blue; "I", 100% white, "Q" and black.
- **Full Field Color Bars:** 75% amplitude, 100% saturated color bars with gray (75% white), yellow, cyan, green, magenta, red, blue and black.
- **Staircase:** 5 step.
- **Raster:** 8 colors; red, green, blue, white (100% and 75%), yellow, cyan and magenta.

MODEL LCG-400MS SPECIFICATIONS (CONT'D.)

Patterns (Cont'd.):
- **Window:** 100% white on black background.
- **Convergence:** Crosshatch, 17 × 13, dot, 16 × 12, center.
- **Alignment:** Crosshatch, 9 × 7, circle and corner marker.

Multiburst Frequency (LCG-400M Only): 0.5, 1.5, 2.0, 3.0, 3.58 and 4.2 MHz (±3% adjustable) with 100% white reference level at left end of burst; 50 and 100% amplitude with ±1 dB flatness.
Video Sweep (LCG-400S Only): 50 kHz to 7 Mhz synchronized with field; 50 or 100% fixed amplitude or 0-100% variable with ±1 dB flatness; 0.5, 1.0, 2.0, 3.5, 3.58 and 4.2 MHz marker frequencies.
Sync Signal: EIA standard RS-170A.
- **Scanning System:** Interlace (525 lines) and progressive (662 lines).
- **Gen-Lock:** Synchronized to video signal input.
- **Horizontal Delay:** Continuously variable.
- **Sub-Carrier Phase:** Zero to 360 degrees, continuously variable.

Sound Carrier Frequency: 4.5 MHz.
- **Internal Modulation:** 1 kHz sine wave.

External Modulation Frequency: 50 Hz to 10 kHz.
Composite Video Output:
- **Polarity:** Negative sync.
- **Voltage:** 1 volt, fixed; 0-1 volt, variable.
- **Impedance:** 75 ohms.

Sub-Carrier Output: 3.579545 MHz ±5 Hz; 2 V p-p; 75 ohms.
Black Burst Output:
- **Voltage:** Sync signal, 286 mV; burst, 286 mV.
- **Impedance:** 75 ohms.

Scope Trigger Output: Vertical, horizontal or frame mode.
RF Output: Channels 5 and 6.
Power Required: 115/230 VAC, 50/60 Hz.
Size: 16 3/4" W. × 5 1/4" H. × 15 3/4" D.
Weight: 16 1/2 lbs.
Leader Model LCG-400M Video Pattern Generator—
With multiburst generator. Net Each **$1990.00**
Leader Model LCG-400S Video Pattern Generator—
With sweep marker generator. Net Each **$1990.00**

MODEL LCG-397 PORTABLE, BATTERY OPERATED, COLOR TV ANALYZER/GENERATOR

Tests, adjust and service video systems, anywhere. On/Off variable color burst switch allows adjustment of AFPC and color killer circuits, easily, quickly and efficiently. RF, IF and composite video outputs for all video circuit testing. Oscilloscope trigger output. 18 patterns total; 12 convergence, plus 3 color patterns. Unmodulated RF carrier, unmodulated color subcarrier and zero-level black raster. Operates on four 1.5 V "C" cells or optional AC adapter LPS-166A.

SPECIFICATIONS

Patterns:
- **Color Bar System:** Offset subcarrier system.
- **Color Burst Level:** 0-100% continuously variable.

Color Bar Types:
- **10-Color Bar:** Phase angle, 30°.
- **3 Color Bar Rainbow:** R-Y, B-Y, —(R-Y).
- **Rainbow:** 10-color bar without gating separators.

Convergence Patterns:
- **Convergence:** 15 × 21 dots, 7 × 11 dots, center dot.
- **Crosshatch:** Square 15 × 21 crosshatch, 7 × 11 crosshatch, center cross; white lines with black background.
- **Vertical Bar:** 1, 11 or 21 white lines with black background.
- **Horizontal Line:** 1, 7 or 15 white lines with black background.
- **Gray Raster:** 0% level, black raster.
- **Subcarrier:** Continuous color subcarrier; no sync.

RF/VIF Output:
- **Channels:** CH-5, CH-6 and VIF.

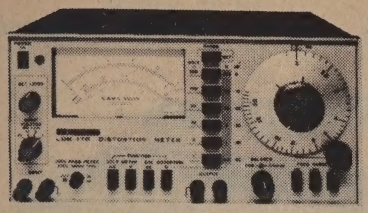
Composite Signal Output:
- **Output Voltage:** Approx. 2 Vp-p (open circuit).

Trigger Output:
- **Frequency:** Line or field.

Power Required: Four 1.5 V "C" cells or external 6 VDC, 300 mA, 1.8 VA.
Size: 6 1/8" w. × 2 1/4" h. × 4 3/8" d.
Weight: Approx. 1 1/2 lbs.
Leader Model LCG-397 Color TV Analyzer/Generator—
Net Each **$240.00**

"ALL LEADER PRODUCTS ARE BACKED BY A 2-YEAR WARRANTY"

PRICES LISTED ARE FOR GUIDANCE ONLY



LDM-170

MODEL LDM-170 PRECISION AUDIO DISTORTION METER

Convenient, accurate distortion measurements. Measures distortion as low as 0.01%, signal-to-noise ratio from 70 dB, signal levels from 100 μV to 300 V. Pushbutton function selection. Highly selective balancing circuit plus wide-band, high-gain amplifier. Coarse and fine balance and frequency controls. Input cord with clips and double plug included.

SPECIFICATIONS

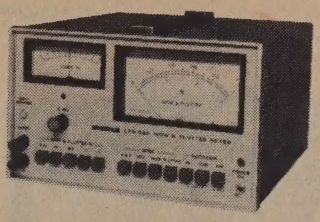
Distortion Measurements:
Range: 0.3%, 1%, 3%, 10%, 30% and 100%, full scale.
Sensitivity: 0.01%.
Accuracy: ±5% of full scale.
Frequency Range: 20 Hz to 20 kHz in 3 bands, with calibration accuracy within ±5%; balancing controls provided.
Input Voltage Range: 0.35 to 30 V rms.
Input Impedance: Approx. 100 k-ohms.
Fundamental Suppression: Over 70 dB.
Residual Distortion: Less than 0.03%.
Harmonic Attenuation: Within 0.5 dB (2nd and 3rd harmonics).
Noise (S/N) Measurements:
Range: 0-70 dB below reference level.
Input Voltage: 0.35 to 30 V rms.
Level Measurements:
Voltage Range: 1 mV to 300 V rms in 12 steps; min. reading, 0.1 mV.
Accuracy: ±5% of full scale.
Frequency Range: 20 Hz to 200 kHz.
Operating Temperature Range: 0°C to 40°C.
High-Pass Filter: Cutoff at 500 Hz; 6 dB/octave attenuation.
Monitor Output: 1 V rms at full scale reading.
Power Required: 115/230 VAC, 50/60 Hz, 5 VA.
Size: 12 1/2" w. × 6 1/2" h. × 12" d.
Weight: 13.2 lbs.
Leader Model LDM-170 Precision Audio Distortion Meter—Net Each **$690.00**

MODEL LFM-39A WOW AND FLUTTER METER—0.005% TO 3% MEASUREMENTS

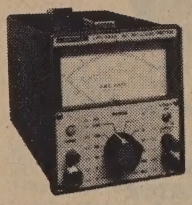
Reads wow, flutter and drift at 3 kHz and 3.15 kHz; JIS, CCIR and DIN standards. Standard 3 kHz oscillator included; 3.15 kHz optional. Use with any oscilloscope to observe wow and flutter content. Controls on face panel for maximum convenience. Measures center frequency at 3 kHz or 3.15 kHz. Provides 3 weighted modes; JIS, CCIR and DIN. Separate wow, flutter and drift readings; combined wow and flutter readings.

SPECIFICATIONS

Input Frequency: JIS, CCIR, 3 kHz, ±10%; DIN, 3.15 kHz, ±10%.
Input Voltage Range: 15 mV to 10 V rms.
Input Impedance: 300 k-ohms, unbalanced.
Drift (Tape Speed) Measurement:
Range: ±5%.
Accuracy: Within ±5% of end scale value.
Wow And Flutter Measurements:
Range: 5 ranges; 0.03%, 0.1%, 0.3%, 1%, and 3% rms, full scale.
Accuracy: Within ±5% of full scale.
Mode:
Wow and Flutter (Flat): JIS, 0.5-200 Hz (−3 dB ±1 dB); CCIR, 0.3-200 Hz (−3 dB ±1 dB); DIN, 0.3-300 Hz (−3 dB ±1 dB).
Weighted: In accordance with JIS, CCIR and DIN specifications.
Scope Output:
Output Voltage: Level for JIS standards, 1 V rms, ±10% full scale; CCIR and DIN standards, 0.7 V rms, ±5% full scale.
Output Impedance: 2,000 ohms, ±20%.
Reference Oscillator:
Frequency: JIS and CCIR, 3 kHz, within ±0.1%; DIN, 3.15 kHz, within ±0.1%.
Output Voltage: 0.3 V rms, ±10%.
Output Impedance: Less than 3,000 ohms.
Distortion: Less than 2%.
Recorder Output:
Output Voltage: 1 V, ±10% at full scale of meter.
Output Impedance: 2,000 ohms, ±20%.
Power Required: 115/230 VAC, 50/60 Hz, approx. 15 VA.
Size: 9 3/4" w. × 6" h. × 9 3/4" d.
Weight: Approx. 2 1/2 lbs.
Leader Model LFM-39A Wow and Flutter Meter—Net Each **$890.00**



LFM-39A



LMV-181A

LMV-185A

MODEL LMV-181A AC MILLIVOLT METER

High accuracy (±2.5%), low level measurement capabilities for audio and industrial use, 100 μV to 300 V voltage range in 12 steps. 5 Hz to 1 MHz frequency range. 100 μV sensitivity makes it an ideal low-noise amplifier. Computer derived design insures high reliability and stability. Comes with one terminal adapter and one cable.

SPECIFICATIONS

Full Scale Voltage Ranges: 0-1, 3, 10, 30, 100, 300 mV; 0-1, 3, 10, 30, 100, 300 V.
Decibal Ranges: −60, −50, −40, −30, −20, −10, 0, +10, +20, +30, +40, +50 dB (0 dBv = 1 V; 0 dBm = 0.775 V).
Accuracy: Within ±2% full scale.
Frequency Range: 5 Hz to 1 MHz, ±10%.
Input Impedance: 10 megohms.
Max. Input Voltage: 600 volts (DC plus AC peak).
Noise: Within 2% full scale when input is short-circuited.
Amplifier:
Output Voltage: 1 V rms (no load).
Frequency Response: 10 Hz to 500 kHz; −3 dB at 1 kHz base.
Output Impedance: 600 ohms.
Distortion: Below 1% at full scale.
Temperature Range: 0°C to 40°C.
Humidity: Up to 85%
Power Required: 115/230 VAC, 50/60 Hz, approx. 1.5 VA.
Size: 5 1/4" w. × 5 7/8" h. × 7 7/8" d.
Weight: 5 lbs.
Leader Model LMV-181A AC mV Meter—Net Each **$260.00**

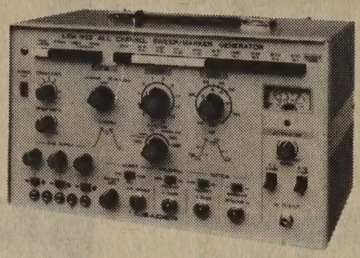
MODEL LMV-185A DUAL-CHANNEL/DUAL-POINTER AC MILLIVOLT METER

High sensitivity, wide bandwidth. Measures AC voltages from 100 μV to 300 V. Displays two measured voltages on a single scale. Concentric range switch for both single and dual channel operation. Both channels operate independently or together, at CH-2. Individual switches and amplifier systems for each channel. ±2% full scale accuracy. Two dB scales, each calibrated at 0 dBv = 1 V and 0 dBm = 0.775 V. Use as an oscilloscope pre-amplifier to measure response of low-level circuits. Handy carrying strap. Tilt stand for bench convenience.

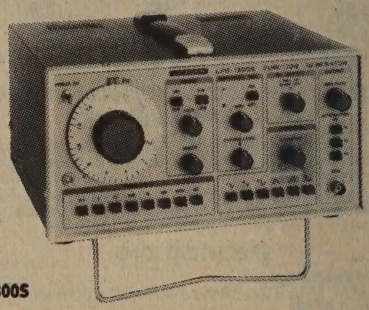
SPECIFICATIONS

Voltage Ranges (CH-1 and CH-2): 1 mV to 300 V full scale, in 12 steps; 0-1, 3, 10, 30, 100, 300 mV; 0-1, 3, 10, 30, 100, 300 V.
Decibel Ranges: −60, −50, −40, −30, −20, −10, 0, +10, +20, +30, +40, +50 dB.
Frequency Response: 5 Hz to 1 MHz.
Input Impedance: 10 megohms.
Max. Input Voltage: 600 volts (DC plus AC peak).
Noise: Within 2% of full scale with input short-circuited.
Amplifier:
Output Voltage: 1 V rms (no load).
Frequency Response: 10 Hz to 500 kHz (−3 dB at 1 kHz base).
Output Impedance: 600 ohms.
Distortion: Below 1% at full scale.
Crosstalk: More than 70 dB down at 1 MHz.
Temperature Range: 0°C to 40°C.
Humidity: Up to 85%.
Power Required: 115/230 VAC, 50/60 Hz, approx. 5 VA.
Size: 5 1/4" w. × 5 7/8" h. × 7 7/8" d.
Weight: 6 lbs.
Leader Model LMV-185A Dual-Channel/Dual-Pointer AC Millivolt Meter—Net Each **$420.00**

"ALL LEADER PRODUCTS ARE BACKED BY A 2-YEAR WARRANTY"



LSW-333



LFG-1300S

MODEL LSW-333 ALL CHANNEL SWEEP/MARKER GENERATOR

Precise, stable performance. For checking and aligning all RF/IF tuned circuits in VHF and UHF TV and FM receivers. Three bias supplies. Variable marker amplitude. Marker tilt, vertical or horizontal. Horiz. and vert. polarity inversion. Comes with output cable, external marker input cable, two scope-connection cables, input cable with detector and three bias supply output leads.

FREQUENCY DATA

Band	Frequency	Center Frequency	Sweep Width	Markers (MHz)
1 VHF*	Channels 2-13	Center of Channel	8 MHz	39.75, 41.25, 41.67, 42.17, 42.67, 42.75, 44.00, 45.00, 45.75, 47.25
UHF	470-890 MHz	Center Continuously Variable	8 MHz	41.25, 41.67, 42.17, 42.67
FM-RF	83-113 MHz	98 MHz	30 MHz	85.5, 88.0, 90.0, 91.5, 94.5
FM-IF	10.7 MHz	10.7 MHz	1 MHz	10.6, 10.7, 10.8
Video (Chroma and S. IF)	1.8-5.5 MHz	....	3.7 MHz	±100 kHz side markers and ±1 kHz Modulation may be applied
Video IF†	39-48 MHz	43.5 MHz	8 MHz	39.75, 41.25, 41.67, 42.17, 42.67, 42.75, 44.00, 45.00, 45.75, 47.25
Video Sweep	0-6 MHz on 45.75 MHz	45.75 MHz	6 MHz	.....

*A separate 45.75 MHz video carrier is available on all channels at 10 dB below the 45.75 MHz marker. †All markers available separately with 1,000 Hz or 100 kHz modulation applied.

SPECIFICATIONS

Marking Method: Post injected, birdy type markers.
Sweep Rate: 60 Hz.
Sweep Linearity: Within 10% (3-point method).
Output Voltage: Over 100 mV rms into 75 ohms.
Output Impedance: 75 ohms, unbalanced.
Output Control: 30 dB in 10 dB steps plus variable 40 dB range; 30 dB in 10 dB steps (UHF only).
Marker Size: 0-1 Vp-p; adjustable.
Marker Tilt: Vertical or horizontal.
Display Polarity: Normal or inverted for vertical and/or horizontal axis.
Bias Supplies: Two 0 to ±25 V; One 0 to ±75 V.
Horizontal Out: 10 Vp-p, special 15.75 kHz filter for line rate suppression.
Power Required: 115 VAC, 50/60 Hz, 8 VA.
Size: 13 7/8" w. × 8 1/2" h. × 8 1/2" d.
Weight: Approx. 11 lbs.
Leader Model LSW-333 Sweep/Marker Generator—Net Each $775.00

MODEL LFG-1300S 2-MHz SWEEP/FUNCTION GENERATOR

A general purpose signal source with a broad range of research, design and service applications. Outputs include sine, square, triangle, ramp and pulse signals. Pulse symmetry variable over a 9:1 range; changing the symmetry does not appreciably affect the output frequency. Linear and logarithmic sweep frequency outputs available with sweep widths up to 1,000:1. Output level controlled by a calibrated, 70-dB attenuator (10-dB/step) with continuous adjustment between steps. Output may be frequency or amplitude modulated by an external signal. A level control also provides suppressed carrier outputs. Unit is housed in a sturdy metal case with front panel designed for convenient, simple operation.

SPECIFICATIONS

Frequency:
Ranges: 0.02 Hz to 2 MHz in 8 ranges; uncalibrated to 0.002 Hz.
0.02-0.2 Hz.
0.2-2 Hz.
2-20 Hz.
20-200 Hz.
200 Hz to 2 kHz.
2-20 kHz.
20-200 kHz.
200 kHz to 2 MHz.
Accuracy: 0.02 Hz to 200 kHz, ±3% of reading ±3% of full scale; 200 kHz to 2 MHz, ±5% of reading ±3% of full scale.
Waveforms:
Sine Wave:
Voltage: 20 V p-p (7 V rms) open circuit.
Distortion: 0.02 Hz to 100 kHz, less than 1%; 100 kHz to 2 MHz, less than 3%.
Flatness: 0.02 Hz to 2 MHz, within ±0.3 dB.
Triangle Wave:
Voltage: 20 V p-p open circuit.
Symmetry: 0.02 Hz to 100 kHz, 1%.
Sawtooth Wave:
Voltage: 20 V p-p open circuit.
Symmetry: 15.85 or 85.15, fixed.
Square Wave:
Voltage: 20 V p-p open circuit.
Symmetry: 0.02 Hz to 100 kHz, 1%.
Rise Time: Less than 100 ns.
Pulse:
Voltage: 20 V p-p open circuit.
Symmetry: 1:1 to 40:1, continuously variable.
Polarity: Positive or negative.
TTL Output: Fan out, 20 TTL.
D.C. Level: ±10 V, controlled by DC Offset.
Sweep Capabilities:
Type: Linear or logarithmic.
Rate (Duration): 0.5-50 Hz (2 sec. to 20 msec.).
Width: 1,000: 1 max., continuously variable.
Ramp Output (For Oscilloscope H-Axis Input): 0-10 V.
AM Capabilities:
Modulation Level: 0-100%, continuously variable.
Carrier Level: Adjusted by front panel control.
Output Level Control:
Attenuator: 10, 20, 40 dB (0-70 dB in 10-dB steps).
Impedance: 50 ohms.
Max. Level: 20 V p-p, adjustable.
Rear Panel Inputs And Outputs:
VCO: Input for external frequency control signal.
MOD: Input for AM signal.
GCV: Output for oscilloscope H-Axis input.
TTL: Fixed level TTL output; fan out, 20.
Leader Model LFG-1300S—Net Each $495.00

"ALL LEADER PRODUCTS ARE BACKED BY A 2-YEAR WARRANTY"

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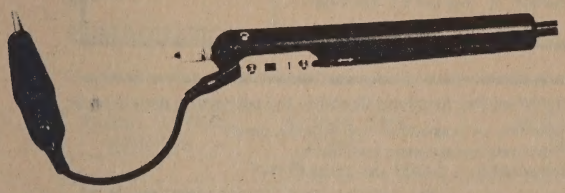
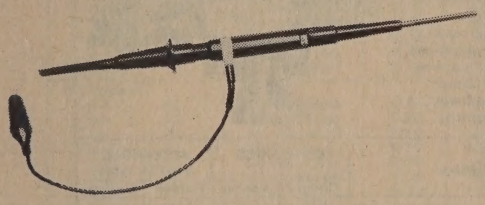
MODEL LP-7X DEMODULATOR/LOW-CAPACITANCE PROBE



Model LP-7X is a 10:1 switchable, dual-purpose probe, designed for maximum utility. Includes a RF detection circuit and a low-capacitance, 10:1 multiplier (10 megohms input resistance for 1 megohm input oscilloscope). Useful for checking sweep oscillator outputs. Includes a BNC connector; compatible with scope input connector.

Leader Model LP-7X Demod./Low-Cap. Probe—Net Each **$18.50**

MODEL LP-16AX DIRECT/LOW-CAPACITANCE PROBE



Equipped with a X1/X10 switching mechanism and a BNC connector.

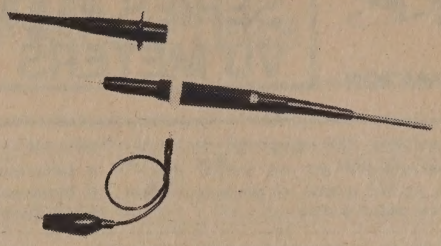
SPECIFICATIONS

	At X1 Position	At X10 Position
Max. Input Voltage	250 V rms or 600 VDC	250 V rms or 600 VDC
Input Resistance	1 megohm*	10 megohms*
Correction Range	.....	20-40 pF input capacitance of scope
Attenuation	.....	1/10 ±2%
Input Capacitance	Less than 250 MHz†	.....
Freq. Range	DC to 5 MHz	DC to 40 MHz

*Connect to oscilloscope of 1 megohm input. †Connect to oscilloscope of less than 50 pF input capacitance.

Leader Model LP-16AX Direct/Low-Cap. Probe—
Net Each **$38.00**

MODEL LP-17AX HIGH IMPEDANCE PROBE



Equipped with a X10/X100 switching mechanism and a BNC connector; compatible with scope input connector.

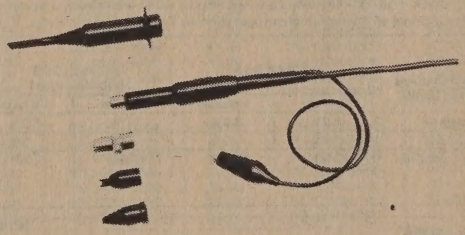
SPECIFICATIONS

	At X10 Position	At X100 Position
Attenuation	1/10 ±2%	1/100 ±3%
Freq. Range	DC to 40 MHz	DC to 20 MHz
Input Resistance	10 megohms	100 megohms
Input Capacitance	Less than 25 pF	Less than 8 pF
Compensation Range	20-40 pF†	20-40 pF†
Max. Input Voltage	600 VDC	1500 VDC

†Input capacitance of oscilloscope.

Leader Model LP-17AX High Impedance Probe—
Net Each **$60.00**

MODEL LP-18AX 100 MHz X10 PROBE



Bandwidth: 100 MHz.
Rise Time: 3.5 nsec.
Input Resistance: 10 megohms when used with oscilloscope with 1 megohm input (probe resistance, 9 megohms ±1%).
Input Capacitance: 9.5 pF when used with oscilloscope with 30 pF input capacitance.
Compensation Range: 10-60 pF.
Working Voltage: 600 VDC (including AC peak).
Cable Length: 1.5 meters.
Includes tip, spring hook, trimmer tool, BNC connector and I.C. tip.

Leader Model LP-18AX 100 MHz X10 Probe—Net Each ..**$50.00**

OTHER PROBES

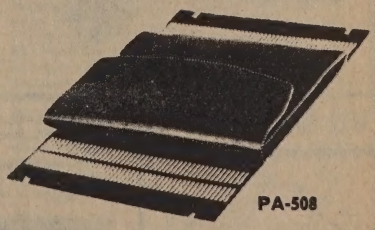
Leader Model LP-2DC/AC Ohms Probe—Net Each **$14.00**
Leader Model LP-6 H.V. Probe—
For LDM-854, 855. Net Each **$48.50**

Leader Model LP-11Y Leader-Flex Probe
3-prong. For LTC-905 and -906. Net Each **$19.00**

OTHER ACCESSORIES

LC-2001

CC-851



PA-508

Leader Model BNC-U—BNC to UHF connector adapter.
Net Each **$5.10**
Leader Model CC-70B Carrying Case—For LT-70B.
Net Each **$8.00**
Leader Model CC-851 Carrying Case—For LDM-851.
Net Each.....**$8.95**
Leader Model LC-2001 Front Cover—For LBO-507A, LBO-508A, LBO-513, LBO-514 and LBO-520A. Net Ea. **$39.95**

Leader Model LC-2002 Front Cover—For LBO-515B.
Net Each **$39.95**
Leader Model LP-2004 Probe Pouch—For LBO-507A, LBO-508A, LBO-513 and LBO-514. Net Each **$19.95**
Leader Model LP-2003 Probe Pouch—For LBO-520A, Net Each **$23.95**
Leader Model LPS-166F Adapter—For LDM-851.
Net Each **$7.95**

"ALL LEADER PRODUCTS ARE BACKED BY A 2-YEAR WARRANTY"

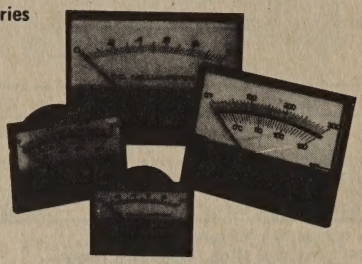
LFE CORPORATION

SERIES 7000 PANEL METERS
SERIES api PANEL METERS
VU METERS

API Series and Series 7000 analog panel instruments and pyrometers offer distinctive styling, functional flexibility and outstanding performance:

- Four sizes: 2½", 3½", 4½" and 5½"
- DC, AC, VU, process and temperature ranges
- Wide range of custom dials
- Self-shielding for mounting on magnetic or non-magnetic panels
- Proven reliability — accurate measurement and display
- API Series — UL recognized per UL-1437 and UL-544

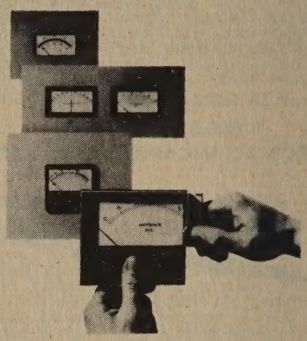
API Series



- Competitively priced
- Window, bezel or surface mounting
- Taut-band suspension assures rugged frictionless operation
- Black molded front reduces scratching to eliminate rework or scrap
- Optional stud mounting configuration to fit most popular styles

7000 Series

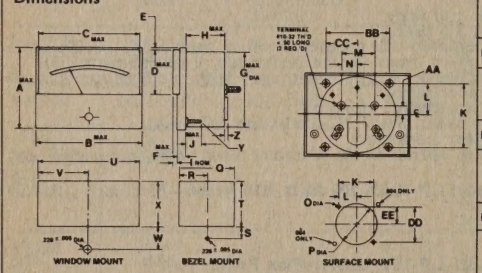
- Slide-out scales cut costs. A basic stock of meters is easily modified as needed.
- Three-way choice of mounting: front, bezel or lens mount.
- Taut-band mechanism and 1% tracking are standard in many ranges
- Phenolic front and cases are rugged and reliable. Glass windows are scratch-proof and free of static electricity.



Specifications (Taut Band)	DC RANGES		AC RANGES (rectifier type)	
	Current	Voltage	Current	Voltage
Accuracy	± 2%	± 2%	± 3%	± 3%
Tracking	2%	2%	3%	3%
Repeatability	< ¼%	< ¼%	< ¼%	< ¼%

Specifications		DC RANGES		AC RANGES (rectifier type)	
		Current	Voltage	Current	Voltage
Accuracy		± 2%	± 2%	± 3%	± 3%
Tracking	Pivot-and-jewel mechanism	2%	2%	3%	3%
	taut-band mechanism ⩾ 20 μa ⩾ 10mv	1%	1%	3%	3%

Series api Dimensions



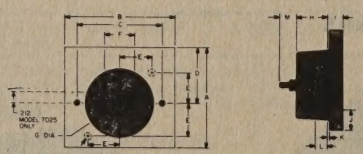
MODEL	A_{MAX}	B_{MAX}	C_{MAX}	D_{MAX}	E_{MAX}	F_{MAX}	G_{MAX}	H_{MAX}
204	2.295	3.015	2.880	1.260	.060	.300	2.125	1.405
304	2.905	3.735	3.588	1.585	.070	.325	2.665	1.405
504	4.065	5.185	5.000	2.330	.090	.375	2.665	1.405
604	4.605	5.975	5.760	2.573	.100	.375	2.665	1.405

MODEL	I	J_{MAX}	$K \pm .010$	$L \pm .010$	$M \pm .015$	$N \pm .015$	$O \pm .005$	$P \pm .010$
204	.145	.51	1.880	.940	1.12	.56	.125	2.220
304	.145	.51	2.250	1.125	1.12	.56	.166	2.820
504	.145	.51	3.560	2.020	1.12	.56	.166	2.820
604	.145	.51	3.000	2.150	1.12	.56	.166	2.820

MODEL	$Q^{+.030}_{-.000}$	$R^{+.030}_{-.000}$	$S \pm .015$	$T^{+.030}_{-.000}$	$U \pm .010$ $-.000$	$V \pm .015$	$W \pm .010$	$X^{\pm .010}_{-.000}$
204	3.000	1.500	.369	1.594	2.900	1.450	.633	1.265
304	3.718	1.859	.303	2.156	3.600	1.800	.804	1.590
504	5.126	2.563	.413	2.843	5.010	2.505	.856	2.340
604	5.860	2.930	.781	3.140	5.780	2.890	1.278	2.588

MODEL	Y	Z_{MAX}	$AA \pm .015$	$BB \pm .010$	$CC \pm .010$	$DD \pm .010$	$EE \pm .010$	
204	#4-40 (2)	.035	.212	1.880	.940	1.880	.940	
304	#4-40 (2)	.035	–	2.250	1.125	2.250	1.125	
504	#6-32 (2)	–	–	4.000	2.000	3.560	2.020	
604	#6-32 (4)	–	–	5.250	2.625	3.000	2.850	

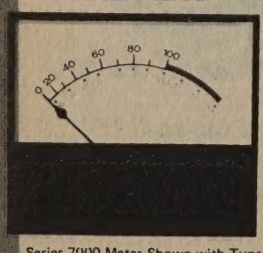
Series 7000 Dimensions



MODEL	A	B	C	D	E	F	G
7025	2.41	2.81	–	1.18	0.94	1.25	2.20
7035	3.01	3.51	–	1.53	1.125	1.25	2.79
7045	4.05	4.61	3.50	2.29	–	1.25	2.79
7055	4.53	5.66	4.50	2.695	–	1.25	2.79

MODEL	H	I	J	K	L	M	
7025	1.39	.56	.43	.02	.56	.675	
7035	1.37	.58	.53	.02	.56	.675	
7045	1.37	.58	.77	.02	.56	.675	
7055	1.37	.58	.845	.02	.56	.675	

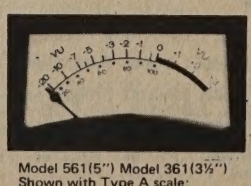
VU METERS



Series 7000 Meter. Shown with Type B scale; A scale also available.

API VU meters offer the industry's most advanced styling while conforming to all specifications of ANSI Standard C16.5-1954 entitled "American Recommended Practice for Volume Measurements of Electrical Speech and Program Waves."

All models are available with either Type A scale for recording applications, or Type B which emphasizes per cent modulation for broadcast use. The meter reading is zero VU, or 100% with application of 1.228 volts across a 3600 ohm resistor in series with the VU meter. This reading represents 4 db above 1 milliwatt into 600 ohms.



Model 561(5") Model 361(3½") Shown with Type A scale; B scale also available.

MODEL NUMBER	Part Number A Scale	Part Number B Scale	Price*
204	AH-0226-0050	AH-0236-0050	$54.00
304	AJ-0226-0050	AJ-0236-0050	
504	AK-0226-0050	AK-0236-0050	
7025	R5-0226-0050	R5-0236-0050	$64.00
7035	M5-0226-0050	M5-0236-0050	
7045	N5-0226-0050	N5-0236-0050	
561	56-0266-0050	56-0236-0050	$72.50
361	36-0236-0050	36-0246-0050	
426	43-0226-0050	43-0236-0050	

PRICES LISTED ARE FOR GUIDANCE ONLY

LFE CORPORATION

SERIES 7000 PANEL METERS
SERIES 7000 PYROMETERS

PANEL METER RANGES		MODEL 7025 2½"		MODEL 7035 3½"		MODEL 7045 4½"		MODEL 7055 5½"	
		Part Number	Price*	Part Number	Price*	Part Number	Price*	Part Number	Price*
DC microamperes									
0-5	TB	R5-0002-0000	$78.00	M5-0002-0000	$78.00	N5-0002-0000	$80.00	P5-0002-0000	$82.00
0-10	TB	R5-0402-0000	65.25	M5-0402-0000	65.25	N5-0402-0000	67.25	P5-0402-0000	69.25
0-20	TB	R5-0802-0000	52.25	M5-0802-0000	52.25	N5-0802-0000	54.25	P5-0802-0000	56.25
25-0-25	TB	R5-1802-0100	45.00	M5-1802-0100	45.00	N5-1802-0100	47.00	P5-1802-0100	49.00
0-50	TB	R5-1802-0000	45.00	M5-1802-0000	45.00	N5-1802-0000	47.00	P5-1802-0000	49.00
50-0-50	TB	R5-3602-0100	39.50	M5-3602-0100	39.50	N5-3602-0100	41.50	P5-3602-0100	43.50
0-100	TB	R5-3602-0000	39.50	M5-3602-0000	39.50	N5-3602-0000	41.50	P5-3602-0000	43.50
100-0-100	TB	R5-4702-0100	37.00	M5-4702-0100	37.00	N5-4702-0100	39.00	P5-4702-0100	41.00
0-200	TB	R5-4702-0000	37.00	M5-4702-0000	37.00	N5-4702-0000	39.00	P5-4702-0000	41.00
0-500	PJ	R5-5902-0000	34.25	M5-5902-0000	34.25	N5-5902-0000	36.25	P5-5902-0000	38.25
500-0-500	PJ	R5-0003-0100	34.25	M5-0003-0100	34.25	N5-0003-0100	36.25	P5-0003-0100	38.25
DC milliamperes									
0-1	PJ	R5-0003-0000	34.25	M5-0003-0000	34.25	N5-0003-0000	36.25	P5-0003-0000	38.25
0-5	PJ	R5-1803-0000	34.25	M5-1803-0000	34.25	N5-1803-0000	36.25	P5-1803-0000	38.25
0-10	PJ	R5-3303-0000	34.25	M5-3303-0000	34.25	N5-3303-0000	36.25	P5-3303-0000	38.25
0-25	PJ	R5-4703-0000	34.25	M5-4703-0000	34.25	N5-4703-0000	36.25	P5-4703-0000	38.25
0-50	PJ	R5-5603-0000	34.25	M5-5603-0000	34.25	N5-5603-0000	36.25	P5-5603-0000	38.25
0-100	PJ	R5-6903-0000	36.00	M5-6903-0000	36.00	N5-6903-0000	38.00	P5-6903-0000	40.00
0-500	PJ	R5-8803-0000	36.00	M5-8803-0000	36.00	N5-8803-0000	38.00	P5-8803-0000	40.00
DC amperes									
0-1	PJ	R5-0004-0000	39.00	M5-0004-0000	39.00	N5-0004-0000	41.00	P5-0004-0000	43.00
0-3	PJ	R5-0804-0000	39.00	M5-0804-0000	39.00	N5-0804-0000	41.00	P5-0804-0000	43.00
0-5	PJ	R5-1104-0000	39.00	M5-1104-0000	39.00	N5-1104-0000	41.00	P5-1104-0000	43.00
0-10	PJ	R5-1704-0000	39.00	M5-1704-0000	39.00	N5-1704-0000	41.00	P5-1704-0000	43.00
0-15	PJ	R5-1904-0000	39.00	M5-1904-0000	39.00	N5-1904-0000	41.00	P5-1904-0000	43.00
0-25	PJ	R5-2204-0000	39.00	M5-2204-0000	39.00	N5-2204-0000	41.00	P5-2204-0000	43.00
0-30	PJ	R5-2404-0000	39.00	M5-2404-0000	39.00	N5-2404-0000	41.00	P5-2404-0000	43.00
DC millivolts									
0-5	TB	R5-0000-0000	61.75	M5-0000-0000	61.75	N5-0000-0000	63.75	P5-0000-0000	65.75
0-10	TB	R5-0400-0000	52.25	M5-0400-0000	52.25	N5-0400-0000	54.25	P5-0400-0000	56.25
0-25	TB	R5-1200-0000	44.25	M5-1200-0000	44.25	N5-1200-0000	46.25	P5-1200-0000	48.25
0-50	PJ	R5-1800-0000	36.00	M5-1800-0000	36.00	N5-1800-0000	38.00	P5-1800-0000	40.00
0-100	PJ	R5-3600-0000	36.00	M5-3600-0000	36.00	N5-3600-0000	38.00	P5-3600-0000	40.00
50-0-50	PJ	R5-3600-0100	36.00	M5-3600-0100	36.00	N5-3600-0100	38.00	P5-3600-0100	40.00
100-0-100	PJ	R5-4700-0100	36.00	M5-4700-0100	36.00	N5-4700-0100	38.00	P5-4700-0100	40.00
DC volts									
0-5	PJ	R5-1601-0000	36.00	M5-1601-0000	36.00	N5-1601-0000	38.00	P5-1601-0000	40.00
0-10	PJ	R5-3001-0000	36.00	M5-3001-0000	36.00	N5-3001-0000	38.00	P5-3001-0000	40.00
0-15	PJ	R5-3601-0000	36.00	M5-3601-0000	36.00	N5-3601-0000	38.00	P5-3601-0000	40.00
0-30	PJ	R5-5101-0000	36.00	M5-5101-0000	36.00	N5-5101-0000	38.00	P5-5101-0000	40.00
0-50	PJ	R5-5601-0000	36.00	M5-5601-0000	36.00	N5-5601-0000	38.00	P5-5601-0000	40.00
0-150	PJ	R5-7401-0000	36.00	M5-7401-0000	36.00	N5-7401-0000	38.00	P5-7401-0000	40.00
0-300	PJ	R5-8401-0000	36.00	M5-8401-0000	36.00	N5-8401-0000	38.00	P5-8401-0000	40.00
0-500	PJ	R5-8801-0000	36.00	M5-8801-0000	36.00	N5-8801-0000	38.00	P5-8801-0000	40.00
AC volts (rectifier type)									
0-10	PJ	R5-3006-0000	42.00	M5-3006-0000	42.00	N5-3006-0000	44.00	P5-3006-0000	46.00
0-15	PJ	R5-3606-0000	42.00	M5-3606-0000	42.00	N5-3606-0000	44.00	P5-3606-0000	46.00
0-150	PJ	R5-7406-0000	42.00	M5-7406-0000	42.00	N5-7406-0000	44.00	P5-7406-0000	46.00
0-300	PJ	R5-8406-0000	42.00	M5-8406-0000	42.00	N5-8406-0000	44.00	P5-8406-0000	46.00
0-500	PJ	R5-8806-0000	42.00	M5-8806-0000	42.00	N5-8806-0000	44.00	P5-8806-0000	46.00
AC milliamperes (rectifier type)									
0-1	PJ	R5-0008-0000	40.25	M5-0008-0000	40.25	N5-0008-0000	42.25	P5-0008-0000	44.25
0-47**	PJ	R5-5428-0000	40.25	M5-5428-0000	40.25	N5-5428-0000	42.25	P5-5428-0000	44.25

PYROMETER RANGES				MODEL 7025		MODEL 7035		MODEL 7045		MODEL 7055	
°F	°C	T/C		Part Number	Price*	Part Number	Price*	Part Number	Price*	Part Number	Price*
−200 to +100	−130 to +40	T	TB	R5-5004-0000	$ –	M5-5004-0000	$73.00	N5-5004-0000	$75.00	P5-5024-0000	$83.00
−150 to +250	−100 to +120	J	TB	R5-6424-0000	–	M5-6424-0000	73.00	N5-6424-0000	75.00	P5-6434-0000	83.00
−100 to +600	−70 to +310	J	TB	R5-7224-0000	63.00	M5-7224-0000	63.00	N5-7224-0000	65.00	P5-7224-0000	73.00
−75 to +225	−60 to +110	J	TB	R5-5304-0000	–	M5-5304-0000	73.00	N5-5304-0000	75.00	P5-5324-0000	83.00
0 to 300	0 to 150	J	TB	R5-6004-0000	–	M5-6004-0000	73.00	N5-6004-0000	75.00	P5-6024-0000	83.00
0 to 500	0 to 260	J	TB	R5-6604-0000	63.00	M5-6604-0000	63.00	N5-6604-0000	65.00	P5-6624-0000	73.00
0 to 800	0 to 430	J	TB	R5-7804-0000	63.00	M5-7804-0000	63.00	N5-7804-0000	65.00	P5-7824-0000	73.00
0 to 1000	0 to 500	J	TB	R5-8204-0000	63.00	M5-8204-0000	63.00	N5-8204-0000	65.00	P5-8224-0000	73.00
0 to 1500	0 to 800	K	TB	R5-8504-0000	63.00	M5-8504-0000	63.00	N5-8504-0000	65.00	P5-8524-0000	73.00
0 to 2000	0 to 1100	K	TB	R5-8904-0000	63.00	M5-8904-0000	63.00	N5-8904-0000	65.00	P5-8924-0000	73.00
0 to 2500	0 to 1370	K	TB	R5-9304-0000	63.00	M5-9304-0000	63.00	N5-9304-0000	65.00	P5-9324-0000	73.00
0 to 3000	0 to 1650	R	TB	–	–	–	63.00	N5-9704-0000	65.00	P5-9724-0000	73.00

SERIES 7000 ACCESSORIES	MODEL 7025		MODEL 7035		MODEL 7045		MODEL 7055	
	Part Number	Price*	Part Number	Price*	Part Number	Price*	Part Number	Price*
BEZEL KIT	1125-242	$3.50	1125-226	$3.50	1125-223	$3.50	1125-229	$3.50
PANEL LENS KIT	1125-241	2.00	1125-225	2.00	1125-222	2.00	1125-228	2.00
BENCH STAND for pyrometers	not available	–	1974-11	8.00	1974-12	8.00	1974-13	8.00

TB Taut-band movement is standard
PJ Pivot-and-jewel movement is standard
*The prices listed above are net each for lots of 1-9.
**AC Load Meter: Scale reads 0-150% LOAD. For use with external current transformer.

LFE CORPORATION

SERIES api PANEL METERS
SERIES api PYROMETERS

PANEL METER RANGES	MODEL 204 2½" Part Number	MODEL 204 2½" Price*	MODEL 304 3½" Part Number	MODEL 304 3½" Price*	MODEL 504 4½" Part Number	MODEL 504 4½" Price*	MODEL 604 5½" Part Number	MODEL 604 5½" Price*
DC microamperes								
0-5 TB	AH-0002-0000	$66.75	AJ-0002-0000	$66.75	AK-0002-0000	$67.75	AL-0002-0000	$69.75
0-10 TB	AH-0402-0000	55.75	AJ-0402-0000	55.75	AK-0402-0000	56.75	AL-0402-0000	58.75
0-20 TB	AH-0802-0000	44.50	AJ-0802-0000	44.50	AK-0802-0000	45.50	AL-0802-0000	47.50
25-0-25 TB	AH-1802-0100	37.75	AJ-1802-0100	37.75	AK-1802-0100	38.75	AL-1802-0100	40.75
0-50 TB	AH-1802-0000	37.75	AJ-1802-0000	37.75	AK-1802-0000	38.75	AL-1802-0000	40.75
50-0-50 TB	AH-3602-0100	33.25	AJ-3602-0100	33.25	AK-3602-0100	34.25	AL-3602-0100	36.25
0-100 TB	AH-3602-0000	33.25	AJ-3602-0000	33.25	AK-3602-0000	34.25	AL-3602-0000	36.25
100-0-100 TB	AH-4702-0100	31.00	AJ-4702-0100	31.00	AK-4702-0100	32.00	AL-4702-0100	34.00
0-200 TB	AH-4702-0000	31.00	AJ-4702-0000	31.00	AK-4702-0000	32.00	AL-4702-0000	34.00
0-500 TB	AH-5902-0000	28.50	AJ-5902-0000	28.50	AK-5902-0000	29.50	AL-5902-0000	31.50
500-0-500 TB	AH-0003-0100	28.50	AJ-0003-0100	28.50	AK-0003-0100	29.50	AL-0003-0100	31.50
DC milliamperes								
0-1 TB	AH-0003-0000	28.50	AJ-0003-0000	28.50	AK-0003-0000	29.50	AL-0003-0000	31.50
0-5 TB	AH-1803-0000	28.50	AJ-1803-0000	28.50	AK-1803-0000	29.50	AL-1803-0000	31.50
0-10 TB	AH-3303-0000	28.50	AJ-3303-0000	28.50	AK-3303-0000	29.50	AL-3303-0000	31.50
0-25 TB	AH-4703-0000	28.50	AJ-4703-0000	28.50	AK-4703-0000	29.50	AL-4703-0000	31.50
0-50 TB	AH-5603-0000	28.50	AJ-5603-0000	28.50	AK-5603-0000	29.50	AL-5603-0000	31.50
0-100 TB	AH-6903-0000	30.00	AJ-6903-0000	30.00	AK-6903-0000	31.00	AL-6903-0000	33.00
0-500 TB	AH-8803-0000	30.00	AJ-8803-0000	30.00	AK-8803-0000	31.00	AL-8803-0000	33.00
DC amperes								
0-1 TB	AH-0004-0000	33.00	AJ-0004-0000	33.00	AK-0004-0000	34.00	AL-0004-0000	36.00
0-3 TB	AH-0804-0000	33.00	AJ-0804-0000	33.00	AK-0804-0000	34.00	AL-0804-0000	36.00
0-5 TB	AH-1104-0000	33.00	AJ-1104-0000	33.00	AK-1104-0000	34.00	AL-1104-0000	36.00
0-10 TB	AH-1704-0000	33.00	AJ-1704-0000	33.00	AK-1704-0000	34.00	AL-1704-0000	36.00
0-15 TB	AH-1904-0000	33.00	AJ-1904-0000	33.00	AK-1904-0000	34.00	AL-1904-0000	36.00
0-25 TB	AH-2204-0000	33.00	AJ-2204-0000	33.00	AK-2204-0000	34.00	AL-2204-0000	36.00
DC millivolts								
0-5 TB	AH-0000-0000	52.75	AJ-0000-0000	52.75	AK-0000-0000	53.75	AL-0000-0000	55.75
0-10 TB	AH-0400-0000	44.50	AJ-0400-0000	44.50	AK-0400-0000	45.50	AL-0400-0000	47.50
0-50 TB	AH-1800-0000	37.25	AJ-1800-0000	37.25	AK-1800-0000	38.25	AL-1800-0000	40.25
0-100 TB	AH-3600-0000	30.00	AJ-3600-0000	30.00	AK-3600-0000	31.00	AL-3600-0000	33.00
50-0-50 TB	AH-3600-0100	30.00	AJ-3600-0100	30.00	AK-3600-0100	31.00	AL-3600-0100	33.00
100-0-100 TB	AH-4700-0100	30.00	AJ-4700-0100	30.00	AK-4700-0100	31.00	AL-4700-0100	33.00
DC volts								
0-5 TB	AH-1601-0000	30.00	AJ-1601-0000	30.00	AK-1601-0000	31.00	AL-1601-0000	33.00
0-10 TB	AH-3001-0000	30.00	AJ-3001-0000	30.00	AK-3001-0000	31.00	AL-3001-0000	33.00
0-15 TB	AH-3601-0000	30.00	AJ-3601-0000	30.00	AK-3601-0000	31.00	AL-3601-0000	33.00
0-30 TB	AH-5101-0000	30.00	AJ-5101-0000	30.00	AK-5101-0000	31.00	AL-5101-0000	33.00
0-50 TB	AH-5601-0000	30.00	AJ-5601-0000	30.00	AK-5601-0000	31.00	AL-5601-0000	33.00
0-150 TB	AH-7401-0000	30.00	AJ-7401-0000	30.00	AK-7401-0000	31.00	AL-7401-0000	33.00
0-300 TB	AH-8401-0000	30.00	AJ-8401-0000	30.00	AK-8401-0000	31.00	AL-8401-0000	33.00
0-500 TB	AH-8801-0000	30.00	AJ-8801-0000	30.00	AK-8801-0000	31.00	AL-8801-0000	33.00
AC volts (rectifier)								
0-10 TB	AH-3006-0000	36.00	AJ-3006-0000	36.00	AK-3006-0000	37.00	AL-3006-0000	39.00
0-15 TB	AH-3606-0000	36.00	AJ-3606-0000	36.00	AK-3606-0000	37.00	AL-3606-0000	39.00
0-150 TB	AH-7406-0000	36.00	AJ-7406-0000	36.00	AK-7406-0000	37.00	AL-7406-0000	39.00
0-300 TB	AH-8406-0000	36.00	AJ-8406-0000	36.00	AK-8406-0000	37.00	AL-8406-0000	39.00
0-500 TB	AH-8806-0000	36.00	AJ-8806-0000	36.00	AK-8806-0000	37.00	AL-8806-0000	39.00
AC milliamperes (rectifier type)								
0-1 TB	AH-0008-0000	34.50	AJ-0008-0000	34.50	AK-0008-0000	35.50	AL-0008-0000	37.50
0-47** TB	AH-5428-0000	34.50	AJ-5428-0000	34.50	AK-5428-0000	35.50	AL-5428-0000	37.50
AC amperes* ** TB	–	54.50	–	54.50	–	55.50	–	57.50

PYROMETER RANGES °F	°C	T/C	MODEL 204 (2% accuracy)	PRICE*	MODEL 304 (2% accuracy)	PRICE*	MODEL 504 (2% accuracy)	PRICE*	MODEL 604 (2% accuracy)	PRICE*
−200 to + 100	−130 to + 40	T	AH-5004-0000	$ –	AJ-5004-0000	$64.00	AK-5004-0000	$65.00	AL-5004-0000	$67.00
−150 to + 250	−100 to + 120	J	AH-6424-0000	–	AJ-6424-0000	64.00	AK-6424-0000	65.00	AL-6424-0000	67.00
−100 to + 600	− 70 to + 310	J	AH-7224-0000	54.00	AJ-7224-0000	54.00	AK-7224-0000	55.00	AL-7224-0000	57.00
− 75 to + 225	− 60 to + 110	J	AH-5304-0000	–	AJ-5304-0000	64.00	AK-5304-0000	65.00	AL-5304-0000	67.00
0 to 300	0 to 150	J	AH-6004-0000	–	AJ-6004-0000	64.00	AK-6004-0000	65.00	AL-6004-0000	67.00
0 to 500	0 to 260	J	AH-6604-0000	54.00	AJ-6604-0000	54.00	AK-6604-0000	55.00	AL-6604-0000	57.00
0 to 800	0 to 430	J	AH-7804-0000	54.00	AJ-7804-0000	54.00	AK-7804-0000	55.00	AL-7804-0000	57.00
0 to 1000	0 to 500	J	AH-8204-0000	54.00	AJ-8204-0000	54.00	AK-8204-0000	55.00	AL-8204-0000	57.00
0 to 1500	0 to 800	K	AH-8504-0000	54.00	AJ-8504-0000	54.00	AK-8504-0000	55.00	AL-8504-0000	57.00
0 to 2000	0 to 1100	K	AH-8904-0000	54.00	AJ-8904-0000	54.00	AK-8904-0000	55.00	AL-8904-0000	57.00
0 to 2500	0 to 1370	K	AH-9304-0000	54.00	AJ-9304-0000	54.00	AK-9304-0000	55.00	AL-9304-0000	57.00
0 to 3000	0 to 1650	R	–	–	–	–	AK-9704-0000	55.00	AL-9704-0000	57.00

ACCESSORIES

DESCRIPTION	MODEL 204	PRICE	MODEL 304	PRICE	MODEL 504	PRICE	MODEL 604	PRICE
Bezel Kit	1125-330	$3.50	1125-331	$3.50	1125-332	$3.75	1125-333	$3.75
Bench Stand	NOT AVAILABLE		1974-11	$8.00	1974-12	$8.00	1974-13	$8.00

BEZEL MOUNT OPTION

When ordering meters for bezel-mounting, change first digit of part number from "A" to "B" (e.g. AH-1802-0000 becomes BH-1802-0000).
Bezels must be specified as a separate item by part number and priced as shown in the accessory table above.
Meter prices increase as shown.

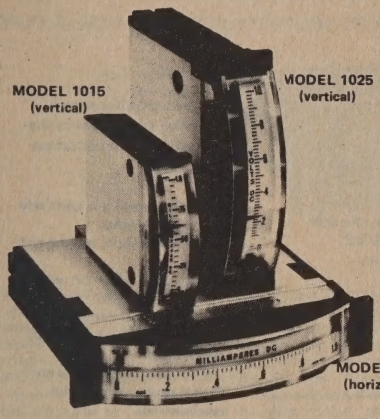
DESCRIPTION	MODEL 204	MODEL 304	MODEL 504	MODEL 604
P/N Change	AH- to BH-	AJ- to BJ-	AK- to BK-	AL- to BL-
Price Adder	$2.50	$2.50	$2.50	$2.50

*The prices listed above are net each for lots of 1-9.
**AC Load Meter: Scale reads 0-150% LOAD. For use with external current transformer.
***Ranges up to 50 AMPS AC include current transformer with 47 MA secondary.
Ranges above 50 AMPS AC supplies with 5 AMP AC sensitivity for use with additional donut transformer. (Donut transformer not included in price, must be ordered separately).

PRICES LISTED ARE FOR GUIDANCE ONLY

LFE CORPORATION

SERIES 1000 EDGEWISE PANEL METERS



Series 1000 edgewise panel meters have been designed to satisfy the increasing demand for attractive and accurate analog display in a minimum of panel space. These edgewise meters provide a number of user benefits available nowhere else.

A novel case design permits snap-together access to the dial and mechanism for convenient dial changing. The case itself—clear front window and black base—is molded from high-impact polycarbonate for immunity from shock, chemicals and flame.

The unique flat d'Arsonval mechanism with pivot-and-jewel suspension provides 2% accuracy for either vertical or horizontal scale orientations. Unsurpassed stability makes a front zero adjust unnecessary, freeing the dial area for maximum visibility.

Panel mounting has been simplified to the ultimate in the Series 1000. Two mounting clips are attached without screws to the meter case after it has been inserted through its cutout; then the clips are tightened against the panel. Total time: less than half a minute!

- 1½", 2½", and 3½" sizes
- Easy dial changing
- Stackable
- Tough, high temperature polycarbonate case
- Resists shock and vibration

RANGE	Resistance ±20%	Model 1015 1½" Part Number	Model 1015 1½" Price*	Model 1025 2½" Part Number	Model 1025 2½" Price*	Model 1035 3½" Part Number	Model 1035 3½" Price*
microamperes DC							
0-50	1000 Ω	T5-1802-0000	$35.00	U5-1802-0000	$38.00	Y5-1802-0000	$41.00
50-0-50	1000 Ω	T5-3602-0100	31.00	U5-3602-0100	34.00	Y5-3602-0100	37.00
0-100	1000 Ω	T5-3602-0000	31.00	U5-3602-0000	34.00	Y5-3602-0000	37.00
100-0-100	680 Ω	T5-4702-0100	30.00	U5-4702-0100	33.00	Y5-4702-0100	36.00
0-200	680 Ω	T5-4702-0000	30.00	U5-4702-0000	33.00	Y5-4702-0000	36.00
250-0-250	127 Ω	T5-5902-0100	30.00	U5-5902-0100	33.00	Y5-5902-0100	36.00
0-500	127 Ω	T5-5902-0000	30.00	U5-5902-0000	33.00	Y5-5902-0000	36.00
500-0-500	32 Ω	T5-0003-0100	30.00	U5-0003-0100	33.00	Y5-0003-0100	36.00
milliamperes DC							
0-1	32 Ω	T5-0003-0000	30.00	U5-0003-0000	33.00	Y5-0003-0000	36.00
1-0-1	10 Ω	T5-1003-0100	30.00	U5-1003-0100	33.00	Y5-1003-0100	36.00
0-2	10 Ω	T5-1003-0000	30.00	U5-1003-0000	33.00	Y5-1003-0000	36.00
process control**							
4-20 mA	2.4 Ω	T5-4033-0400	37.50	U5-4033-0400	40.50	Y5-4033-0400	43.50
1-5 v	1000 Ω/v	T5-1231-0400	40.50	U5-1231-0400	43.50	Y5-1231-0400	46.50
millivolts DC							
0-50	12.5 Ω	T5-1800-0000	32.50	U5-1800-0000	35.50	Y5-1800-0000	38.50
volts DC							
0-10	1000 Ω/v	T5-3001-0000	32.50	U5-3001-0000	35.50	Y5-3001-0000	38.50
0-50	1000 Ω/v	T5-5601-0000	32.50	U5-5601-0000	35.50	Y5-5601-0000	38.50
0-100	1000 Ω/v	T5-6901-0000	32.50	U5-6901-0000	35.50	Y5-6901-0000	38.50
0-150	1000 Ω/v	T5-7401-0000	32.50	U5-7401-0000	35.50	Y5-7401-0000	38.50
amperes AC†							
0-1	–	T5-0009-0000	56.00	U5-0009-0000	59.00	Y5-0009-0000	62.00
0-3	–	T5-0809-0000	56.00	U5-0809-0000	59.00	Y5-0809-0000	62.00
0-5	–	T5-1109-0000	56.00	U5-1109-0000	59.00	Y5-1109-0000	62.00
0-25	–	T5-2209-0000	56.00	U5-2209-0000	59.00	Y5-2209-0000	62.00
0-50	–	T5-2609-0000	56.00	U5-2609-0000	59.00	Y5-2609-0000	62.00
volts AC							
0-150	1000 Ω/V	T5-7406-0000	38.50	U5-7406-0000	41.50	Y5-7406-0000	44.50

PSEUDO VU METERS EDGEWISE (meters can be supplied with a type A or type B scale).

RANGE	Model 1015 1½" Part Number	Model 1015 1½" Price	Model 1025 2½" Part Number	Model 1025 2½" Price	Model 1035 3½" Part Number	Model 1035 3½" Price
0-200 μA DC	–	$30.00	–	$33.00	–	$36.00
0-1.73 V AC	–	38.50	–	41.50	–	44.50
Other Ranges	–	consult factory	–	consult factory	–	consult factory

† Includes current transformer with 47mA secondary.

The above part numbers are for horizontally mounted scales. For vertical scales change the last two digits of the part number from 00 to 50. The price does not change.

ACCESSORIES

Bezels For Stack Mounting	Model 1015 Part Number	Model 1015 Price*	Model 1025 Part Number	Model 1025 Price*	Model 1035 Part Number	Model 1035 Price*
2 units	241-70	$2.50	241-67	$3.00	241-73	$3.50
3 units	241-71	2.50	241-68	3.00	241-74	3.50
4 units	241-72	2.50	241-69	3.00	241-75	3.50
5 units	–	–	–	–	241-76	3.50

Single Bezel included with mounting hardware.

OPTIONS

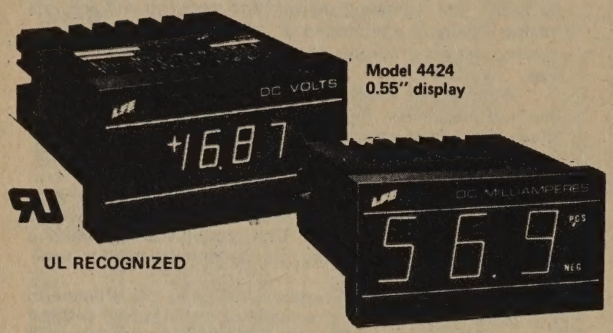
Model 1025 & Model 1035	
Description	Price Adder
internal illumination	$6.00
extrusion mounting	3.00
threaded terminals (6-32)	3.00

Solder-lug terminals are standard

*The prices listed above are net each for lots of 1-9.
**Scale 0-100%

LFE CORPORATION

SERIES 4400
DIGITAL PANEL INSTRUMENTS



Model 4424
0.55" display

The Easy Reader
Model 4443
1" display

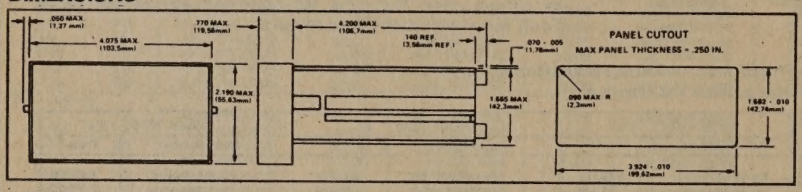
UL RECOGNIZED

LFE products offer many competitive advantages in the digital panel instrumentation marketplace.

- Complete line of competitively priced instruments.
- Easy modification, ranging and scaling.
- UL Recognition for DC ranges
- The only 1" display
- Complete signal conditioning that is price and performance competitive.
- Unique internal digital control.
- Digital control with signal conditioning.
- Plug-in display for greater maintainability and reliability.

Underwriter Laboratory recognition of the Model 4424 digital panel instrument is the latest of the long line of LFE "firsts" in digital instrumentation.

DIMENSIONS



HOW TO ORDER

DC RANGES

Model 4424*	Price	Model 4443	Price	Input Resistance	Maximum Overload
0 to ± 199.9 mV	$163.00	0 to ± 99.9 mV	$215.00	>100 meg Ω	240 V rms
0 to ± 1.999 V		0 to ± 999 mV		>100 meg Ω	240 V rms
0 to ± 19.99 V		0 to ± 9.99 V		10 meg Ω	240 V rms
0 to ± 199.9 V		0 to ± 99.9 V		10 meg Ω	240 V rms
0 to ± 19.99 μA	163.00	0 to ± 9.99 μA	215.00	10 K Ω	5 mA
0 to ± 199.9 μA		0 to ± 99.9 μA		1 K Ω	15 mA
0 to ± 1.999 mA		0 to ± 999 μA		100 Ω	50 mA
0 to ± 19.99 mA		0 to ± 9.99 mA		10 Ω	150 mA
0 to ± 199.9 mA		0 to ± 99.9 mA		1 Ω	500 mA

*UL Recognized

AC RANGES

Model 4424	Price	Model 4443	Price	Input Resistance	Maximum Overload
0 to 199.9 mV	$242.00	0 to 99.9 mV	$290.00	275 K Ω	± 10 V peak
0 to 1.999 V		0 to 999 mV		275 K Ω	± 10 V peak
0 to 19.99 V		0 to 9.99 V		1 meg Ω	± 500 V peak
0 to 199.9 V		0 to 99.9 V		1 meg Ω	± 500 V peak
0 to 500 V		0 to 500 V		1 meg Ω	± 750 V peak
0 to 19.99 μA	242.00	N/A	290.00	10 K Ω	5 mA
0 to 199.9 μA		0 to 99.9 μA		1 K Ω	15 mA
0 to 1.999 mA		0 to 999 μA		100 Ω	50 mA
0 to 19.99 mA		0 to 9.99 mA		10 Ω	150 mA

TEMPERATURE RANGES (T/C & RTD)

Model 4424	Price	Model 4443	Price	Temperature Coefficient (Typical)	Sensor Type	Accuracy
0 to +1000°F	$273.00	0 to +1000°F	$326.00	±.05°F/°C	J (I/C)	±1.5°F
0 to +550°C		0 to +550°C		±.03°C/°C	J (I/C)	±1.0°C
+600 to +1800°F		N/A		±.16°F/°C	K (C/A)	±2°F
+300 to +1000°C		+300 to +1000°C		±.1°C/°C	K (C/A)	±2°C
−200 to +600°F	273.00	−200 to +600°F	326.00	±.07 deg/deg	100 Ω PLAT.	±2°F
−100.0 to +199.9°F		−99.9 to + 99.9°F		±.07 deg/deg	3850 ppm	±0.3°F
−100.0 to +199.9°C		−99.9 to +99.9°C		±.07 deg/deg		±0.2°C
−50 to 300°F	273.00	−50 to 300°F	326.00	±.07 deg/deg	10 Ω Copper	±3°F

PRESSURE RANGES

MODEL 4424	PRICE	MODEL 4443	PRICE
0-15 to 0-15,000 PSIG*	$273.00	N/A	N/A
*See Model 4424-K Digital Control Meter for range selection			

ACCESSORIES

DESCRIPTION	PART NUMBER	PRICE
TOP CONNECTOR—REQUIRED ON ALL UNITS	1125-243	$4.00
BOTTOM CONNECTOR—NOT REQ'D ON DC RANGES	1125-329	4.00
BEZEL—OPTIONAL	241-65	2.00

SPECIFICATIONS

Accuracy (Model 4424): DC Ranges: 0.05% Rdg. ±0.1%FS. AC Ranges: @ 60 Hz, ±.01% Rdg. ±.01%FS. From 50 to 1000 Hz, 0.1% Rdg. ±0.2%FS.
Accuracy (Model 4443): DC Ranges: 0.05% Rdg. ±0.2%FS. AC Ranges: @ 60 Hz, ±.01% Rdg. ±0.2%FS. From 50 to 1000 Hz, 0.1% Rdg. ±0.4%FS.
Input Isolation from Power Line: 500 volts peak.
Operating Temperature: +5°C to +55°C.
Storage Temperature: −20°C to +85°C.
Reading Rate: 3.3 reading/second. Special reading rates optional.
Power: Standard, 120 VAC 50/60 Hz. Strappable, 240 VAC 50/60 Hz.
Display Blanking: Requires two TTL loads.
Programmable Decimal Points: Available at rear terminals as an option.
Polarity: Positive Logic "1" +2.4V minimum @ −40 μA. Negative Logic "0" +0.4V maximum @ +1.6mA.
Digit Serial Multiplexed BDC Outputs: (Standard) will drive 1 TTL load or 9 LTTL loads.
Input Bias Current: 4.0 pA typical. 1.0 nA maximum, basic ranges.
Power Dissipation: 4 watts typical.
Warm Up Time: Less than 5 minutes.

OPTIONS

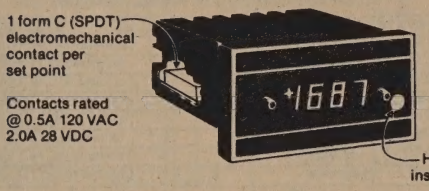
See Series 4400 Digital Process and Control Instruments Section.

PRICES LISTED ARE FOR GUIDANCE ONLY

LFE CORPORATION

SERIES 4400 DIGITAL PROCESS AND CONTROL INSTRUMENTS

MODEL 4424-K DIGITAL CONTROL METER


1 form C (SPDT) electromechanical contact per set point
Contacts rated @ 0.5A 120 VAC 2.0A 28 VDC
+1687
High intensity LED's provide instant indication of relay status

FEATURES:

- Dual Adjustable Setpoints
- 3½ Digit, 0.55" Gas Discharge Display
- Measure & Control
  - DC Voltage
  - DC Current
  - RTD Temperature
  - T/C Temperature
  - Pressure
  - AC Voltage
  - AC Current

The operation of the DCM is unique and simple! The relay trip points (one for each setpoint) are adjusted by turning either the LOW (left) or HIGH (right) setpoint knob located on the front of the instrument. When a setpoint knob is depressed, the digital display monitors the setpoint level. After the desired trip point is selected, the spring-loaded knob returns to its normal position and the display transfers back to monitoring the input signal. Control action is preserved even when the setpoint is being adjusted. Since both the setpoint and the signal are monitored on the same display, coincidence errors are virtually eliminated.

The LFE Digital Control Meter (DCM) combines the clarity and inherent accuracy of digital meters with high reliability solid state switching circuits to provide ON/OFF control in a single small package. The DCM provides precise measurement and control for any process where the parameter of interest can be converted to an electrical signal (including RTD and thermocouple signals) for processing by the DCM. These rugged industrial grade instruments fit equally well into laboratory and production environments for applications in temperature control, motor protection, production testing, analytical instrumentation and more. The clean, modern styling fits right in with today's panel designs.

DC RANGES	PRICE	INPUT RESISTANCE	MAXIMUM OVERLOAD
0 to 19.99 m VDC	$310.00	>100 M Ω	240 V rms
0 to 199.9 m VDC	300.00	>100 M Ω	240 V rms
0 to 1.999 VDC		>100 M Ω	240 V rms
0 to 19.99 VDC		1 M Ω	240 V rms
0 to 199.9 VDC		1 M Ω	240 V rms
0 to 19.99 μ ADC	300.00	10 K Ω	5 mA
0 to 199.9 μ ADC		1 K Ω	15 mA
0 to 1.999 m ADC		100 Ω	50 mA
0 to 19.99 m ADC		10 Ω	150 mA
0 to 199.9 m ADC		1 Ω	500 mA

AC RANGES	PRICE	INPUT RESISTANCE	MAXIMUM OVERLOAD
0 to 199.9 m VAC	$340.00	275 K Ω	± 10 V peak
0 to 1.999 VAC		275 K Ω	± 10 V peak
0 to 19.99 VAC		1 M Ω	±500 V peak
0 to 199.9 VAC		1 M Ω	±500 V peak
0 to 500 VAC		1 M Ω	±750 V peak
0 to 19.99 m AAC	340.00	10 K Ω	5 mA
0 to 199.9 m AAC		1 K Ω	15 mA
0 to 1.999 m AAC		100 Ω	50 mA
0 to 19.99 m AAC		10 Ω	150 mA
0 to 199.9 m AAC		1 Ω	500 mA

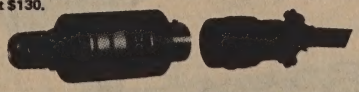
T/C RANGES	PRICE	T/C TYPE	ACCURACY
0 to 1000°F 0 to 550°C	$362.00	J (I/C)	±1.5°F ±1.0°C
600 to 1800°F 300 to 1000°C	362.00	K (C/A)	±3.0°F ±2.0°C

RTD RANGES	PRICE	PROBE TYPE	ACCURACY
0 to 600°F 0 to 199.9°F 0 to 199.9°C	$362.00	100 Ω PLAT. 3850 ppm	± 2°F ±0.3°F ±0.2°C
0 to 300°F	362.00	10 Ω COPPER	± 3°F

PRESSURE RANGES	PRICE	SYSTEM ACCURACY
0 to 15.00 PSIG 0 to 30.0 PSIG 0 to 50.0 PSIG 0 to 100.0 PSIG 0 to 300 PSIG 0 to 500 PSIG 0 to 1000 PSIG 0 to 3.00 X 1000 PSIG 0 to 5.00 X 1000 PSIG 0 to 10.00 X 1000 PSIG 0 to 15.00 X 1000 PSIG	$362.00 (2070 Series Pressure Transducers Are Priced Separately)	±1% (Including 2070 Series Pressure Transducer)

2070 SERIES PRESSURE TRANSDUCERS

The LFE Series 2070 Pressure Transducers utilize bulk type silicon semiconductor strain gage technology to obtain high reliability and accuracy at a low cost. The solid state unit is designed to meet the needs of both industrial and general laboratory applications. The Transducers are offered with a variety of termination options and accessory hardware. Prices start at $130.



OPTIONS

DESCRIPTION	PRICE ADDER
Read Hold	$10.00
Non-Standard Reading Rate	10.00
Programmable Decimal Points (Specify When Ordering)	No Charge
Special Legends	5.00
Special Scaling or Offset	Per Application

ACCESSORIES

DESCRIPTION	PART NUMBER	PRICE
TOP CONNECTOR	1125-243	$4.00
BOTTOM CONNECTOR	1125-329	4.00
BEZEL	241-65	2.00

DIMENSIONS: See 4400 Series Digital Panel Instruments

SPECIFICATIONS

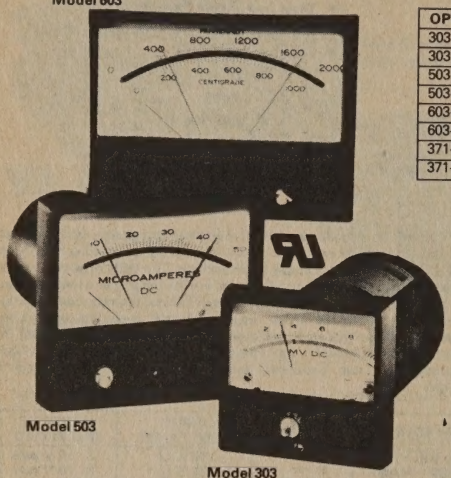
General specifications are shown on the page describing the Series 4400 Digital Panel Instruments. The following specifications relate to the control function:

SETPOINT COINCIDENCE: ±2 digits
SETPOINT DEADBAND (HYSTERESIS): 4 to 7 digits typical
RELAY: Form C (SPDT) for each setpoint 2A/28V or 0.5A/120 VAC
POWER CONSUMPTION: 5.5 Watts typical
LATCHING: Standard on all units. User-supplied reset switch latches output relay de-energized.

LFE CORPORATION

COMPACK METER-RELAY CONTROLLERS

Model 603



Model 503

Model 303

COMPACK CONTROLLER MODEL NUMBERS

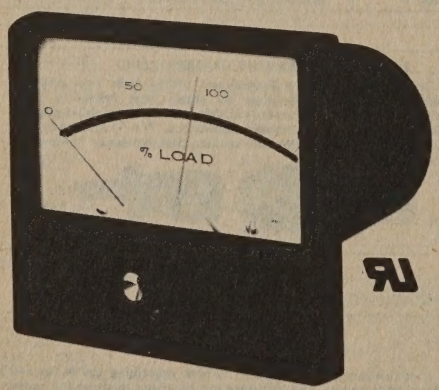
OPTICAL	SOLID STATE	STYLE	SIZE	RANGE
303-KU	303-XU	black phenolic panelist	3¼"	current (DC,AC)voltage (DC,AC)
303-KU	303-XU	black phenolic panelist	3¼"	temperature (T/C,RTD)
503-KU	503-XU	black phenolic panelist	4½"	current (DC,AC) voltage (DC,AC)
503-KU	503-XU	black phenolic panelist	4½"	temperature (T/C,RTD)
603-KU	603-XU	black phenolic panelist	5½"	current (DC,AC) voltage (DC,AC)
603-KU	603-XU	black phenolic panelist	5½"	temperature (T/C,RTD)
371-K	371-X	edgewise	3½"	current (DC,AC) voltage (DC,AC)
371-K	371-X	edgewise	3½"	temperature (T/C,RTD)

OPTIONS FOR OPTICAL COMPACK CONTROLLERS	
Built-in Alarm Lights and Reset Switches: Combinations of one or two lights and reset switches are available per controller, making it possible to have an alarm light and a reset switch for each setpoint.	
DESCRIPTION	**PRICE ADDER**
1 light or 1 switch	$15.00
2 lights or 2 switches or 1 of each	25.00
2 lights and 2 switches	50.00

- Controllers with model numbers ending with "U" are recognized by Underwriter Laboratories. LFE has received UL recognition of the meter-relays/compack controllers, both optical and solid state. Recognition is under UL 1092 for measurement and control of process variables.

Model 371

SOLID-STATE COMPACK MOTOR LOAD ALARM



The Compack IV Motor Alarm is designed specifically for industrial machine operations such as shredders, mixers, conveyors and cutting tools. A unique programmed response virtually eliminates nuisance tripping caused by starting surges or transients, allowing the motor to meet peak power demands within the process cycle. An advanced solid state design provides high reliability and long life. Indication is independent of alarm output, allowing the operator to observe transient motor current peaks; the alarm circuit responds only to a sustained overload, de-energizing the motor contactor before damage results. In addition, because the indicating circuit is independent of the control circuit, erratic operation in a vibrating panel is eliminated; meter malfunction will not affect control circuit operation; and there are no lamp or photocell failures to worry about.

FEATURES

- Contactless Control
- Continuous Load Indication
- Solid State Design
- Ignore Shock and Vibration
- Programmed Output Response
- Integral Startup Timer

MODEL	PRICE	
	Rated full load current	
single setpoint only	up to 35 amperes	over 35 amperes
303-XU	$237.00	$267.00
503-XU	240.00	270.00
603-XU	243.00	273.00

HOW TO ORDER
Specify the model number of the Compack Controller
Specify the rated full load current (refer to manufacturer's name plate on motor housing) and the required options

OPTIONS		PRICE ADDER
Non-standard start-up latch time plus one-time engineering charge		$10.00 25.00*
Non-standard trip delay characteristics plus one-time engineering charge		$10.00 25.00*
Non-standard start-up latch time and trip delay characteristics plus one-time engineering charge		$15.00 25.00*
DPDT (2 Form C) Relay Output		$ 4.00
Special Scale	one-time charge for one color	$60.00*
	adder for each additional color	20.00

*Show one-time charges separately on your order. Do not add to list price.

PRICES LISTED ARE FOR GUIDANCE ONLY

LFE CORPORATION

COMPACK METER-RELAY CONTROLLERS

CURRENT AND VOLTAGE RANGES		OPTICAL COMPACKS				SOLID STATE COMPACKS			
		Model 303-KU	Model 503-KU	Model 603-KU	Model 371-K	Model 303-XU	Model 503-XU	Model 603-XU	Model 371-X
microamperes DC	microamperes AC[1]								
0 to 5	–	$254.00	$257.00	$260.00	$263.00	$227.00	$230.00	$233.00	$236.00
0 to 10	–	227.00	230.00	233.00	236.00	202.00	205.00	208.00	211.00
0 to 20	–	208.00	211.00	214.00	217.00	202.00	205.00	208.00	211.00
0 to 50	–	198.00	201.00	204.00	207.00	202.00	205.00	208.00	211.00
0 to 100	0 to 100	190.00	193.00	196.00	199.00	202.00	205.00	208.00	211.00
0 to 200	–	183.00	186.00	189.00	192.00	202.00	205.00	208.00	211.00
0 to 500	–	178.00	181.00	184.00	187.00	202.00	205.00	208.00	211.00
5-0-5 (Double)	–	262.00	265.00	268.00	271.00	202.00	205.00	208.00	211.00
50-0-50 (Double)	–	225.00	228.00	231.00	234.00	202.00	205.00	208.00	211.00
milliamperes DC	milliamperes AC[1]								
0 to 1	0 to 1	178.00	181.00	184.00	187.00	202.00	205.00	208.00	211.00
0 to 5	–	178.00	181.00	184.00	187.00	202.00	205.00	208.00	211.00
0 to 10	–	178.00	181.00	184.00	187.00	202.00	205.00	208.00	211.00
0 to 25	–	178.00	181.00	184.00	187.00	202.00	205.00	208.00	211.00
0 to 50	0 to 47[4]	178.00	181.00	184.00	187.00	202.00	205.00	208.00	211.00
0 to 100	–	187.00	190.00	193.00	196.00	202.00	205.00	208.00	211.00
amperes DC	amperes AC[2]								
0 to 1	0-1 to 0-50	180.00	183.00	186.00	189.00	195.00	198.00	201.00	204.00
millivolts DC	millivolts AC[3]								
0 to 5	–	221.00	224.00	227.00	230.00	217.00	220.00	223.00	226.00
0 to 10	–	196.00	199.00	202.00	205.00	195.00	198.00	201.00	204.00
0 to 50	–	180.00	183.00	186.00	189.00	195.00	198.00	201.00	204.00
0 to 100	0 to 100	180.00	183.00	186.00	189.00	195.00	198.00	201.00	204.00
0 to 250	0 to 250	180.00	183.00	186.00	189.00	195.00	198.00	201.00	204.00
volts DC	volts AC[1]								
0 to 1	–	180.00	183.00	186.00	189.00	195.00	198.00	201.00	204.00
0 to 5	–	180.00	183.00	186.00	189.00	195.00	198.00	201.00	204.00
0 to 10	0 to 10	180.00	183.00	186.00	189.00	195.00	198.00	201.00	204.00
0 to 30	–	180.00	183.00	186.00	189.00	195.00	198.00	201.00	204.00
0 to 50	0 to 50	180.00	183.00	186.00	189.00	195.00	198.00	201.00	204.00
0 to 150	0 to 150	180.00	183.00	186.00	189.00	195.00	198.00	201.00	204.00
0 to 300	0 to 300	180.00	183.00	186.00	189.00	195.00	198.00	201.00	204.00

● All prices are for DC ranges.

1. Add $6.00 for AC price.
2. Add $20.00 to 0-47 mA AC price.
3. Add $25.00 to AC volt prices.
4. AC Load Meter with Scale: 0-150% Load.

TEMPERATURE RANGES (THERMOCOUPLE)			OPTICAL COMPACK CONTROLLERS ON-OFF CONTROL				SOLID STATE COMPACK CONTROLLERS ON-OFF CONTROL			
°F	°C	T/C	Model 303-KU	Model 503-KU	Model 603-KU	Model 371-K	Model 303-XU	Model 503-XU	Model 603-XU	Model 371-X
0 to 150	−16 to 66	J	$ –	$ –	$ –	$ –	$247.00	$250.00	$253.00	$256.00
0 to 300	0 to 150	J	226.00	229.00	232.00	235.00	247.00	250.00	253.00	256.00
0 to 500	0 to 260	J	216.00	219.00	222.00	225.00	237.00	240.00	243.00	246.00
0 to 800	0 to 400	J	216.00	219.00	222.00	225.00	237.00	240.00	243.00	246.00
0 to 1000	0 to 500	J	216.00	219.00	222.00	225.00	237.00	240.00	243.00	246.00
0 to 1500	0 to 800	K	216.00	219.00	222.00	225.00	237.00	240.00	243.00	246.00
0 to 2000	0 to 1100	K	216.00	219.00	222.00	225.00	237.00	240.00	243.00	246.00
0 to 2500	0 to 1370	K	216.00	219.00	222.00	225.00	237.00	240.00	243.00	246.00
0 to 3000	0 to 1650	R	216.00	219.00	222.00	225.00	237.00	240.00	243.00	246.00

TEMPERATURE RANGES (THERMOCOUPLE)			OPTICAL COMPACK CONTROLLERS TIME PROPORTIONING CONTROL				OPTICAL COMPACK CONTROLLERS SCR DRIVER CONTROL			
°F	°C	T/C	Model 303-KU	Model 503-KU	Model 603-KU	Model 371-K	Model 303-KU	Model 503-KU	Model 603-KU	Model 371-K
0 to 300	0 to 150	J	$281.00	$284.00	$287.00	$290.00	$307.00	$310.00	$313.00	$316.00
0 to 500	0 to 260	J	271.00	274.00	277.00	280.00	297.00	300.00	303.00	306.00
0 to 800	0 to 400	J	271.00	274.00	277.00	280.00	297.00	300.00	303.00	306.00
0 to 1000	0 to 500	J	271.00	274.00	277.00	280.00	297.00	300.00	303.00	306.00
0 to 1500	0 to 800	K	271.00	274.00	277.00	280.00	297.00	300.00	303.00	306.00
0 to 2000	0 to 1100	K	271.00	274.00	277.00	280.00	297.00	300.00	303.00	306.00
0 to 2500	0 to 1370	K	271.00	274.00	277.00	280.00	297.00	300.00	303.00	306.00
0 to 3000	0 to 1650	R	271.00	274.00	277.00	280.00	297.00	300.00	303.00	306.00

RTD RANGES	OPTICAL COMPACK CONTROLLERS				SOLID STATE COMPACK CONTROLLERS			
	Model 303-KU	Model 503-KU	Model 603-KU	Model 371-K	Model 303-XU	Model 503-XU	Model 603-XU	Model 371-K
ON/OFF CONTROL, HIGH SETPOINT	$232.00	$235.00	$238.00	$241.00	$249.00	$252.00	$255.00	$258.00
ON/OFF CONTROL, LOW SETPOINT	232.00	235.00	238.00	241.00	249.00	252.00	255.00	258.00
ON/OFF CONTROL, DOUBLE SETPOINT	267.00	270.00	273.00	276.00	284.00	287.00	290.00	293.00
TIME PROPORTIONING, HIGH SETPOINT	287.00	290.00	293.00	296.00	299.00	302.00	305.00	308.00

LFE CORPORATION

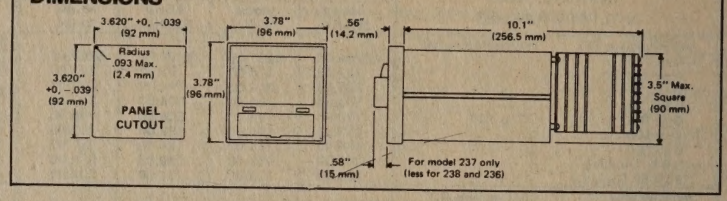
SERIES 230 TEMPERATURE CONTROLLERS

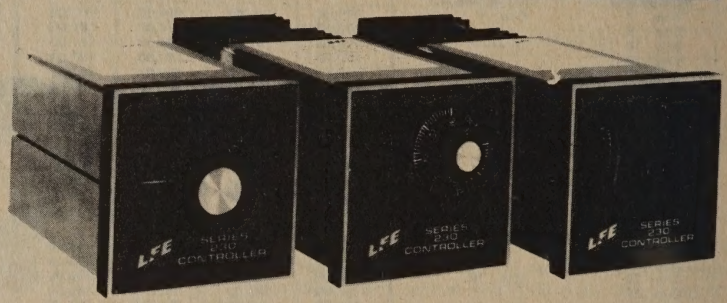
LFE's Series 230 Temperature Controllers are ideally suited for the exacting requirements of thermal processes. They represent the latest state-of-the-art electronics technology backed by LFE's long experience in process control.

LFE Series 230 Temperature Controllers use reliable solid-state design with advanced integrated circuit technology that minimizes heat and component failure and reduces total components. You get precise and consistent control of temperature to assure constant product uniformity, high product quality, and profitable throughput. The controller extends only six inches in depth from the front of the panel. Plug-in construction enables simple field maintenance and rapid replacement if it should become necessary.

Digital and analog setpoint versions are available. Model 236 has a full scale temperature indicator. Models 237 and 238 have a ±50°F or °C deviation indicator. Deviation or process alarm functions are available. LFE Series 230 Controllers provide proportional, integral, and derivative action. Controller adjustments conveniently located up front are proportional band, rate time (derivative), reset (integral), cycle time, alarm setpoint, and secondary setpoint. For output current switching in excess of 20 amps, consult factory for power pack.

DIMENSIONS


3.620" +0, −.039 (92 mm)
Radius .093 Max. (2.4 mm)
3.620" +0, −.039 (92 mm)
PANEL CUTOUT
3.78" (96 mm)
3.78" (96 mm)
.56" (14.2 mm)
10.1" (256.5 mm)
3.5" Max. Square (90 mm)
.58" (15 mm)
For model 237 only (less for 238 and 236)



HOW TO ORDER

1. Specify the model number and electrical outputs.

ELECTRICAL OUTPUT (IPP: 20A Integral Power Pack; TP: Time Proportioning; SS: Solid-State)		MODEL NUMBERS AND PRICES* Analog setpoint full scale indicator — 3 mode control with adjustable rate and reset	Analog setpoint deviation indicator — 3 mode control with fixed rate and reset	Digital setpoint deviation indicator — 3 mode control with adjustable rate and reset
SINGLE OUTPUT proportional heat or cool control	0-5V, 1-5mA, 4-20mA, TPR SS relay, IPP/TPR	Model 236-13 $330.00 430.00	Model 237-13 $265.00 365.00	Model 238-13 $330.00 430.00
DUAL OUTPUT proportional heat control on/off cool control	Primary (3 mode): 0-5V, 1-5mA, 4-20mA, TPR SS relay, IPP/TPR; Secondary (on/off): SS relay	Model 236-23 $365.00 465.00	Model 237-23 $295.00 395.00	Model 238-23 $365.00 465.00
BIDIRECTIONAL OUTPUT proportional heat and cool controls	Primary (3-mode) / Secondary (3-mode)	Model 236-33 $395.00 495.00	Model 237-33 $320.00 420.00	Model 238-33 $395.00 495.00
	TP SS relay / TP SS relay			
	IPP/TP / TP SS relay			
	TP SS relay / 0-5V			
	IPP/TP / 0-5V			
	0-5V / TP SS relay			
	0-5V / 0-5V			
	4-20mA / TP SS relay			
	4-20mA / 4-20mA			
	1-5mA / 1-5mA			
	1-5mA / TP SS relay			
4:1 Cooling gain is 25% of heating gain. Where not specified, cooling and heating gains are equal.	0-5V / TP SS 4:1			
	TP SS relay / TP SS 4:1			
	IPP/TP / TP SS 4:1			
	4-20mA / TP SS 4:1			

First price: without integral power pack
Second price: with integral power pack

2. Specify the range and sensor type from the following list. The prices listed above do not include temperature sensors.

STANDARD RANGES FOR ANALOG SETPOINT MODELS		STANDARD RANGES FOR DIGITAL SETPOINT MODELS	
0 to 300°F	J	0 to 400°F	J
0 to 400°F	J	0 to 500°F	J, T
0 to 500°F	J, T	0 to 600°F	J
0 to 600°F	J	0 to 800°F	J
0 to 800°F	J	0 to 1000°F	J, K
0 to 1000°F	J	0 to 2000°F	K
0 to 1500°F	K	0 to 3000°F	R, S
0 to 2000°F	K	0 to 200°C	J, T
0 to 2500°F	K	0 to 500°C	J, K
0 to 3000°F	R, S	0 to 600°C	K
−100 to +400°F	T	0 to 800°C	K
−300 to +300°F	T	0 to 1000°C	K
0 to 200°C	J	200 to 1200°C	K
0 to 300°C	J	Thermocouple sensors (T/C) J—Iron-Constantan, K—Chromel-Alumel, T—Copper-Constantan, R—Pt/Pt, 13% Rh, S—Pt/Pt, 10% Rh, Pt II—Platinel II	
0 to 500°C	J, K		
0 to 600°C	J		
0 to 800°C	K		
0 to 1000°C	K, R, S, Pt II		
−100 to +200°C	T		

3. Specify alarm option, if required. Only one of the three alarm options can be specified for any one instrument.

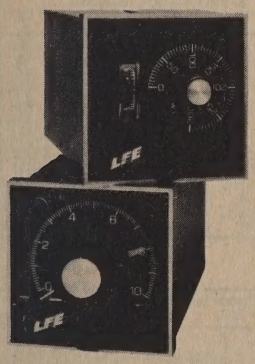
Alarm Option	Price* Adder
DEVIATION ALARM (Hi or Lo) plus OR minus a desired percent from the principal setpoint. SPDT adjustable 0-25% of span.	$50.00
DEVIATION BAND ALARM (Hi and Lo) plus AND minus a desired percent from the principal setpoint. SPDT adjustable ± 0.5% to ± 25% of span.	55.00
FULL PROCESS ALARM (Hi or Lo) activated when process temperature exceeds or falls below an independent setpoint. SPDT adjustable 0-100%.	50.00

PRICES LISTED ARE FOR GUIDANCE ONLY

LFE CORPORATION

TEMPERATURE CONTROLLERS

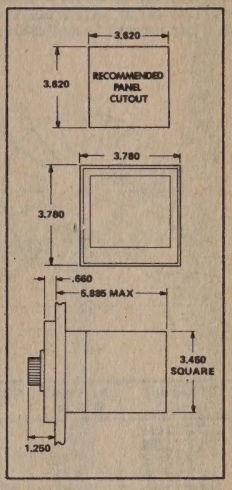
MODELS 216, 217 SINGLE MODE CONTROLLERS



- 1/4 DIN
- T/C, RTD, process, and mV inputs
- 10A relay outputs
- SSR drive
- Plug-in electronics
- On/Off, limit, or time proportioning
- Two-year warranty

RANGES	T/C
0 to 300°C	J
0 to 300°F	J
0 to 500°C	J
0 to 500°F	J
0 to 600°F	J
0 to 1000°C	K
0 to 1000°F	J
0 to 1000°F	K
0 to 1200°F	K
0 to 1500°F	K
0 to 2000°F	K
0 to 2500°F	K
0 to 3000°F	R
0 to 3000°F	S

Consult LFE Distributor for RTD Ranges



OUTPUT	MODEL 216 T/C	MODEL 216 RTD	MODEL 217 T/C	MODEL 217 RTD
Latch (Limit) – 10A Relay	$160.00	$180.00	$150.00	$170.00
On-Off – 10A Relay	160.00	180.00	150.00	170.00
Time PR – 7.5A Relay	170.00	190.00	160.00	180.00
Time PR – Solid-State Drive ±12 Volts DC	160.00	180.00	150.00	170.00

MODEL 227

The Model 227 Temperature Controller is especially designed for applications requiring a moderately priced controller with two-mode (proportional plus integral, or reset) stability. The 227 will accept Thermocouple or RTD (Resistance Temperature Detector) sensor inputs, and is available with any one of five outputs; Proportioning voltage, proportioning current, on/off relay, and phase fired or zero crossing pulse output. Full-scale temperature indication is provided on a large 3" edgewise display. It is also available with integral power pack for applications requiring an economical controller for loads up to 20 Amperes.

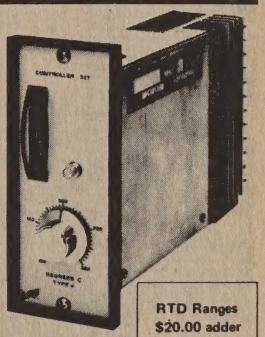
Control Mode	OUTPUT FORM	Price* Package A	Package C
On/Off	On/Off Relay output. SPDT contacts rated at 2 amps, 120 VAC noninductive	$235.00	$215.00
	On/Off triac, 9-amp solid state control element for resistive loads up to 240 VAC with integral power pack.	$240.00	–
Single Mode	Time proportioning, 9 amp solid state control element for resistive loads up to 240 VAC with integral power pack.	$245.00	–
Two Mode	Proportioning voltage output: 0 to 5 volts DC into a min. load of 1K.	$235.00	$215.00
	Proportioning current output: 0 to 5 mA DC into a max. load of 3K.	$235.00	$215.00
	SCR Driver phase-fired output–two isolated pulse outputs to drive SCR gates. Pulse amplitude 10 volts, 10 micro-second duration.	$250.00	$230.00
	SCR Driver zero-crossing output–two isolated pulse outputs to drive SCR gates	$260.00	$240.00
	Proportioning phase-fired integral control. 9-amp solid-state control element for resistive loads up to 240 VAC with integral power pack.	$280.00	–
	Proportioning zero crossing fired integral control. 9-amp solid-state control element for resistive loads up to 240 VAC with integral power pack.	$305.00	–
	Proportioning phase fired 20 Amp integral control for resistive loads up to 240 VAC with integral power pack.	$355.00	–
	Proportioning zero-crossing fired 20 Amp integral control for resistive loads up to 240 VAC with integral power pack.	$380.00	–

Package configurations

A = complete package with integral temperature indicator and integral setpoint assembly.

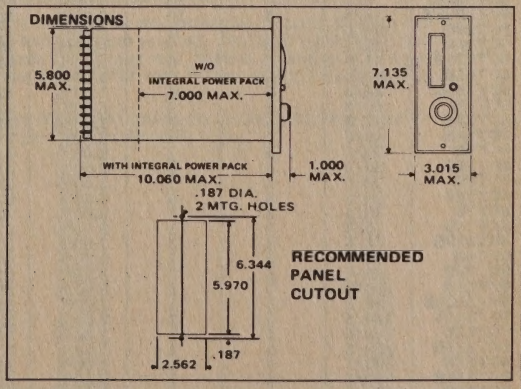
C = package with remote setpoint assembly and no temperature indicator.

RANGES	T/C
0 to 300°F	J
0 to 500°F	J
0 to 600°F	J
0 to 800°F	J
0 to 1000°F	J,K
300 to 800°F	J
500 to 1500°F	K
0 to 2000°F	K
1000 to 2000°F	K
500 to 2500°F	K,R,S
1000 to 3000°F	R,S,B
–100 to +400°F	T
0 to 200°C	J
0 to 300°C	J
0 to 500°C	J,K
0 to 600°C	J
0 to 800°C	J,K
0 to 1000°C	K,R,S
200 to 1200°C	K,R,S
700 to 1700°C	R
–200 to +200°C	T



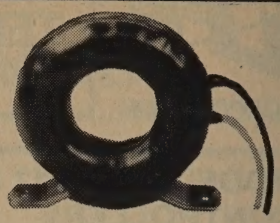
RTD Ranges $20.00 adder

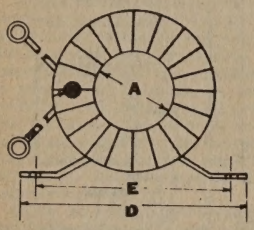
OPTIONS	Price*
Remote setpoint/meter assembly	$ 50.00
Ten-position switch (req'd. when a single meter or recorder is used to monitor process temperature at several points)	$ 60.00
Edge card connector part no. 1125-245	$ 5.00
Special Range (subject to factory acceptance)	$100.00
Adjustable proportioning band and integral action	$ 40.00
RTD ranges (consult Distributor for ranges)	$ 20.00

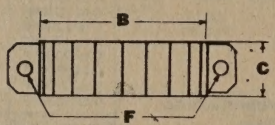


Midwest Current Transformers

Ring type current transformers measure currents accurately for switchboard and portable AC ammeters, etc.; transformer slips over primary conductor to be measured. The transformer core is made of coil oriented steel with carefully taped and insulated windings. Standard lead wires are 24" long and are taped and tied in place. The entire unit is dipped in fungus-resistant "Dolflex" insulating compound to insure maximum protection against moisture, acids, bases, oils, and abrasive particles. Insulation will withstand 4,500 volts before breakdown. Available current ratios 20/5 amps to 3000/5 amps, 25–400 Hz; other ratios available on special order. All transformers supplied with mounting brackets for permanent installation.







TRANSFORMER DIMENSIONS

Midwest Model	Dimensions, Inches						Approx. Wt., Lbs.
	A	B	C	D	E	F	
2CT	1¼	3¾	2⅞	5¼	4	9/32	3¾
3CT	1¼	3¾	1¼	4	3⅞	¼	1¼
4CT14–4CT16	1¼	3½	1¼	4	3⅞	¼	1¼
4CT175–4CT110	1¾	4	1¼	4	3⅞	¼	1½
6CT4–6CT8	1¼	4	2¾	5½	4	9/32	4
6CT35–6CT13	1¼	3¾	1⅝	4½	3⅞	9/32	2
6CT14–6CT16	2¼	4⅛	1½	7	5¼	9/32	3
6CT175–6CT110	2¾	5	1½	7	5¼	9/32	2¼
6CT112–6CT1116	3¾	6½	1⅝	7¾	6½	9/32	3½
6CT120–6CT130	3½	6½	1¾	7½	6½	¼	3¾
8CT35–8CT14	2	5	1¾	7	5¼	9/32	4½
8CT15–8CT110	2⅛	4¾	2	7	5¼	9/32	5
9CT35–9CT110	2	5	2½	7	5¼	9/32	7

CURRENT TRANSFORMERS

Midwest Model	Current Ratio	Capacity, VA	Primary Turns	Accuracy	List Price
2CT210B	10/5	2	2	6.00%	$29.45
2CT115B	15/5	2	1	6.00%	29.45
2CT120B	20/5	2	1	6.00%	29.45
2CT125B	25/5	2	1	6.00%	29.45
2CT130B	30/5	2	1	6.00%	29.45
2CT135B	35/5	2	1	6.00%	29.45
2CT140B	40/5	2	1	6.00%	29.45
3CT205B	5/5	2	20	3.00%	23.30
3CT101B	10/5	2	10	3.00%	23.30
3CT1015B	15/5	2	10	2.00%	23.30
3CT62B	20/5	2	6	2.50%	23.30
3CT625B	25/5	2	6	2.00%	23.30
3CT63B	30/5	2	6	1.60%	23.30
3CT64B	40/5	2	6	1.25%	23.30
3CT34B	40/5	2	3	2.50%	23.30
3CT15B	50/5	2	1	6.00%	23.30
3CT35B	50/5	2	3	2.00%	23.30
3CT16B	60/5	2	1	5.00%	23.30
3CT36B	60/5	2	3	1.60%	23.30
3CT175B	75/5	2	1	3.80%	23.30
3CT375B	75/5	2	3	1.30%	23.30
3CT18B	80/5	2	1	3.80%	23.30
3CT38B	80/5	2	3	1.25%	23.30
3CT11B	100/5	2	1	3.00%	23.30
3CT21B	100/5	2	2	1.50%	23.30
3CT115B	150/5	2	1	2.00%	23.30
3CT215B	150/5	2	2	1.00%	23.30
3CT12B	200/5	2	1	1.50%	23.30
3CT125B	250/5	2	1	1.20%	23.30
3CT13B	300/5	2	1	1.00%	23.30
4CT135B	350/5	2	1	1.00%	26.40
4CT14B	400/5	2	1	0.75%	26.40
4CT15B	500/5	2	1	0.60%	26.40
4CT16B	600/5	2	1	0.50%	26.40
4CT17B	700/5	2	1	0.50%	34.30
4CT175B	750/5	2	1	0.40%	34.30
4CT18B	800/5	2	1	0.38%	34.30
4CT110B	1000/5	2	1	0.30%	34.30
6CT205B	5/5	5	20	3.00%	31.65
6CT1015B	15/5	5	10	2.00%	31.65
6CT62B	20/5	5	6	2.50%	31.65
6CT25B	25/5	5	1	6.00%	31.65
6CT625B	25/5	5	6	2.00%	31.65
6CT63B	30/5	5	6	1.60%	31.65
6CT635B	35/5	5	6	1.60%	31.65
6CT4B	40/5	5	1	6.00%	31.65
6CT34B	40/5	5	3	1.25%	31.65
6CT64B	40/5	5	6	2.50%	31.65
6CT5B	50/5	5	1	6.00%	31.65
6CT35B	50/5	5	3	2.00%	31.65
6CT6B	60/5	5	1	6.00%	31.65
6CT36B	60/5	5	3	1.60%	31.65
6CT7B	70/5	5	1	6.00%	31.65
6CT75B	75/5	5	1	3.75%	31.65
6CT375B	75/5	5	3	1.30%	31.65
6CT8B	80/5	5	1	6.00%	31.65
6CT38B	80/5	5	3	1.25%	31.65
6CT11B	100/5	5	1	3.00%	31.65
6CT1125B	125/5	5	1	3.00%	31.65
6CT115B	150/5	5	1	2.00%	31.65
6CT12B	200/5	5	1	1.50%	31.65
6CT125B	250/5	5	1	1.20%	31.65
6CT13B	300/5	5	1	1.00%	31.65
6CT135B	350/5	5	1	2.50%	35.60
6CT14B	400/5	5	1	0.75%	35.60
6CT15B	500/5	5	1	0.60%	35.60
6CT16B	600/5	5	1	0.50%	35.60
6CT17B	700/5	5	1	0.40%	34.30
6CT175B	750/5	5	1	0.40%	$34.30
6CT18B	800/5	5	1	0.38%	34.30
6CT19B	900/5	5	1	0.35%	34.30
6CT110B	1000/5	5	1	0.30%	34.30
6CT112B	1200/5	5	1	0.25%	54.00
6CT1115B	1500/5	5	1	0.15%	54.00
6CT1116B	1600/5	5	1	0.15%	61.30
6CT180B	1800/5	5	1	0.15%	61.30
6CT120B	2000/5	5	1	0.10%	61.30
6CT1250B	2500/5	5	1	0.10%	70.60
6CT130B	3000/5	5	1	0.10%	70.60
8CT101B	10/5	10	10	6.00%	46.45
8CT1015B	15/5	10	10	6.00%	58.40
8CT62B	20/5	10	6	3.00%	46.45
8CT625B	25/5	10	6	3.00%	46.45
8CT63B	30/5	10	6	1.60%	46.45
8CT34B	40/5	10	3	1.25%	46.45
8CT35B	50/5	10	3	2.00%	46.45
8CT36B	60/5	10	3	1.60%	46.45
8CT75B	75/5	10	1	3.75%	46.45
8CT375B	75/5	10	3	1.30%	46.45
8CT38B	80/5	10	3	1.25%	46.45
8CT11B	100/5	10	1	3.00%	46.45
8CT21B	100/5	10	2	1.50%	46.45
8CT1125B	125/5	10	1	2.00%	46.45
8CT115B	150/5	10	1	2.00%	46.45
8CT215B	150/5	10	2	1.00%	46.45
8CT12B	200/5	10	1	1.50%	46.45
8CT13B	300/5	10	1	1.00%	46.45
8CT14B	400/5	10	1	0.75%	54.70
8CT15B	500/5	10	1	0.60%	54.70
8CT16B	600/5	10	1	0.50%	54.70
8CT175B	750/5	10	1	0.40%	63.00
8CT18B	800/5	10	1	0.38%	63.00
8CT110B	1000/5	10	1	0.30%	63.00
8CT112B	1200/5	10	1	0.25%	72.05
8CT1115B	1500/5	10	1	0.15%	72.05
8CT1116B	1600/5	10	1	0.15%	76.90
8CT120B	2000/5	10	1	0.15%	76.90
8CT1250B	2500/5	10	1	0.10%	86.50
8CT130B	3000/5	10	1	0.10%	86.50
9CT62B	20/5	15	6	6.00%	55.95
9CT4B	40/5	15	1	3.00%	55.95
9CT34B	40/5	15	3	3.00%	55.95
9CT35B	50/5	15	3	2.00%	55.95
9CT375B	75/5	15	3	1.30%	55.95
9CT11B	100/5	15	1	3.00%	55.95
9CT1125B	125/5	15	1	2.75%	55.95
9CT115B	150/5	15	1	2.00%	55.95
9CT12B	200/5	15	1	1.50%	55.95
9CT125B	250/5	15	1	1.20%	55.95
9CT13B	300/5	15	1	1.00%	55.95
9CT135B	350/5	15	1	1.00%	55.95
9CT14B	400/5	15	1	0.75%	62.80
9CT15B	500/5	15	1	0.60%	62.80
9CT16B	600/5	15	1	0.50%	62.80
9CT17B	700/5	15	1	0.50%	62.80
9CT175B	750/5	15	1	0.40%	62.80
9CT18B	800/5	15	1	0.38%	62.80
9CT19B	900/5	15	1	0.30%	62.80
9CT110B	1000/5	15	1	0.30%	62.80
9CT112B	1200/5	15	1	0.25%	62.80
9CT1115B	1500/5	15	1	0.15%	62.80
9CT1116B	1600/5	15	1	0.15%	81.15
9CT120B	2000/5	15	1	0.15%	81.15
9CT1250B	2500/5	15	1	0.10%	92.30
9CT130B	3000/5	15	1	0.10%	92.30

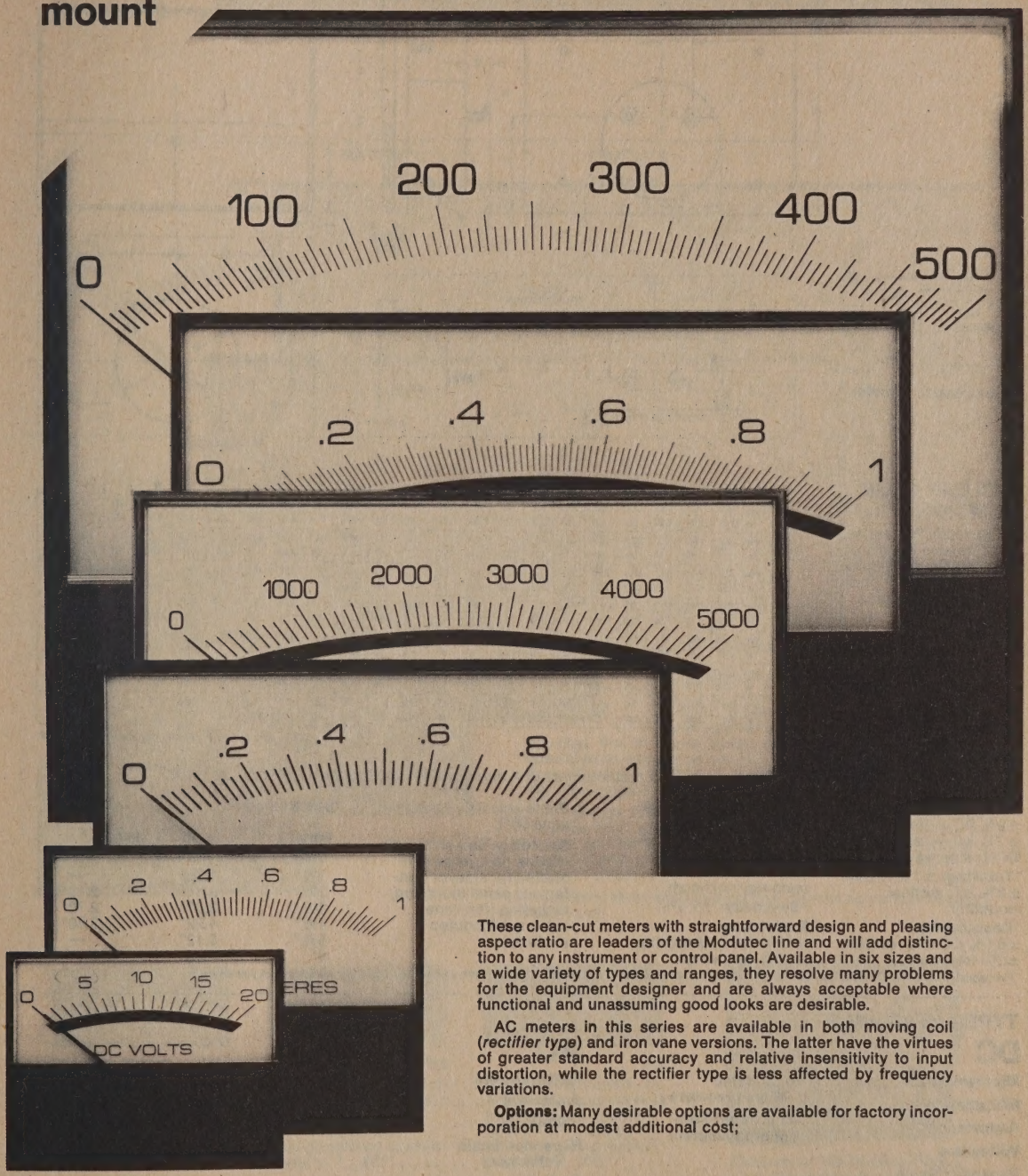
All Transformers Supplied With Mounting Brackets

MIDWEST CURRENT TRANSFORMERS CAN BE USED WITH ANY 5A METER

PRICES LISTED ARE FOR GUIDANCE ONLY

'S' series surface mount

MODUTEC PANEL METERS



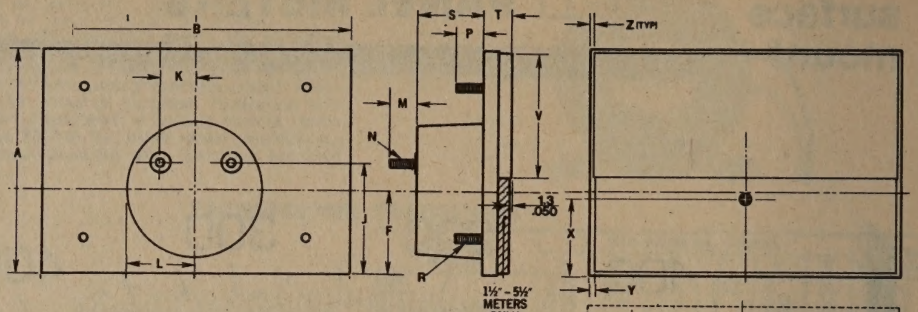
These clean-cut meters with straightforward design and pleasing aspect ratio are leaders of the Modutec line and will add distinction to any instrument or control panel. Available in six sizes and a wide variety of types and ranges, they resolve many problems for the equipment designer and are always acceptable where functional and unassuming good looks are desirable.

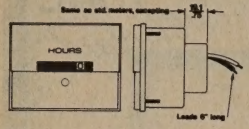
AC meters in this series are available in both moving coil (*rectifier type*) and iron vane versions. The latter have the virtues of greater standard accuracy and relative insensitivity to input distortion, while the rectifier type is less affected by frequency variations.

Options: Many desirable options are available for factory incorporation at modest additional cost;

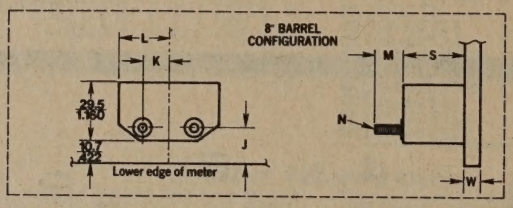
1½", 2½", 3½", 4½", 5½", 8"

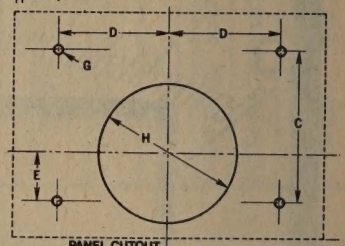
'S' series





AC-elapsed time meter





PANEL CUTOUT

CLEAR CASE OPTION

(formerly "C" series) S Series meters are available, at no extra cost, with clear plastic covers. See option "C", page 43.

		A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	V	W	X	Y	Z
1½"	mm.	44.5	56.9	33.3	16.8	16.8	21.1	3.2	3.9	25.1	12.2	19.30	6.4	M5*	12.7	M3*	33.0	8.6	22.1		15.9	1.3	1.0
	in.	1.75	2.24	1.31	.66	.66	.83	.125	1.55	.99	.48	.76	.25	10-32	.50	4-40	1.30	.34	.87	N/A	.625	.052	.040
2½"	mm.	57.7	75.9	47.8	23.9	23.9	28.7	3.2	56.4	33.8	14.2	27.2	12.7	M5*	12.7	M3*	33.0	10.2	31.5		21.6	1.3	1.0
	in.	2.27	2.99	1.88	.94	.94	1.13	.125	2.22	1.33	.56	1.07	.50	10-32	.50	4-40	1.30	.40	1.24	N/A	.851	.052	.040
3½"	mm.	72.9	94.0	57.2	28.4	28.4	36.6	3.2	71.6	36.6	14.2	33.8	12.7	M5*	12.7	M3*	33.0	10.4	39.4		24.3	1.5	1.0
	in.	2.87	3.70	2.25	1.12	1.12	1.44	.125	2.82	1.44	.56	1.33	.50	10-32	.50	4-40	1.30	.41	1.55	N/A	.957	.060	.040
4½"	mm.	100.6	129.5	90.4	50.8	39.1	44.2	3.8	71.6	44.2	14.2	33.8	12.7	M5*	12.7	M3.5*	33.0	12.9	55.9		35.2	1.5	1.0
	in.	3.96	5.10	3.56	2.00	1.54	1.74	.150	2.82	1.74	.56	1.33	.50	10-32	.50	6-32	1.30	.51	2.20	N/A	1.385	.060	.040
5½"	mm.	113.8	148.6	76.2	66.8	21.6	41.9	3.8	71.6	41.9	14.2	33.8	12.7	M5*	12.7	M3.5*	33.0	14.0	63.5		37.7	1.9	1.3
	in.	4.48	5.85	3.00	2.63	.85	1.65	.150	2.82	1.65	.56	1.33	.50	10-32	.50	6-32	1.30	.55	2.50	N/A	1.485	.075	.050
5½" Opt. 1	mm.	113.8	148.6	88.9	57.2	27.8	41.9	3.8	71.6	41.9	14.2	33.8	12.7	M5*	12.7	M3.5*	33.0	14.0	63.5		37.7	1.9	1.3
	in.	4.48	5.85	3.50	2.25	1.093	1.65	.150	2.82	1.65	.56	1.33	.50	10-32	.50	6-32	1.30	.55	2.50	N/A	1.485	.075	.050
8"	mm.	165.1	203.2	114.3	76.2	25.4	50.8	3.8	88.9	17.3	12.2	25.4	12.7	M5*	12.7	M3.5*	30.5	14.0	114.3	10.4	19.2		2.5
	in.	6.50	8.00	4.50	3.00	1.00	2.00	.150	3.50	.68	.48	1.00	.50	10-32	.50	6-32	1.20	.55	4.50	.41	.757	N/A	.10

*Metric studs and terminals optional. See page 46.

SPECIFICATIONS

Modutec meters meet or exceed the performance requirements of American National Standards (ANSI) C39.1-1972.

***Accuracy:** ±2% DC; ±2% AC — iron vane; ±3% AC — rectifier type (60 Hz sine wave).

***Tracking:** ±1½% DC; ±2% AC; vertical mounting.

***Repeatability:** ±0.5% DC and rectifier; ±2% iron vane.

Response time: 1.5 seconds maximum for all ranges, except 0-50 μA and below, where the response time is 3.0 seconds maximum.

***Symmetry:** ±1.5%.

Resistance: ±10% DC and rectifier; ±30% iron vane.

Scale arc: 100° (iron vane 90°).

Shielding: Self-shielded; require no special calibration for steel or non-ferrous panel mounting, including iron vane meters, a Modutec exclusive.

Scale lengths:

Meter Size	Scale Length DC & Rectifier	Iron Vane
1½"	1.75"	—
2½"	2.41"	2.15"
3½"	3.00"	2.70"
4½"	4.22"	3.80"
5½"	5.12"	—
8"	7.55"	—

*Percent of full scale. On zero center meters, specification applies to full scale, not end scale values, e.g., 50-0-50 μA is 100 μA full scale.

TYPES AVAILABLE

DC

- Microammeters
- Milliammeters
- Ammeters
- Voltmeters
- Expanded Scale Voltmeters
- Logarithmic Microammeters
- Suppressed Zero Microammeters

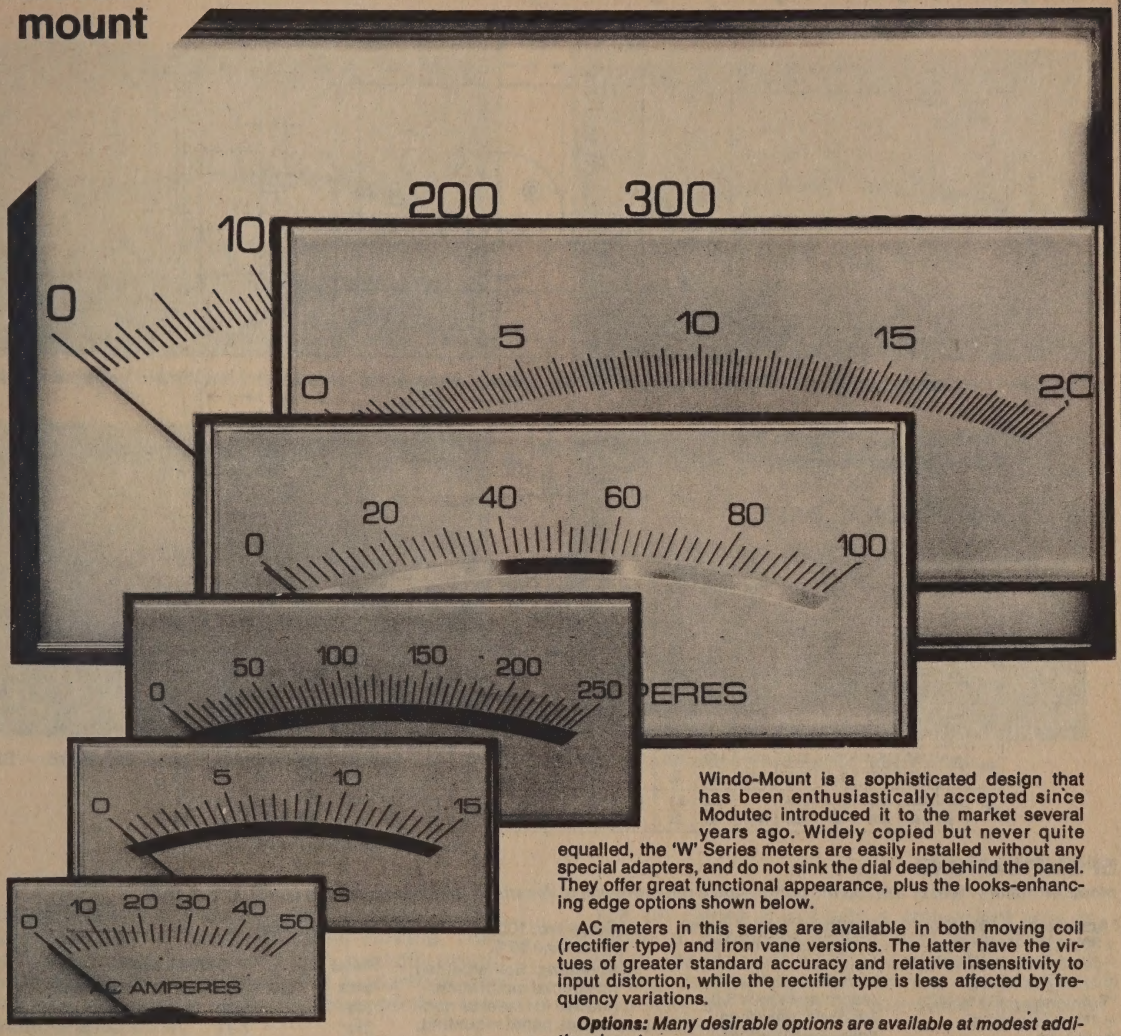
AC

- Milliammeters
- Ammeters
- Voltmeters
- Expanded Scale Voltmeters
- RF Meters
- VU Meters
- Frequency Meters
- Elapsed Time Meters

PRICES LISTED ARE FOR GUIDANCE ONLY

'W' series windo-mount

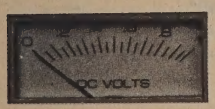
MODUTEC PANEL METERS



Windo-Mount is a sophisticated design that has been enthusiastically accepted since Modutec introduced it to the market several years ago. Widely copied but never quite equalled, the 'W' Series meters are easily installed without any special adapters, and do not sink the dial deep behind the panel. They offer great functional appearance, plus the looks-enhancing edge options shown below.

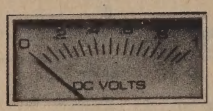
AC meters in this series are available in both moving coil (rectifier type) and iron vane versions. The latter have the virtues of greater standard accuracy and relative insensitivity to input distortion, while the rectifier type is less affected by frequency variations.

***Options:** Many desirable options are available at modest additional cost;*



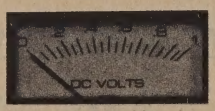
EDGE OPTIONS **W1**

1. Clear. Concealed outside edge of dial cover is polished plastic. This is the standard meter, and will be supplied unless specified otherwise.



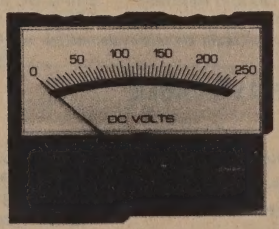
W2

2. White. Concealed outside edge of dial cover is painted white. Added cost HAG. To order, change catalog number prefix to "__W2".



W3

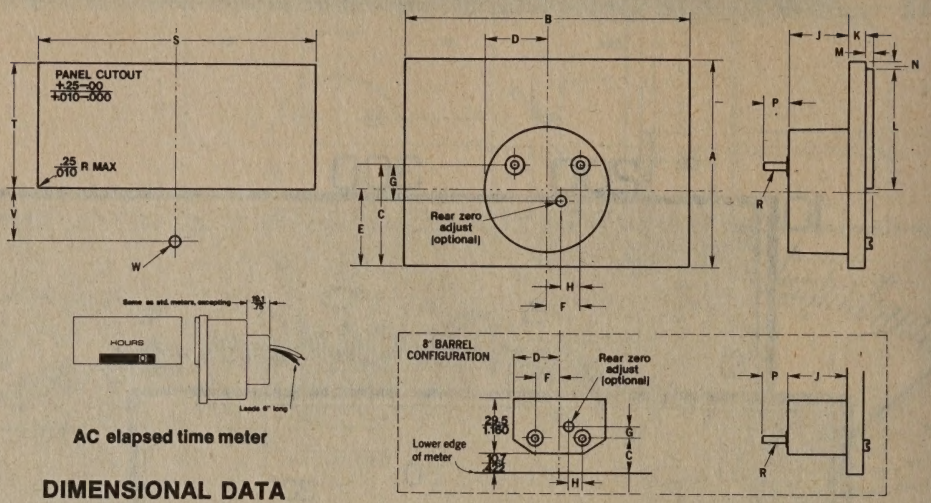
3. Black. Concealed outside edge of dial cover is painted black. Added cost HAG. To order, change catalog number prefix to "__W3".



Cutaway of Windo-Mount Meter installed in ⅛" panel

1½", 2½", 3½", 4½", 5½", 8" sizes

'W' series



AC elapsed time meter

DIMENSIONAL DATA

		A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	V	W
1½"	mm.	45.0	57.4	24.9	19.3	20.8	12.2	5.6	5.8	33.0	7.0	23.5	3.7	1.5	12.7	M5*	54.6	23.7	13.6	5.8
	in.	1.77	2.26	.98	.76	.82	.48	.22	.23	1.30	.275	.925	.145	.06	.50	10-32	2.150	.935	.535	.228
2½"	mm.	58.2	76.5	34.3	26.9	29.2	14.2	12.2	7.9	33.0	7.5	32.0	3.7	1.5	12.7	M5*	73.7	32.3	16.1	5.8
	in.	2.29	3.01	1.35	1.06	1.15	.56	.48	.31	1.30	.295	1.260	.145	.06	.50	10-32	2.900	1.270	.633	.228
3½"	mm.	73.7	94.7	36.8	33.8	36.8	14.2	12.2	7.9	33.0	8.1	40.3	3.7	1.8	12.7	M5*	91.7	40.5	20.4	5.8
	in.	2.90	3.73	1.45	1.33	1.45	.56	.48	.31	1.30	.32	1.585	.145	.07	.50	10-32	3.610	1.595	.804	.228
4½"	mm.	103.1	131.6	45.5	33.8	45.5	14.2	12.2	7.9	33.0	9.4	59.3	.37	2.3	12.7	M5*	127.5	59.6	21.7	5.8
	in.	4.06	5.18	1.79	1.33	1.79	.56	.48	.31	1.30	.37	2.335	.145	.09	.50	10-32	5.020	2.345	.856	.228
5½"	mm.	116.8	151.6	41.9	33.8	41.9	14.2	12.2	7.9	33.0	9.4	65.6	3.7	2.5	12.7	M5*	146.8	65.8	32.5	5.8
	in.	4.60	5.97	1.65	1.33	1.65	.56	.48	.31	1.30	.37	2.583	.145	.10	.50	10-32	5.780	2.590	1.278	.228
8"	mm.	165.1	203.2	17.3	25.4		12.2	5.3	6.4	30.5	10.4	114.3	3.6	3.0	12.7	M5*	198.4	114.6	28.9	5.8
	in.	6.50	8.00	.68	1.00	N/A	.48	.21	.25	1.20	.41	4.50	.14	.12	.50	10-32	7.810	4.510	1.138	.228

*Metric studs and terminals optional. See page 46.

SPECIFICATIONS

Modutec meters meet or exceed the performance requirements of American National Standards (ANSI) C39.1-1972.

***Accuracy:** ±2% DC; ±2% AC — iron vane; ±3% AC — rectifier type (60 Hz sine wave).

***Tracking:** ±1½% DC; ±2% AC; vertical mounting.

***Repeatability:** ±0.5% DC and rectifier; ±2% iron vane.

Response time: 1.5 seconds maximum for all ranges, except 0-50 μA and below, where the response time is 3.0 seconds maximum.

***Symmetry:** ±1.5%.

Resistance: ±10% DC and rectifier; ±30% iron vane.

Scale arc: 100° (iron vane 90°).

Shielding: Self-shielded; no special calibration needed for steel or non-ferrous panel mounting, including iron vane meters, a Modutec exclusive.

Scale lengths:

Meter Size	Scale Length DC & Rectifier	Iron Vane
1½"	1.75"	—
2½"	2.41"	2.15"
3½"	3.00"	2.70"
4½"	4.22"	3.80"
5½"	5.12"	—
8"	7.55"	—

*Percent of full scale. On zero center meters, specification applies to full scale, not end scale values, e.g., 50-0-50 μA is 100 μA full scale.

TYPES AVAILABLE

DC

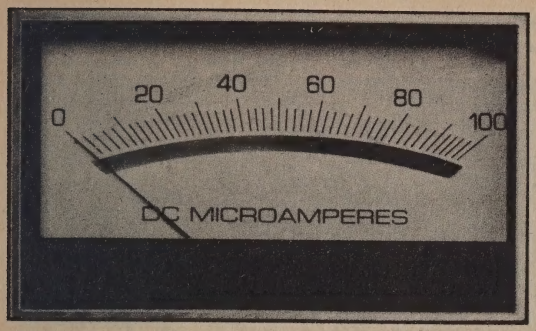
Microammeters .....
Milliammeters .....
Ammeters .....
Voltmeters .....
Expanded Scale Voltmeters .....
Logarithmic Microammeters .....
Suppressed Zero Microammeters .....

AC

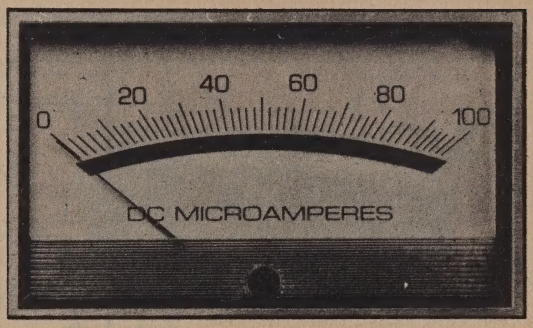
Milliammeters .....
Ammeters .....
Voltmeters .....
Expanded Scale Voltmeters .....
RF Meters .....
VU Meters .....
Frequency Meters .....
Elapsed Time Meters ...

'BA' series

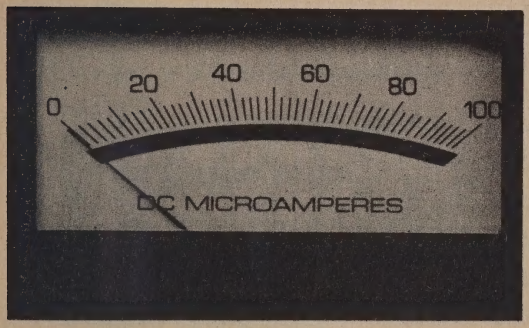
MODUTEC BEZEL MOUNT METERS



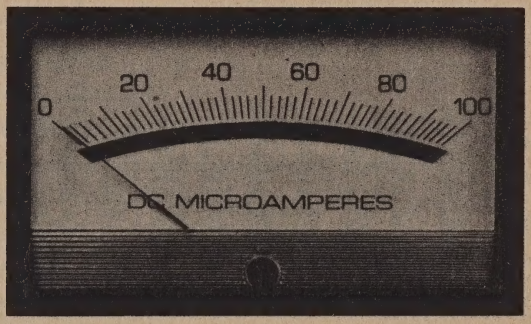
BA1 — Brushed metallized inline bezel, black meter cover.



BA2 — Brushed metallized inline bezel, clear meter cover.



BA3 — Solid black bezel, black meter cover.



BA4 — Solid black bezel, clear meter cover.

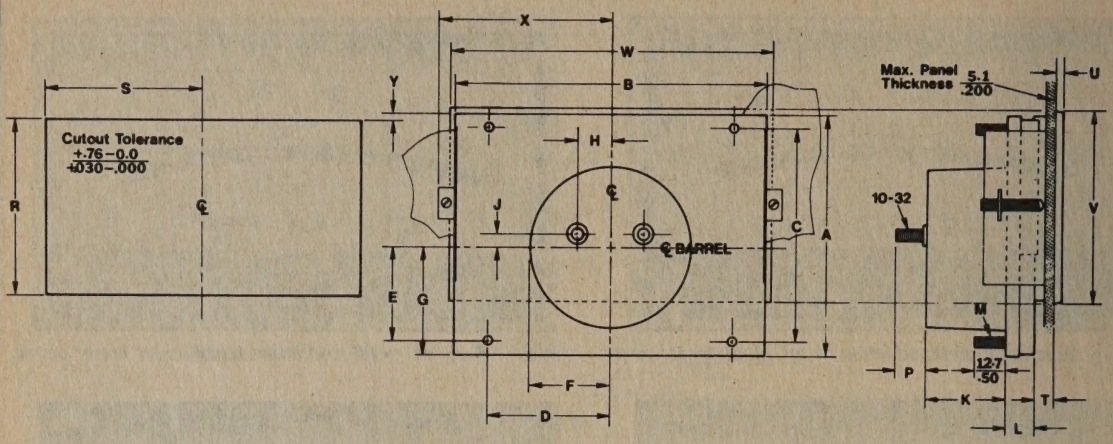
Modutec bezels are slender and graceful — protrude less than ⅛" from the panel surface. They are molded of an engineered high-strength plastic which makes them very resistant to damage and corrosion yet permits minimum cross-section consistent with function.

The BA Series is actually a convenient way of ordering a complete meter/bezel assembly — a package made up of meter, bezel, hardware, and mounting instructions. Any of the combinations shown may be ordered as standard. Bezels are also available in colors

- *Enhances panel appearance — gives a custom look.*
- *Protects meter from damage.*
- *Easily installed with hardware supplied.*
- *Available in all S Series types and ranges.*
- *Wide selection of options available.*

NOTE: Bezel Mounts are also available with other series of Modutec meters, as follows: K Series Blue•Dot Meters; L Series Trans-Lit Meters; LL Series Lite/Box Meters; R Series Thru-Vue Meters. Data and ordering information will be found in the sections devoted to those series.

1½", 2½", 3½", 4½", 5½" sizes



		A	B	C	D	E	F	G	H	J	K	L	M	P	R	S	T	U	V	W	X	Y
1½"	mm.	44.5	56.9	33.3	16.8	16.8	19.3	21.1	12.2	3.0	33.0	8.6		6.4	34.8	28.6	5.3	2.5	38.4	60.7	34.8	0.3
	in.	1.75	2.24	1.31	.66	.66	.76	.83	.48	.12	1.30	.34	4-40	.25	1.370	1.125	.21	.10	1.51	2.39	1.37	.01
2½"	mm.	57.7	75.9	47.8	23.9	23.9	27.2	28.7	14.2	5.1	33.0	10.2		12.7	40.5	38.1	5.6	3.3	44.2	80.0	44.7	0.8
	in.	2.27	2.99	1.88	.94	.94	1.07	1.13	.56	.20	1.30	.40	4-40	.50	1.594	1.500	.22	.13	1.74	3.15	1.76	.03
3½"	mm.	72.9	94.0	57.2	28.7	28.4	33.8	36.6	14.2	0	33.0	10.4		12.7	54.8	47.2	5.8	3.6	58.4	97.8	53.8	0.3
	in.	2.87	3.70	2.25	1.13	1.12	1.33	1.44	.56	.00	1.30	.41	4-40	.50	2.156	1.859	.23	.14	2.30	3.85	2.12	.01
4½"	mm.	100.6	129.5	90.4	50.8	39.1	33.8	44.2	14.2	0	33.0	13.0		12.7	72.2	65.1	7.4	3.0	75.9	133.1	71.6	0.3
	in.	3.96	5.10	3.56	2.00	1.54	1.33	1.74	.56	.00	1.30	.51	6-32	.50	2.843	2.563	.29	.12	2.99	5.24	2.82	.01
5½"	mm.	113.8	148.6	76.2	66.8	21.6	33.8	40.4	14.2	0	33.0	14.0		12.7	79.8	74.4	6.9	3.6	83.6	152.4	81.0	3.8
	in.	4.48	5.85	3.00	2.63	.85	1.33	1.59	.56	.00	1.30	.55	6-32	.50	3.140	2.930	.27	.14	3.29	6.00	3.19	.15

SPECIFICATIONS

Modutec meters meet or exceed the performance requirements of American National Standards (ANSI) C39.1-1972.

***Accuracy:** ±2% DC; ±2% AC — iron vane; ±3% AC — rectifier type (60 Hz sine wave).

***Tracking:** ±1½% DC; ±2% AC; vertical mounting.

***Repeatability:** ±0.5% DC and rectifier; ±2% iron vane.

Response time: 1.5 seconds maximum for all ranges, except 0-50 μA and below, where the response time is 3.0 seconds maximum.

***Symmetry:** ±1.5%.

Resistance: ±10% DC and rectifier; ±30% iron vane.

Scale arc: 100° (iron vane 90°).

Shielding: Self-shielded; require no special calibration for steel or non-ferrous panel mounting.

Scale lengths:

Meter Size	Scale Length DC & Rectifier	Scale Length Iron Vane
1½"	1.75"	—
2½"	2.41"	2.15"
3½"	3.00"	2.70"
4½"	4.22"	3.80"
5½"	5.12"	—

*Percent of full scale. On zero center meters, specification applies to full scale, not end scale values, e.g., 50-0-50 μA is 100 μA full scale.

TYPES AVAILABLE

DC
- Microammeters
- Milliammeters
- Ammeters
- Millivoltmeters
- Voltmeters
- Expanded Scale Voltmeters
- Logarithmic Microammeters
- Suppressed Zero Microammeters

AC
- Milliammeters
- Ammeters
- Voltmeters
- Expanded Scale Voltmeters
- RF Meters
- Null Meters
- VU Meters
- Elapsed Time Meters
- Frequency Meters

HOW TO ORDER

Ordering Information: Any S series meter, except 8" sizes, can be ordered with bezel mount. Specify the meter bezel combination desired (see opposite page) by substituting "BA1", "BA2", "BA3", or "BA4" in place of the "S" in the catalog number, and add a price code as follows:

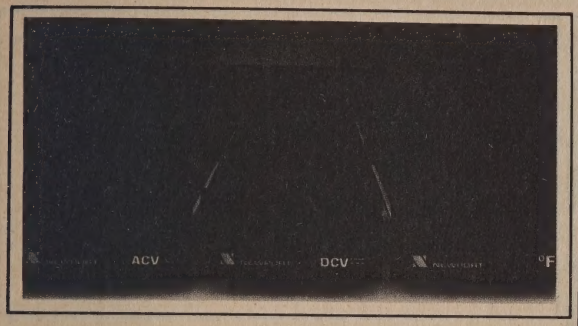
Size:	1½"	2½"	3½"	4½"	5½"
Add:	BAA	BAB	BAC	BAD	BAE

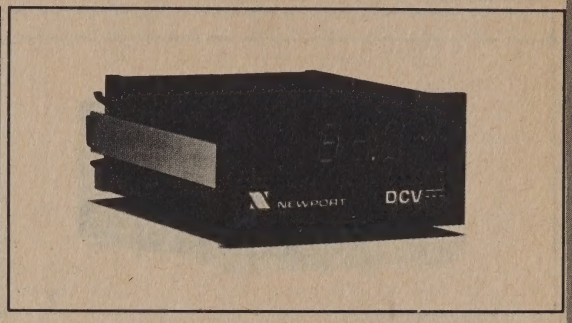
PRICES LISTED ARE FOR GUIDANCE ONLY

NEWPORT ELECTRONICS INC.

DIGITAL METER RELAYS
SERIES 230/260

DIGITAL METER RELAYS
DC VOLTMETER MODEL 231
DC AMMETER MODEL 236





MODELS AVAILABLE:

- **DC VOLTMETER/AMMETER**
- **AC VOLTMETER/AMMETER**
- **PROCESS MONITOR**
- **TACHOMETER/FLOWMETER**
- **STRAINOMETER**
- **RTD PYROMETER**
- **TC PYROMETER**

Measurements of temperature, pressure, flow, speed, voltage and current are accomplished with Newport's 230/260 Digital Meter Relay Series by selecting a plug-in signal conditioner tailored for a particular sensor and measurement range. A thermocouple conditioner will provide reference junction, μV preamp and linearizer, while a pressure cell conditioner (strainometer) will provide bridge excitation, μV preamp and offsetting.

In addition, the basic AC-powered meter provides an analog output for strip chart recorders.

Optional single or dual set point relay control is provided with 1500V isolated form C relay contacts rated at 5A for each set point. A dual set point controller can be logic level programmed for 3-position or hysteresis control. External control of latching and resetting of relay coils is provided. For each set point a pushbutton switch, when depressed, displays the set point value stored in a multiturn potentiometer. An LED lamp lights when the relay coil is energized.

FEATURES:

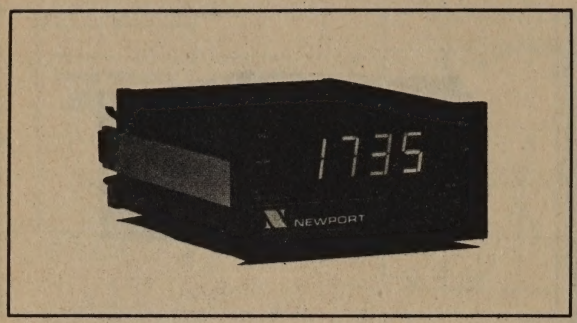
- Differential Input
- 14.2mm (.56in) 7-segment LED red display
- Automatic zero, polarity and overrange indication
- 200.0mV to 200.0VDC ranges
- 20.00μA to 2.000ADC ranges
- 0.1% accuracy
- 3- or 4-wire ratio
- DIN standard case
- Analog output for recorders
- Single or dual set point control
- Latched relay capability
- High and high-high alarm capability
- 5A Form C relay contacts
- Depth behind bezel including connector 136mm (5.35in)
- Panel cutout 92 x 45mm (3.62 x 1.77in)

Model	Range	Resolution	PWR*	Input Imp. (Ω)	Isolation to Case/PWR (V)	Isolation to BCD (V)	Maximum No. Reading/Sec	3-Wire Ratio	Display**
231-2	±199.9mV	100μV	L	1G	1500	—	2.5	X	LED
231-3	1.999V	1mV	L	1G	1500	—	2.5	X	LED
231-4	19.99V	10mV	L	1M	12500	—	2.5	X	LED
231-5	199.9V	100mV	L	1M	1M	—	2.5	X	LED
236-1	19.99μA	10nA	L	10k	10k	—	2.5	X	LED
236-2	199.9μA	100nA	L	1k	1k	—	2.5	X	LED
236-3	1.999mA	1μA	L	100	100	—	2.5	X	LED
236-4	19.99mA	10μA	L	10	10	—	2.5	X	LED
236-5	199.9mA	100μA	L	1	1	—	2.5	X	LED
236-6	1.999A	1mA	L	.1	.1	—	2.5	X	LED

*PWR L = 100/115/230VAC; B = 5VDC
**Display LED = 14.2mm LED; G = .55in Gas Discharge Display

NEWPORT ELECTRONICS INC.

DIGITAL METER RELAYS
PROCESS MONITOR MODEL 232



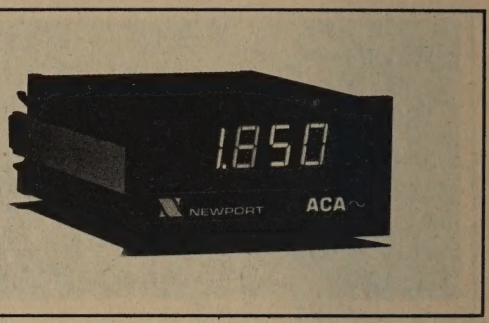
FEATURES:

- Readout in engineering units
- Field scalable
- Current loop inputs: 1-5mA, 0-20mA, 4-20mA, 10-50mA
- Voltage transmitter inputs 0-5V, 1-5V, 0-10V, −10 to +10V
- 0.1% maximum error
- 14.2mm (.56in) 7-segment LED red display
- DIN standard case
- Recorder output
- Single or dual set point control
- Programmable relay latching
- Recessed set point adjustment
- Control and alarm capability
- Depth behind bezel including connector 136mm (5.35in)
- Panel cutout 92 x 45mm (3.62 x 1.77in)

Model	Range	Resolution	PWR*	Input Imp. (Ω)	Isolation to Case/PWR (V)	Isolation to BCD (V)	Maximum No. Reading/Sec	3-Wire Ratio	Display**
232-V	From .2VFS to 20VFS	1 count in 2000	L	From 1M to 1G	1500	—	2.5	X	LED
232-1	From 1mAFS to 50mAFS	1 count in 2000	L	From 8.06 to 182	1500	—	2.5	X	LED

*PWR L = 100/115/230VAC; B = 5VDC
**Display LED = 14.2mm LED; G = .55in Gas Discharge Display

DIGITAL METER RELAYS
AC VOLTMETER MODEL 233
AC AMMETER MODEL 237



FEATURES:

- 50mV to 750VAC ranges
- 20.00μA to 2000ACA ranges
- 14.2mm (.56in) 7-segment LED red display
- Automatic zero and overrange indication
- RMS calibration
- 0.15% maximum error
- DIN standard case
- Recorder output
- Single or dual set point control
- 5A Form C relay contacts
- Programmable relay latching
- Recessed set point adjustments
- Interlocking reset pushbuttons
- Control and alarm capability
- Depth behind bezel including connector 136mm (5.35in)
- Panel cutout 92 x 45mm (3.62 x 1.77in)

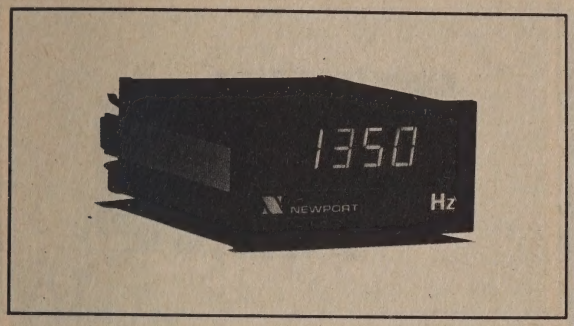
Model	Range	Resolution	PWR*	Input Imp. (Ω)	Isolation to Case/PWR (V)	Isolation to BCD (V)	Maximum No. Reading/Sec	3-Wire Ratio	Display**
233-1	50.0mV	25μV	L	1.1m	1500	—	2.5	—	LED
233-2	199.9mV	100μV	L	1.1m	1500	—	2.5	—	LED
233-3	1.999V	1mV	L	1.1m	1500	—	2.5	—	LED
233-4	19.99V	10mV	L	1m	1500	—	2.5	—	LED
233-5	199.9V	100mV	L	1m	1500	—	2.5	—	LED
233-6	750V	1V	L	10m	1500	—	2.5	—	LED
237-1	19.99μA	10nA	L	10k	1500	—	2.5	—	LED
237-2	199.9μA	100nA	L	1k	1500	—	2.5	—	LED
237-3	1.999mA	1μA	L	100	1500	—	2.5	—	LED
237-4	19.99mA	10μA	L	10	1500	—	2.5	—	LED
237-5	199.9mA	100μA	L	1	1500	—	2.5	—	LED
237-6	1.999A	1mA	L	.1	1500	—	2.5	—	LED
237-7	20,200, 2kA (for 5A CT)	2.5mA	L	.01	1500	—	2.5	—	LED
FS	Special full scale (for 5A CT)	—	L	.01	1500	—	2.5	—	LED

*PWR L = 100/115/230VAC; B = 5VDC
**Display LED = 14.2mm LED; G = .55in Gas Discharge Display

PRICES LISTED ARE FOR GUIDANCE ONLY

NEWPORT ELECTRONICS INC.

DIGITAL METER RELAYS TACHOMETER/FLOW/METER MODEL 234A



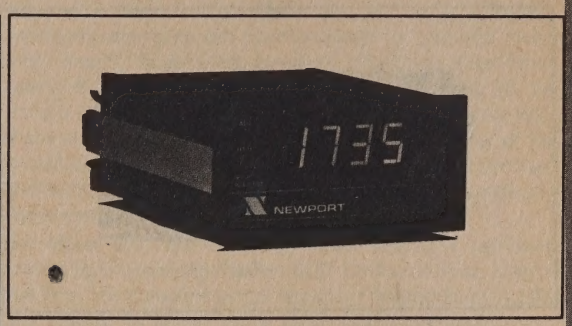
FEATURES:

- Scaled in engineering units
- 100Hz to 20kHz full scale
- Field scalable
- High read rate at low frequencies
- 0.15% maximum error
- 14.2mm (.56in) 7-segment LED red display
- Recorder output
- DIN standard case
- Single or dual set points
- 5A Form C relay contacts
- Programmable relay latching
- Control or alarm capability
- Recessed set point adjustment
- Interlocking reset pushbuttons
- Depth behind bezel including connector 136mm (5.35in)
- Panel cutout 92 x 45mm (3.62 x 1.77in)

Model	Range	Resolution	PWR*	Input Imp. (Ω)	Isolation to Case/PWR (V)	Isolation to BCD (V)	Maximum No. Reading/Sec	3-Wire Ratio	Display**
234A	100Hz FS to 20kHz	1 count in 2000	L	150k	1500	—	2.5	—	LED

*PWR L = 100/115/230VAC; B = 5VDC
**Display LED = 14.2mm LED; G = .55in Gas Discharge Display

DIGITAL METER RELAYS STRAINOMETER MODEL 235



FEATURES:

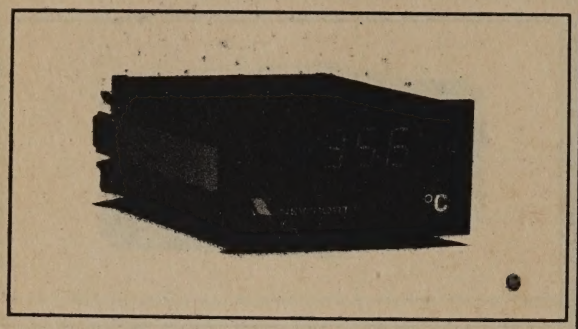
- Displays outputs of strain gauges, load cells and pressure cells
- 1μV to 100μV per digit resolution
- 0.3μV/°C drift differential preamplifier
- 1 to 10V internal constant voltage excitation
- 4-wire ratio measurements
- Readout in engineering units
- Field scalable
- 0.1% error maximum
- 14.2mm (.56in) 7-segment LED red display
- DIN standard case
- Recorder output
- Single or dual set point control
- Programmable relay latching
- Failsafe operation
- Recessed set point adjustment
- Control and alarm capability
- 5A Form C relay contacts
- Depth behind bezel including connector 136mm (5.35in)
- Panel cutout 92 x 45mm (3.62 x 1.77in)

Model	Range	Resolution	PWR*	Input Imp. (Ω)	Isolation to Case/PWR (V)	Excitation Supply (V)	Maximum No. Reading/Sec	3-Wire Ratio	Display**
235	2mV FS to 200mV FS	1μV to 100μV	L	1M	1500	1 to 10 (20mA max)	2.5	—	LED

*PWR L = 100/115/230VAC; B = 5VDC
**Display LED = 14.2mm LED; G = .55in Gas Discharge Display

NEWPORT ELECTRONICS INC.

NEWPORT DIGITAL METER RELAYS
TC PYROMETER MODEL 261



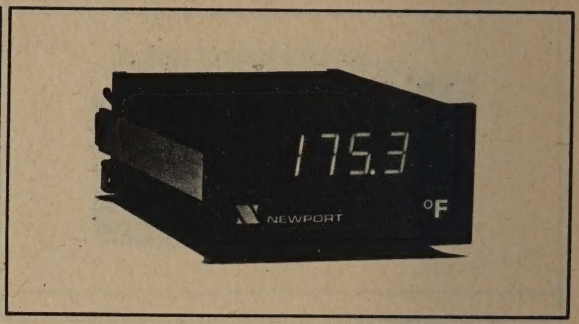
FEATURES:

- Type J or K thermocouples
- −40°F to +1999°F range
- Selectable °C of °F scaling
- Accuracy within ASTM limits of error
- Open sensor detection
- 14.2mm (.56in) 7-segment LED red display
- Recorder output
- DIN standard case
- Single or dual set point
- Selectable hysteresis mode
- Programmable relay latching
- 5A Form C relay contacts
- Programmable failsafe operation
- Control of alarm capability
- Recessed set point adjustment
- Depth behind bezel including connector 136mm (5.35in)
- Panel cutout 92 x 45mm (3.62 x 1.77in)

Model	Range	Resolution	PWR*	Input Imp. (Ω)	Isolation to Case/PWR (V)	Isolation to BCD (V)	Maximum No. Reading/Sec	3-Wire Ratio	Display**
261J	−40°C to +760°C −40°F to +1400°F	1°F or C	L	—	1500	—	2.5	—	LED
261K	−40° to +1260°C −40°F to +1999°F	1°F or C	L	—	1500	—	2.5	—	LED

*PWR L = 100/115/230VAC; B = 5VDC
**Display LED = 14.2mm LED; G = .55in Gas Discharge Display

DIGITAL METER RELAYS
RTD PYROMETER MODEL 262



FEATURES:

- −330°F to +1470°F range
- Switchable °C or °F scaling
- 0.1 or 1.0 degree resolution
- Open sensor detection
- 14.2mm (.56in) 7-segment LED red display
- Recorder output
- DIN standard case
- Single or dual set point
- Digital set point accuracy
- Selectable hysteresis mode
- Programmable relay latching
- 5A Form C relay contacts
- Recessed set point adjustments
- Depth behind bezel including connector 136mm (5.35in)
- Panel cutout 92 x 45mm (3.62 x 1.77in)

Model	Range	Resolution	PWR*	Input Imp. (Ω)	Isolation to Case/PWR (V)	Isolation to BCD (V)	Maximum No. Reading/Sec	3-Wire Ratio	Display**
262-1	−200°C to +800°C −330°F to +1470°F	1°F or C	L	—	1500	—	2.5	—	LED
262-2	−200.0° to +200.0°F −200.0°F to +200.0°F	0.1°F or C	L	—	1500	—	2.5	—	LED

*PWR L = 100/115/230VAC; B = 5VDC
**Display LED = 14.2mm LED; G = .55in Gas Discharge Display

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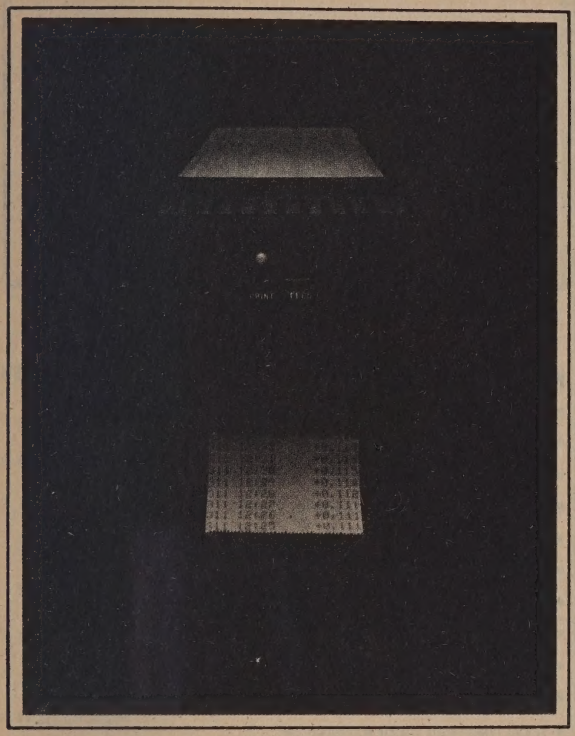
NEWPORT ELECTRONICS INC.

THERMAL DATA PRINTER
MODEL 820



Newport's Model 820 Data Printer is a compact, microcomputer-controlled thermal printer for use with digital panel meters, multimeters, counters and other instruments having BCD outputs. The 820 is capable of printing 20 columns of information at speeds up to 1.5 lines per second with characters formed in a 5 x 7 dot matrix. The polarity of the handshake signals may be determined by DIP switch selection to eliminate the need for external circuitry when interfacing instruments to the printer.

The Model 820 has four basic switch-selectable operating modes: BCD Character Parallel, BCD Character Serial, System and Test. The complete unit is housed in an aluminum ¼ DIN case suitable for bench top or panel mount operation.

PRINT MODE EXAMPLES

BCD CHARACTER PARALLEL
Mode 0—Type 2

```
+1237.45 mV
+1237.45 mV
+1237.45 mV
+1235.76 mV
+1235.76 mV
+1213.22 mV
+1213.22 mV
+1212.25 mV
+1212.25 mV
+1212.25 mV
+1212.25 mV
+1212.25 mV
+1212.25 mV
```

BCD CHARACTER SERIAL
Mode 1—Type 3

```
131 09:06 +123456.65
130 09:06 +123456.65
129 09:06 +123456.65
128 09:05 +123456.77
127 09:05 +123456.77
126 09:05 +123456.77
125 09:05 +123456.77
124 09:05 +123456.77
123 09:05 +123456.78
122 09:05 +123456.78
121 09:05 +123456.78
120 09:05 +123456.78
119 09:05 +123456.78
```

SYSTEM
Mode 2

```
 #09      -666 BTU
 #02      +988 PSI
076 09:24

 #09      -555 ATM
 #02      +988 PSI
075 09:23

 #09      -444 OZ
 #02      +988 PSI
074 09:23

 #09      -222 dB
```

TEST
Mode 3—Ripple Pattern

```
 !"#$%&'()*+,-./0123456789:;<=>?@ABC
!"#$%&'()*+,-./0123456789:;<=>?@ABCD
"#$%&'()*+,-./0123456789:;<=>?@ABCDE
#$%&'()*+,-./0123456789:;<=>?@ABCDEF
$%&'()*+,-./0123456789:;<=>?@ABCDEFG
%&'()*+,-./0123456789:;<=>?@ABCDEFGH
&'()*+,-./0123456789:;<=>?@ABCDEFGHI
'()*+,-./0123456789:;<=>?@ABCDEFGHIJ
()*+,-./0123456789:;<=>?@ABCDEFGHIJK
)*+,-./0123456789:;<=>?@ABCDEFGHIJKL
*+,-./0123456789:;<=>?@ABCDEFGHIJKLM
+,-./0123456789:;<=>?@ABCDEFGHIJKLMN
```

FEATURES:

- Compact size ¼ DIN case
- Time-of-day clock standard
- Print interval generator standard—16 switch selectable intervals
- 20 column capability
- Character Parallel or Character Serial BCD data inputs
- Positive or negative true inputs
- Self-test mode
- Selectable decimal point location
- Special symbols to annunciate overload and alarm
- Out-of-paper indication and automatic shutdown
- 45 units-of-measure characters
- Choice of print formats
- Displays days or run number

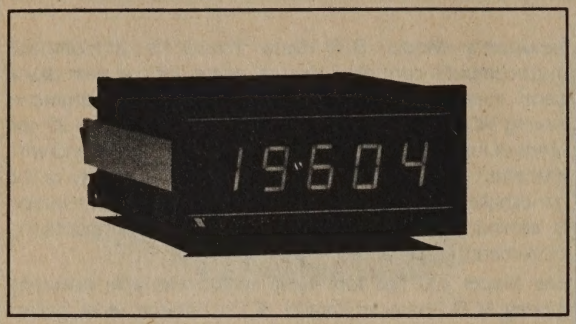
UNITS-OF-MEASURE

Code* 8	4	2	1	UM1	UM2	UM3
0	0	0	0	Space	Space	Space
0	0	0	1	°C	p	A
0	0	1	0	°F	n	v
0	0	1	1	RAD	u	Ω
0	1	0	0	DEG	m	Hz
0	1	0	1	RPM	c	W
0	1	1	0	PSI	d	G
0	1	1	1	LBS	K	F
1	0	0	0	TON	M	m
1	0	0	1	BTU	G	I
1	0	1	0	ATM	H	N
1	0	1	1	OZ	°	g
1	1	0	0	FT	W	S
1	1	0	1	dB	X	M
1	1	1	0	%	Y	H
1	1	1	1	#	Z	C

*1 = negative true

NEWPORT ELECTRONICS INC.

4½ DIGIT PANEL VOLTMETER SERIES 2003A



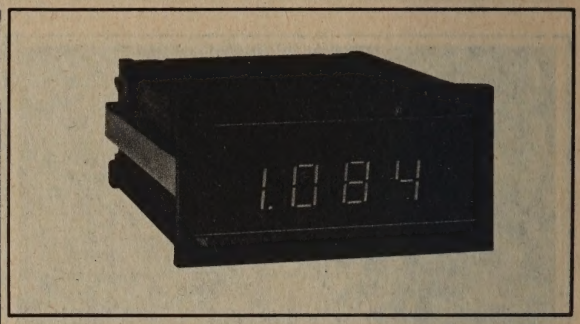
FEATURES:

- ±19999 counts
- 115/230VAC operation (100VAC optional)
- 14.2mm (.56in) 7-segment LED red display
- Parallel BCD outputs standard
- Isolated, buffered, gated and latched BCD output (optional)
- 4 readings per second
- Single-ended input
- 10μV resolution
- Voltage ratio standard
- Low input bias current
- 1000 megohm input impedance
- Dual slope, average value
- Automatic zero and polarity
- Remote "Hold" control
- Programmable decimal points
- Operating temperature 0° to 50°C
- DIN case standard, NEMA case optional
- Depth behind bezel including connector 135.4mm (5.33in)
- Panel cutout 92 x 45mm (3.62 x 1.77in)

Model	Range	Resolution	PWR*	Input Imp. (Ω)	Isolation to Case/PWR (V)	Isolation to BCD (V)	Maximum No. Reading/Sec	3-Wire Ratio	Display**
2003A-2	±199.99mV	10μV	L/B	1G	500	#	4	X	LED
2003A-3	±1.999V	100μV	L/B	1G	500	#	4	X	LED
2003A-4	±19.999V	1mV	L/B	1G	500	#	4	X	LED
2003A-5	±199.99V	10mV	L/B	1G	500	#	4	X	LED

*PWR L = 100/115/230VAC; B = 5VDC
**Display LED = 14.2mm LED; G = .55in Gas Discharge Display
= isolation, optional

3½ DIGIT PANEL VOLTMETER SERIES 203A



FEATURES:

- ±1999 counts
- 115/230VAC operation (5VDC, 100VAC optional)
- 14.2mm (0.56in) 7-segment LED red display
- Parallel BCD outputs standard
- Read rate 0—4/second
- Single-ended input
- 100μV resolution
- Voltage and current models
- Voltage ratio measurement standard
- Low input bias current
- 1000 megohm input impedance
- Dual slope, average value
- Automatic zero and polarity
- Remote hold control
- Programmable decimal points
- Customer specified nomenclature (optional)
- Operating temperature 0° to 50°C
- DIN standard case
- Depth behind bezel including connector 136mm (5.35in)
- Panel cutout 92 x 45mm (3.62 x 1.77in)

Model	Range	Resolution	PWR*	Input Imp. (Ω)	Isolation to Case/PWR (V)	Isolation to BCD (V)	Maximum No. Reading/Sec	3-Wire Ratio	Display**
203A-2	±199.9mV	100μV	L/B	IG	500	0	4	X	LED
203A-3	±1.999V	1mV	L/B	IG	500	0	4	X	LED
203A-4	±19.99V	10mV	L/B	IM	500	0	4	X	LED
203A-5	±199.9V	100mV	L/B	IM	500	0	4	X	LED

*PWR L = 100/115/230VAC; B = 5VDC
**Display LED = 14.2mm LED; G = .55in Gas Discharge Display

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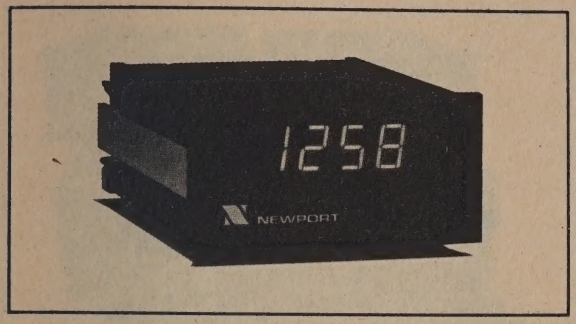
NEWPORT ELECTRONICS INC.

3½ DIGIT PANEL VOLTMETER SERIES 201



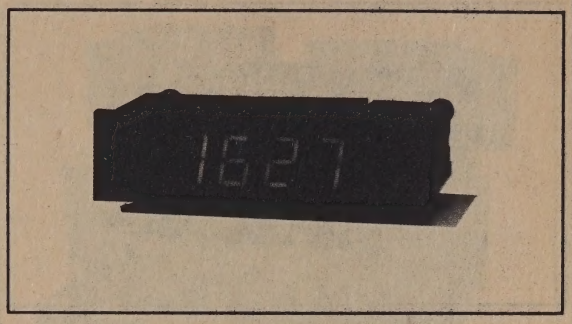
FEATURES:

- ±1999 counts
- 115/230VAC operation (100VAC optional)
- 14.2mm (0.56in) 7-segment LED red display
- Differential input
- Optional 3-wire ratio
- 200.0mV to 200.0VDC ranges
- ±0.1% accuracy
- Hold function
- DIN standard case
- Automatic zero, polarity, and overrange indication
- Customer specified nomenclature (optional)
- Operating temperature 0° to 60°C
- Depth behind bezel including connector 136mm (5.35in)
- Panel cutout 92 x 45mm (3.62 x 1.77in)

Model	Range	Resolution	PWR*	Input Imp. (Ω)	Isolation to Case/PWR (V)	Isolation to BCD (V)	Maximum No. Reading/Sec	3-Wire Ratio	Display**
201-2	±199.9mVDC	0.1mV	L	IG	1500	—	2.5	X	LED
201-3	±1.999VDC	1.0mV	L	IG	1500	—	2.5	X	LED
201-4	±19.99VDC	10mV	L	IM	1500	—	2.5	X	LED
201-5	±199.9VDC	100mV	L	IM	1500	—	2.5	X	LED

*PWR L = 100/115/230VAC; B = 5VDC
**Display LED = 14.2mm LED; G = .55in Gas Discharge Display

3½ DIGIT PANEL VOLTMETER SERIES 214



FEATURES:

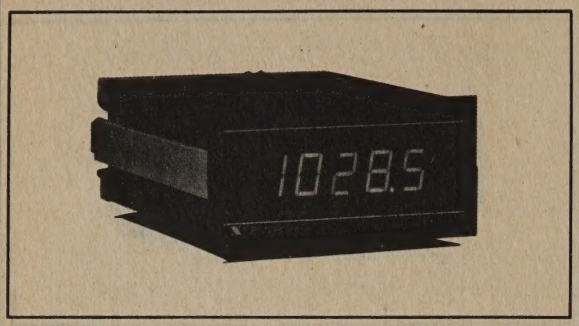
- ±1999 counts
- 5VDC Power, 1W nominal
- 14.2mm (.56in) 7-segment LED red display
- Read rate 2.5/second
- True differential input
- 100μV resolution
- Four programmable ranges
- Voltage, current and ratio measurement
- 50pA bias current
- High input impedance
- Dual slope, average value
- Automatic zero and polarity
- Depth behind bezel including connector 71.7mm (2.82in)
- Panel cutout 92 x 22.2mm (3.62 x 0.874in)

Model	Range	Resolution	PWR*	Input Imp. (Ω)	Isolation to Case/PWR (V)	Isolation to BCD (V)	Maximum No. Reading/Sec	3-Wire Ratio	Display**
214-2	±199.9mV	100μV	B	100G	Δ	—	2.5	X	LED
214-3	±1.999V	1mV	B	100G	Δ	—	2.5	X	LED
214-4	±19.99V	10mV	B	10M	Δ	—	2.5	X	LED
214-5	±199.9V	100mV	B	10M	Δ	—	2.5	X	LED

*PWR L -= 100/115/230VAC; B = 5VDC
**Display LED = 14.2mm LED; G = .55in Gas Discharge Display
Δ = CMR for 214A-2 is ±2.5V from power supply midpoint (including signal)

NEWPORT ELECTRONICS INC.

UNIVERSAL PANEL COUNTER
MODEL 6130A



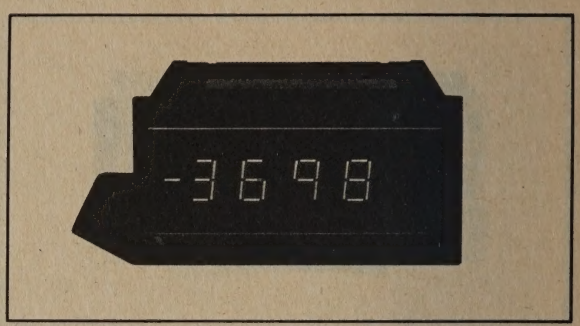
FEATURES:

- 99999 counts full scale
- LED overflow indicator
- 115/230VAC, 50/60Hz operation (100VAC optional)
- 14.2mm (.56in) 7-segment LED red display
- Buffered, gated BCD outputs
- Time base accuracy 2 x 10^{-6}/mo, 2 x 10^{-6}/°C
- AC and DC coupled inputs, isolated to 350 volts peak
- Totalize to 2MHz
- 12 selectable gate times
- Frequency range: Isolated input, DC to 100kHz TTL input, DC to 2MHz
- Period and time interval range from 99.999ms to 99999sec
- Period average range from 0.99999μsec to 99999μsec
- Stopwatch range from 99999msec to 99999sec
- Display in engineering units of RPM and other linear or rotational measurements
- Programmable predivider
- Remotely selectable decimal point
- Front panel pushbutton control
- 0 to 50°C operating temperature
- Depth behind bezel including connector 135.4mm (5.33in)
- Panel cutout 92 x 45mm (3.62 x 1.77in)

OPERATING MODES

- Frequency
- Frequency Ratio
- Time Interval
- Period
- Period Average
- Totalize
- Stop Watch

3¾ DIGIT PROCESS MONITOR
MODEL 204



FEATURES:

- 14.2mm (.56in) 7-segment LED red display
- Automatic zero and polarity
- Dual slope, average value
- 120dB CMR up to 500V
- V, I, and ratio measurements
- Parellel BCD output
- DIN standard case
- Full scale to ±3999
- Five voltage ranges
- Hold and blanking controls
- Input impedance 1000 megohms
- Decimals programmed from connector
- Full scale to ±4999 or ±5999 (optional)
- Extra zero- right hand side (optional)
- Count by two or five (optional)
- Linearized analog output (optional)
- Alarm set point (optional)
- 5VDC power instead of 115VAC (optional)
- Buffered, isolated, gated and stored BCD output (optional)
- Screw terminals for power and signal (optional)

Model	Range	Resolution	PWR*	Input Imp. (Ω)	Isolation to Case/PWR (V)	Isolation to BCD (V)	Maximum No. Reading/Sec	3-Wire Ratio	Display**
204-1	±39.99mV	10μV	L/B	1G	500	#	4	X	LED
204-1, ER2	±59.99mV	10μV	L/B	1G	500	#	4	X	LED
204-2	±399.9mV	100μV	L/B	1G	500	#	4	X	LED
204-2, ER2	±599.9mV	100μV	L/B	1G	500	#	4	X	LED
204-3	±3.999V	1mV	L/B	1G	500	#	4	X	LED
204-3, ER2	±5.999V	1mV	L/B	1G	500	#	4	X	LED
204-4	±39.99V	10mV	L/B	1M	500	#	4	X	LED
204-4, ER2	±59.99V	10mV	L/B	1M	500	#	4	X	LED
204-5	±399.9V	100mV	L/B	1M	500	#	4	X	LED
204-5, ER2	±599.99V	100mV	L/B	1M	500	#	4	X	LED

*PWR L = 100/115/230VAC; B = 5VDC
**Display LED = 14.2mm LED; G = .55in Gas Discharge Display
= isolation, optional

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NEWPORT ELECTRONICS INC.

DIGITAL PYROMETER SERIES 267B

$100.00-$180.00

FEATURES:

- 31 thermocouple and RTD plug-in ranges
- −330°F to 4000°F range
- 115/230VAC operation (5VDC, 100VAC optional)
- 14.2mm (.56in) 7-segment LED red display
- BCD outputs standard
- Buffered, gated and latched BCD outputs (optional)
- Nine thermocouple types
- Resolution on thermocouple ranges is 1°F or °C
- Ranges of type E and T with 0.1°C or °F resolution
- Eleven platinum RTD ranges with resolution to 0.01°C
- Sensor break detection
- 350V analog-to-digital isolation
- Dual slope integration, average value
- Bipolar operation, automatic zero
- Programmable decimal points
- Screw terminal barrier strip for power and signal
- Bench style case (optional)
- Battery operation in bench case (optional)
- Depth behind bezel including connector 135.4mm (5.33in) panel-mount version
- Panel cutout, panel mount version: 92 x 45mm (3.62 x 1.77in)

DIGITAL PYROMETER SERIES 268

$215.00-$225.00

FEATURES:

- 16 thermocouple and RTD ranges
- ±1999 counts
- 115/230VAC operation (5VDC, 100VAC optional)
- 14.2mm (.56in) 7-segment LED red display
- Parallel BCD output standard
- Buffered, isolated, gated and latched BCD outputs (optional)
- Quasi-diode reference junction compensation
- Resolution to 0.1° for RTDs
- J,K,T,E, type thermocouples and RTDs
- Linearized analog output (optional)
- One limit digital controller (optional)
- Screw terminal barrier strip for power and signal
- Bench style case (optional)
- Battery operation in bench case (optional)
- Depth behind bezel including connector 135.4mm (5.33in)
- Panel cutout, panel mount version: 92 x 45mm (3.62 x 1.77in)

Both the Model 267B and 268 in their basic configurations are panel-mounted, self-contained Digital Pyrometers, including cold junction compensation. They are powered by AC line voltages with 5VDC operation optional. The panel cutout is a standard DIN dimension.

For laboratory environments where portability and bench operation is required, both the Model 267B and 268 may be purchased in a bench-style case. In this configuration, two power options are available: 100/115/230VAC with integral power supply and line cord, or rechargeable NiCad batteries with a separate battery charger included. The charger contains a recessed slide switch for selection of 115VAC or 230VAC input power.

A low battery indication is displayed on the front of the unit. Option 07 includes a single thermocouple connector, while option 08 provides a multi-point selector switch for selecting up to 12 thermocouples or RTDs. Options 10A or 10B extend the BCD data lines and control lines to a connector on the rear of the bench case.

NEWPORT ELECTRONICS INC.

MODEL 267B TEMPERATURE SENSOR RANGES & ACCURACY @ 25°C

SENSOR TYPE	MATERIAL	RANGE	CONFORMITY ERROR	OVERALL ERROR ± ½ LSD	RESOLUTION	RANGE OPTION
J	Iron-Constantan	−120°C to +760°C	±0.78°C	±1.2°C	1.0°C	267B-JC1
		−200°F +1400°F	±1.0°F	±1.7°F	1°F	267B-JF1
K	Chromel-Alumel	−155°C to +1370°C	±1.0°C	±1.7°C	1°C	267B-KC1
		−225°F to +2500°F	±1.3°F	±2.5°F	1°F	267B-KF1
T	Copper-Constantan	−200°C to 0°C 0°C to 400°C	±2.0°C ±0.58°C	±2.7°C ±0.78°C	1°C	267B-TC1
		−90.0°C to +400.0°C	±0.13°C	±0.33°C	0.1°C	267B-TC2
		−150.0°F to +750.0°F	±0.19°F	±0.56°F	0.1°F	267B-TF2
E	Chromel-Constantan	−145°C to +1000°C	±0.95°C	±1.5°C	1°C	267B-EC1
		−100.0°C to +400.0°C	±0.11°C	±0.33°C	0.1°C	267B-EC2
		−250°F to +1830°F	±1.33°F	±2.2°F	1°F	267B-EF1
		−110.0°F to +400.0°F	±0.1°F	±0.3°F	0.1°F	267B-EF2
R	13% Rhodium-Pt vs Pt	−50°C to +1750°C	±2.48°C	±3.4°C	1°C	267B-RC1
		−58°F to +3180°F	±5.5°F	±7.0°F	1°F	267B-RF1
S	10% Rhodium-Pt vs Pt	−50°C to +1750°C	±2.1°C	±3.0°C	1°C	267B-SC1
		−58°F to +3180°F	±5.5°F	±7.0°F	1°F	267B-SF1
B	Platinum 30% Rhodium vs Platinum 6% Rhodium	+250°C to +1800°C	±2.85°C	±3.8°C	1°C	267B-BC1
		+500°F to +3300°F	±4.8°F	±6.5°F	1°F	267B-BF1
W	W5% Re-W26% Re-	0°C to +2200°C	±3.6°C	±4.7°C	1°C	267B-WC2
		0°F to +4000°F	±6.4°F	±8.5°C	1°F	267B-WF2
	Chromel vs Au-0.07 at % Fe	−268.0°C to +51.0°C	±0.32°C	±0.55°C	0.1°C	267B-GC1
RTD	DIN	−200.0°C to +780.0°C	±0.05°C	±0.44°C	0.1°C	267B-PC1
	NBS	−200.0°C to +630.0°C	±0.05°C	±0.35°C	0.1°C	267B-PC2
	DIN	−20.00°C to +78.00°C	±0.005°C	±0.044°C	0.01°C	267B-PC3
	NBS	−20.00°C to +78.00°C	±0.005°C	±0.044°C	0.01°C	267B-PC4
	Pt US Std	−200.0°C to +780.0°C	±0.05°C	±0.44°C	0.1°C	267B-PC5
	100Ω US Std	−20.00°C to +78.00°C	±0.005°C	±0.044°C	0.01°C	267B-PC6
	NBS	−330°F to +1160°F	±0.5°F	±1.1°F	1°F	267B-PF1
	NBS	−200.0°F to +780.0°F	±0.05°F	±0.44°F	0.1°F	267B-PF2
	US Std	−330°F to +1160°F	±0.5°F	±1.1°F	1°F	267B-PF3
	US Std	−200.0°F to +780.0°F	±0.05°F	±0.44°F	0.1°F	267B-PF4
	DIN	80.0°K to 780.0°K	±.2°K	±.6°K	0.1°K	267B-PK2

Note: Calibration of RTD range options:
1. PC1 and PC3 are calibrated to DIN standard 43760 with Alpha = .00385.
2. PC2, PC4, PF1 and PF2 are calibrated to IPTS-68 (NBS Monograph 125) with Alpha = .003925.
3. PC5, PC6, PF3 and PF4 are calibrated to a U.S. Standard with Alpha = .003902.

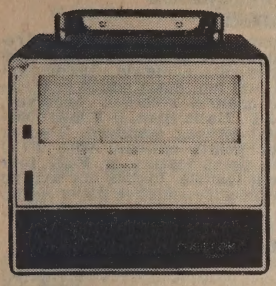
MODEL 268 TEMPERATURE SENSOR RANGES & ACCURACY @ 25°C

SENSOR TYPE	MATERIAL	RANGE	CONFORMITY ERROR	OVERALL ERROR ± ½ LSD	RESOLUTION	MODEL
J	Iron-Constantan	−170°C to 0°C	±1.4°C	±1.9°C	1.0°C	268-JC1
		0°C to 277°C	±1.1°C	±1.6°C		
		277°C to 760°C	3/8% Reading	3/8% Reading		
		−300°F to 32°F	±3.0°F	±3.5°F	1.0°F	268-JF1
		32°F to 530°F	±2.0°F	±2.5°F		
		530°F to 1400°F	3/8% Reading	3/8% Reading		
K	Chromel-Alumel	−180°C to 0°C	±2.0°C	±2.5°C	1.0°C	268-KC1
		0°C to 450°C	±1.7°C	±2.2°C		
		450°C to 1260°C	3/8% Reading	3/8% Reading		
		−285°F to 32°F	±2.75°F	±3.25°F	1.0°F	268-KF1
		32°F to 2000°F	±2.0°F	±2.5°F		
T	Copper-Constantan	−130°C to 400°C	±0.3°C	±0.8°C	1.0°C	268-TC1
		−100.0°C to 200.0°C	±0.15°C	±0.19°C	0.1°C	268-TC2
		−200°F to 700°F	±0.6°F	±1.1°F	1.0°F	268-TF1
		−130.0°F to 200.0°F	±0.15°F	±0.19°F	0.1°F	268-TF2
		−370°F to 370°F	±0.7°F	±1.0°F	1.0°F	268-TF3
E	Chromel-Constantan	−195°C to 0°C	±2.0°C	±2.5°C	1.0°C	268-EC1
		0°C to 316°C	±1.25°C	±1.7°C		
		316°C to 871°C	3/8% Reading	3/8% Reading		
		−330°F to 32°F	±3.0°F	±3.5°F	1.0°F	268-EF1
		32°F to 600°F	±2.5°F	±3.0°F		
		600°F to 1600°F	3/8% Reading	3/8% Reading		
RTD	Platinum 100 Ohms	−210°C to 0°C	±0.2°C	±0.7°C	1.0°C	268-PC1
		0°C to 100°C	±0.2°C	±0.7°C		
		100°C to 800°C	±0.2% Reading	±0.25% Reading		
		±200°C to 200.0°C	±0.2°C	±0.3°C	0.1°C	268-PC2
		−330°F to 32°F	±0.3°F	±0.8°F	1.0°F	268-PF1
		32°F to 212°F	±0.3°F	±0.8°F		
		212°F to 1500°F	±0.2% Reading	±0.25% Reading		
		−200.0°F to 200.0°F	±0.3°F	±0.4°F	0.1°F	268-PF2
R	Platinum 13% Rhodium	−50°C to 0°C	±1.0°C	±2.0°C	1°C	268-RC1
		0°C to 580°C	±23°C	±24°C		
		580°C to 1750°C	±3.0°C	±4.0°C		

Note: RTD ranges are calibrated to DIN 43760 Alpha = .00385.

PRICES LISTED ARE FOR GUIDANCE ONLY

SERVO, POTENTIOMETRIC AND PYROMETER RECORDERS



MODEL 6425
HIGH SPEED SERVO RECORDER

The 6425 Servo Recorder features the speed and resolution of a high speed servo recorder, the easy readability of a 100mm chart, and Rustrak durability, versatility, and reliability. Continuous **inkless** trace for up to 30 days unattended operation, plus a full range of plug-in signal conditioners.

SPECIFICATIONS
ELECTRICAL

Sensitivity: 100 mV full scale.
Accuracy: ±1% of span.
Response Time: .25 sec. full scale.
Input Resistance: 50K ohms.
Input Type: Floating differential.
Temperature Stability: ±.025 mV/°C (0° to 50° C).
60 Hz Rejection: 40 dB min.
Power Requirements (specify one): 115 V, 60 Hz; 115 V, 50 Hz; 230 V, 60 Hz; 230 V, 50 Hz.

MECHANICAL

Chart Paper: 100mm usable width, 63-foot roll.
Operation: Reroll or tear-off.
Writing Method: Pressure sensitive.
Chart Speed: Select one from ⅛″/hr to 3000″/hr.
Physical Mounting: Portable or rack.
Finish: Beige and brown.
Dimensions: 6⅝″ w. x 5⅝″ h. x 6½″ d.
Weight: 6 pounds.
Rustrak Model 6425 High Speed Servo Recorder—Net Each.....**$375.00**

OPTIONS

F205 Controller Features—one or two set points available.
Type A, output relay energized below set point—Net Each.....**$228.00**
Type B, output relay energized above set point—Net Each.....**366.00**
Event Markers—1 to 3 available (Specify 6, 12, 24, etc., VDC or VAC.)
6, 12, 24, 48 VDC—Net Each.....**$58.00**
6, 12, 24, 48, 115, 230 VAC—Net Each.....**76.00**

ACCESSORIES
MILLIVOLT SERIES

Rustrak No. 4P4001, 1 to 25 mV—Net Each.....**$290.00**
Rustrak No. 4P4004, 25 to 50 mV—Net Each.....**242.00**
Rustrak No. 4P4005, 1 to 500 VDC—Net Each.....**53.00**

DIRECT CURRENT SERIES

Rustrak No. 4P4006, 50 μA to 5 A—Net Each.....**$53.00**

PROCESS CONTROL SERIES

Rustrak No. 4P4006, range 1–5 mA—Net Each.....**$53.00**
Rustrak No. 4P4006, range 4–20 mA—Net Each.....**53.00**
Rustrak No. 4P4006, range 10–50 mA—Net Each.....**53.00**

AC SIGNAL CONDITIONERS
VOLTAGE SERIES

Rustrak No. 4P4088R, 10 to 600 VAC—Net Each.....**$75.00**
Rustrak No. 4P4093, 75–135, 150–270, 300–540 VAC—Net Each.....**91.00**
Rustrak No. 4P4186, 100–130, 200–260, 400–520 VAC—Net Each.....**91.00**

CURRENT SERIES

Rustrak No. 4P4118, 0–1 and 0–5 AC—Net Each.....**$84.00**
Rustrak No. 4P4107S, 10 to 300 A—Net Each.....**45.00**
Rustrak No. P4107TS, clamp-on current transducer (accommodates 1″ round conductor)—Net Each.....**48.00**
Rustrak No. 4P4107L, 100 to 1000 A—Net Each.....**71.00**
Rustrak No. 4107LT, clamp-on current transducer (accommodates 2″ round conductor)—Net Each.....**84.00**

TEMPERATURE SERIES

Rustrak No. 4P4133, Thermistor Sensor Series. Useful range +32° to 212° F; min. span 10° F; max. span 100° F.....**$147.00**

PROBES

Rustrak No. 1331, flexible lead—Net Each.....**$52.00**
Rustrak No. 1332, straight tubular shaft 304 SS, 4½″ lg. x 5/32″ dia. x 10′ cable—Net Each.....**69.00**
Rustrak No. 1333, extended disk with 10′ cable—Net Each.....**95.00**
Rustrak No. 1334, flexible disk with 10′ cable—Net Each.....**74.00**
Rustrak No. 4P4144, Nickel Resistance Bulb Series. Useful range −100° to +600° F; min. span 100° F; max. span 600° F.....**147.00**
Rustrak No. 1441, utility probes, 15′ cable—Net Each.**100.00**
Rustrak No. 1442, flexible surface probe, 15′ cable—Net Each.....**43.00**
Rustrak No. 4P4155A, Thermocouple Sensor Series. Ranges from 1 to 50 mV. Offsets up to 5X span may be specified—Net Each.....**320.00**
Rustrak No. 1551, Type J (Iron-Constantan) 20 gauge in 6″ stainless steel 6′ armored cable—Net Each.....**43.00**
Rustrak No. 1552, Type K (Chromel-Alumel) 20 gauge in 6″ stainless steel sheath, 6′ armored cable—Net Ea.**53.00**

MODES 6425
HIGH SPEED SERVO RECORDER (Cont'd)

RACK MOUNTING PANELS

Rustrak No. 3176-1, for 1 unit—Net Each.....**$84.00**
Rustrak No. 3176-2, for 2 units—Net Each.....**84.00**

CHART VIEWER

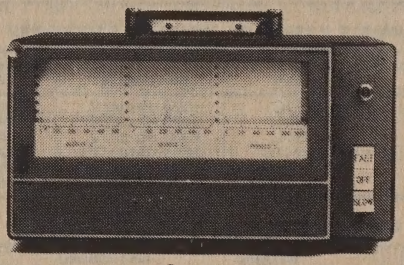
Rustrak No. 3168—Net Each.....**$207.00**

EXTERNAL SHUNTS—881 SERIES

Direct currents up to 1000 amps DC can be recorded. Specify series number and range when ordering. (Example: **881, 0–400** amps.)
0–10 to 0–150 amps DC—Net Each.....**$ 45.00**
0–200—Net Each.....**49.00**
0–300—Net Each.....**59.00**
0–400—Net Each.....**63.00**
0–500—Net Each.....**66.00**
0–600—Net Each.....**85.00**
0–800—Net Each.....**100.00**
0–1000—Net Each.....**138.00**

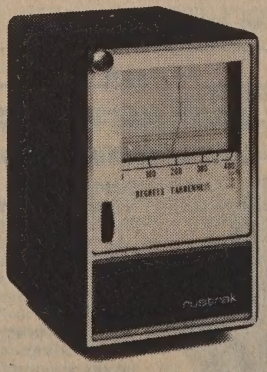
CHART PAPER (50 DIV. LINEAR)

Rustrak No. A-L100MM—Net Per Roll.....**$6.90**



MODEL 3400A AND 4300A DUAL-CHANNEL POTENTIOMETRIC RECORDERS

Same specifications as Model 400A, except Model 3400A has two channels and Model 4300A has three channels. Scale width, 2⅝″ per channel. Dimensions: Model 3400A, 6⅝″ w. x 6½″ d. x 5⅝″ h., weight, 6 lbs.; Model 4300A, 11″ w. x 6¼″ d. x 5⅝″ h., weight, 8 lbs. Both models use ADD-A-FUNCTION signal conditioner modules.
Rustrak Model 3400A Recorder—Net Each.....**$855.00**
Rustrak Model 4300A Recorder—Net Each.....**$1310.00**



MODEL 2122 RECORDING PYROMETER

Single channel thermocouple recorder has four switchable ranges: 0–400° F, 0–800° F, 0–1200° F and 0–2400° F; also available in Centigrade equivalents. Cold junction compensation. Supplied with J/C and C/A thermocouples. Operates from 115 VAC, 60 Hz. Size, 3⅝″ w. x 6″ d. x 5⅝″ h. Shipping Weight, 7 lbs.
Rustrak Model 2122 Recording Pyrometer—Specify °F or °C calibration. Net Each.....**$424.00**

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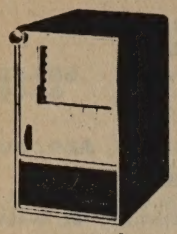
THE MINIATURE RECORDER PEOPLE

MINIATURE STRIP CHART RECORDERS

MINIATURE GRAPHIC RECORDERS

200 SERIES



Miniature analog recorders print on pressure-sensitive chart paper, have wide applications in industry. Accuracy is ±2% of full scale (±1% available on special order). Standard chart speed is 1" per hour; easily changed with optional gear boxes (listed separately). 63-foot chart paper roll lasts one month at 1" per hour. Features include: Internal chart review; time setting thumbwheel; chart access window; tear-off or reroll chart operation easily interchanged. Response time, 1 second for most units. Scale width: Single channel, 2⅝"; dual channel, 1". Operate from 115 VAC, 60 Hz. Ready to use; complete with panel mounting hardware, one roll of chart paper and operating manual. Finished in charcoal gray suede coating. Size, 3⅝" w. x 4⅝" d. x 5⅝" h. Shipping Weight, 5 lbs.

Miniature Graphic Recorders are available in other ranges and models. Write for brochure and prices.

SINGLE CHANNEL DC RANGE RECORDERS

Rustrak Model	Range	Resistance, Ohms	Net Each
288	0–10 μA	5700	$246.00
288	0–50 μA	4700	220.00
288	0–100 μA	4600	211.00
288	0 1 mA	100	183.00
288	0–100 mV	100	183.00

SINGLE RANGE DC VOLTAGE RECORDERS

Rustrak Model	Range	Sensitivity	Net Each
288	0–1 VDC	1000 ohms/V	$200.00
288	0–3 VDC	1000 ohms/V	200.00
288	0–5 VDC	1000 ohms/V	200.00
288	0–10 VDC	1000 ohms/V	200.00
288	0–50 VDC	1000 ohms/V	200.00
288	0–100 VDC	1000 ohms/V	200.00

DUAL CHANNEL DC RANGE RECORDERS

Rustrak Model	Ranges (Dual Channel)	Resistance, Ohms	Net Each
291	0–1 mA and 0–1 mA	100	$272.00
291	0–100 μA and 0–100 μA	4600	299.00
291	0–50 μA and 0–50 μA	5400	317.00

AC VOLTMETER RECORDERS

Rustrak Model	AC Ranges	Net Each
288R	Single range—0–10 V, 0–50 V, 0–300 V, 0–600 V	$232.00
288	Any two ranges listed above	270.00
288	Any three ranges listed above	297.00
293	70–135 V	240.00
293B	70–135, 140–270 and 280–540 V	270.00
293A	70–135 and 140–270 V	250.00
2186	105–125 and 210–250 V	297.00
2186A	105–125, 210–250 and 420–500 V	312.00

AC AMMETER RECORDERS

Rustrak Model	AC Ranges	Net Each
2118	0–1 and 0–5 amps	$297.00
2107	0–500 amps with clamp-on transducer	300.00

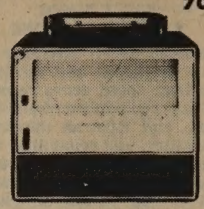
MODEL 230 VOLT/AMP RECORDER

Industrial and commercial AC voltage and current recorder, housed in leatherette case. Three switchable voltage ranges: 0–150, 0–300 and 0–600 volts with ±3% accuracy. Three switchable current ranges: 0–25, 0–100 and 0–300 amps with ±4% accuracy. Thumbwheel chart advance; sliding chart access window. Standard chart speed is 1" per hour; other speeds available on special order. Uses Q & R type chart paper. Operates from 115 VAC, 60 Hz; draws 3 watts. Furnished with two rolls of chart paper, clamp-on transducer and test leads. Size, 11" long x 4¼" wide x 6½" high. Shipping Weight, 10 lbs.

Rustrak Model 230 Volt/Amp Recorder—Net Each.. **$259.00**

WIDE CHART RECORDERS

7000 SERIES



Same rugged construction and reliability as 2" models, the 7000 series galvanometric recorders offer 100 mm chart width in a single channel recorder. Accuracy, ±2%. Basic span, 0-5 mA. One-point writing standard. Two or four points optional with F137 two point feature or F437 four point feature. Inkless dry writing on pressure sensitive paper for up to 30 day unattended operation. Size, 6⅝" w. x 6" d. x 5⅝" lg.

Model 7288 Single Channel DC Recorder
- 0–10 to 0–500 μA..... **$385.00**
- 0–5 mA..... **339.00**
- 0–1 thru 0–750 mA (ex. 0–5)..... **385.00**
- 1–5/4–20/10–50 mA..... **385.00**
- 0–1/0–3/0–5 amp..... **385.00**
- 0–10, 0–25/0–100/0–50 mV..... **385.00**
- 0–1 thru 0–500 mV..... **385.00**

Model 7288 Zero Center
- 5–0–5/25–0–25/50–0–50 μA..... **402.00**
- .5–0–.5 mA..... **402.00**
- 50–0–50 mV..... **402.00**

Model 7288/F217—11–100 mV full scale..... **488.00**
1–10 mV full scale..... **582.00**
If range is offset, specify low and high ends up to ±5 times span.
Offset ranges.....add **46.00**
DC operation.....add **46.00**

Model 7118 AC Recorder..... **442.00**

Model 7107 AC Recorder
AC current
- 1 range..... **445.00**
- 2 range..... **462.00**
- 3 range..... **469.00**

Model 7133 Thermistor Recorder..... **496.00**
Model 7144 Nickel Wire Probe..... **547.00**
Model 7155A T/C Recorder..... **430.00**
Model 7155A NR Narrow Range T/C..... **641.00**
Two point feature F137..... **Consult**
Four point feature F437..... **Factory**
Chart paper A100 mm.....roll **6.90**

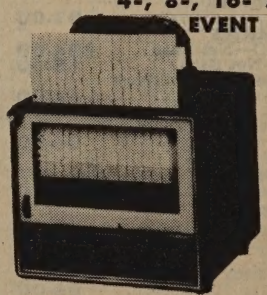
300 SERIES RECORDERS

Miniature analog recorder series, available in two- or four-channel models. 5½" wide chart features 2⅝" scale width for two-channel recorders, 1" per channel for four-channel models. Standard chart speed is 1" per hour; easily changed with optional gear box. 63-foot roll of chart paper lasts one month at 1" per hour speed. Convenient time setting thumbwheel for precise or rapid chart advance. Sliding access window permits making notes on chart. Finished in charcoal gray suede coating. Includes handle, one roll of chart paper and operating manual. Size, 6⅝" w. x 6" d. x 5⅝" h. Shipping Weight, 8 lbs.

Rustrak Model	Channels	Range, Each Channel	Resis. per Channel	Net Each
388	2	0–50 μA	4700 ohms	$535.00
388	2	0–100 μA	4600 ohms	517.00
388	2	0–1 mA	100 ohms	461.00
388	2	0–100 mV	100 ohms	461.00
391	4	0–1 mA	100 ohms	639.00
391	4	0–100 μA	4600 ohms	693.00

300 Series Recorders are available in other ranges. Write for descriptive brochure and prices.

4-, 8-, 16- AND 24-CHANNEL EVENT RECORDERS



Record four, eight, sixteen or twenty-four on-off events on the same chart. Actuator response time is 10 milliseconds. Access window slides down for notes. Thumbwheel chart advance operates from front panel for precise time setting or fast paper discharge. Operates at one chart speed (¼, ½, 1, 2, 3, 6, 10, 12, 15, 30 or 60 inches per hour; specify when ordering). Other chart speeds are easily obtainable by using interchangeable gear box. Standard recorder has 115 VAC, 60 Hz, 2-rpm motor; available with other motor speeds for chart speed up to 3000 inches/hour on special order. Requires 24 VDC at 70 mA per channel; use Model 921-8 power supply, below. Includes one roll of chart paper and operating manual. Finished in charcoal gray suede coating. Size: 4- and 8-channel models, 3⅝" w. x 4⅝" d. x 5⅝" h.; 16-channel model, 6⅝" w. x 6" d. x 5⅝" h. Shipping Weight, 5 lbs. except 392-16, 8 lbs. 4392-24 size, 11" w. x 8½" d. x 5⅝" h. Weight, 10 lbs.

Rustrak Model 292-4 Recorder—4-channel. Net..... **$217.00**
Rustrak Model 292-8 Recorder—8-channel. Net..... **301.00**
Rustrak Model 392-16 Recorder—16-channel. Net... **697.00**
Rustrak Model 4392-24 Recorder—24-channel. Net.. **1185.00**
Rustrak Model 921-8 Power Supply—One required for 4- or 8-channel recorders; two needed for 16-channel recorder; three required for 24 channel recorder. Shpg. Wt., 5 lbs. Net.. **$54.00**

PRICES LISTED ARE FOR GUIDANCE ONLY

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THE MINIATURE RECORDER PEOPLE

Temperature Recorders

MODEL 2133 THERMISTOR PROBE RECORDER

Rustrak thermistor probe recorders provide high resolution temperature monitoring over the range of 32 to 212° F (0° to 100° C). Spans from 25° F to 100° F may be selected. The calibration of the recorder is self-checking. Single and dual channel units are available.

SPECIFICATIONS

Single Channel: Model 2133. Uses one probe.
Dual Channel: Model 2133B. Uses two probes. Select any two spans.
Temperature Spans: 25° F min., 100° F max. (15° C min., 50° C max.)
Temperature Range: 32° F to 212° F (0° C to 100° C).
Accuracy: ±2% of span.
Stability: ±0.5% of span.
Thermistor: Various types available.
Supply Voltage: 120 VAC, 50/60 Hz; 240 VAC, 50/60 Hz; 12 VDC; 24 VDC; special voltages.

Model 2133 Single Channel Recorder—Net Each.... **$376.00**
Model 2133B Dual Channel Recorder—Net Each.... **620.00**

THERMISTOR PROBES FOR RUSTRAK 2133

Flexible lead, vinyl head. Time constant: 7 seconds. Head: 3/16" dia. x 5/16" long. 10' cable.
Model 1331.....**$52.00**

Straight tubular shaft, 304 s.s. For liquid (immersible to cap only) or internal use. Time constant: 3.7 seconds. Shaft: 5/32" dia. x 4½" long, 10' cable.
Model 1332.....**$69.00**

Extended disc, 304 s.s. For flat surface measurement where handle is required. Time constant: 0.8 seconds. Disc: 13/32" dia. x 1/16" thick, 10' cable.
Model 1333.....**$95.00**

Flexible lead disc, 304 s.s., plastic backed. For skin temperature and flat surfaces. Time constant: 1.7 seconds. Disc: 3/8" dia. x 1/8" thick, 10' cable.
Model 1334.....**$74.00**

MODEL 2144 RESISTANCE BULB RECORDER

Nickel wire temperature recorders, unlike thermocouple recorders, provide significantly smaller scale spans, and they do not require cold junction compensation or reference points. Rustrak 2144 series recorders may be specified with temperature spans as narrow as 100° F, making reasonably high accuracy (±2.5% of span) measurements possible. Calibration of these recorders is self-checking.

SPECIFICATIONS

Temperature Span: 100° F min. to 600° F max.
Temperature Range: −100° F to 600° F.
Accuracy: ±2.5% of span; ±0.5% of full scale temperature.
Stability: ±0.5% of span.
Scales: Fahrenheit standard, Centrigade available.
Sensor: Two-wire interchangeable nickel wire probe. Available separately. Not available for 6 VDC operation.
Supply Voltage: 120 VAC, 50/60 Hz; 240 VAC, 50/60 Hz; 12 VDC; 24 VDC; special voltages.

Model 2144—Net Each.....**$440.00**

NICKEL WIRE PROBES FOR RUSTRAK 2144

Utility probe, 304 s.s. Capable of withstanding most corrosive liquids and pressures to 500 PSI. Operating temperature −100° to +600° F. Time constant: 3 seconds. Shaft: 3/16" dia. x 4½" long. 1' teflon lead. 15' extension.
Model 1441.....**$100.00**

Flexible surface sensor with sensing grid imbedded in a fiberglass carrier. Operating temperature −100° to +500° F. Time constant: 0.5 seconds. Pad: ¾" wide x 1¾" long.
Model 1442.....**$43.00**

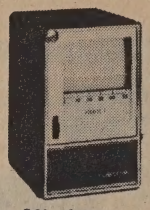
High pressure fitting. 304 s.s. For inserting Model 1441 probe into a pressure vessel. Maximum working pressure: 300 PSI.
Model 1443.....**$17.00**

Bead only w/o cable. .050 diam. 2" leads.
Model L789.....**$19.00**

Immersible in liquid. Probe: 50' cable.
Model 1924.....**$84.00**

High pressure fitting, 304 s.s. For inserting Model 1332 probe into a pressure vessel. Maximum working pressure: 300 PSI.
Model 1336.....**$17.00**

MODEL 2155A THERMOCOUPLE RECORDER



The 2% accuracy of the Rustrak 2155A is the best value in temperature measurement now available. It is provided with automatic cold junction compensation, is unaffected by varying thermocouple lead lengths (up to 100 ohms), and is available in spans as narrow as 250° F. Offset spans are also available.

Accuracy: 2% of span.
Thermocouple Resistance: 100 ohms maximum without recalibrating (180 ft. of #22 Type J).
Cold Junction Error: Maximum at 0° C and 50° C. Will not exceed ±2.5° C.
Minimum Span: 250° F (150° C).
Maximum Span: 2000° F (1000° C).
Sensor: Available separately. Specify type.

RUSTRAK 2155A NARROW RANGE

This model is available with spans as narrow as 50° F. Offsets as great as 5 times the span are possible. In this example, the span could be 250° to 300° F.

Temperature Span: 50° F to 250° F (Type J).
Accuracy: 2% of span.
Thermocouple Resistance: 1000 ohms max. without recalibrating.
Cold Junction Error: Maximum at 0° C and 50° C. Will not exceed ±2.5° C.
Calibration: Type J or K standard. T, R, or S optionally available.
Offset: None or up to 5 to 1 available.
Thermocouples: Available separately.

Model 2155A T/C Recorder—Net Each.....**$294.00**
Model 2155A NR Narrow Range T/C Recorder—Net Each..... **557.00**

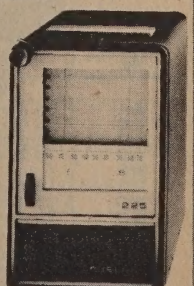
THERMOCOUPLE PROBES FOR RUSTRAK 2122 AND 2155A

Type J (iron-constantan), 20 gauge in 6 inch stainless steel sheath, 3/16 inch diameter with 6 ft. armored cable. Maximum range: 1000° F. Recommended range for continuous service: 900° F.
Model 1551.....**$43.00**

Type K (chromel-alumel), 20 gauge in 6 inch stainless steel sheath, 3/16 inch diameter with 6 ft. armored cable. Maximum range: 2000° F. Recommended range for continuous service: 1800° F.
Model 1552.....**$53.00**

Pressure fitting, 304 s.s., for inserting Model 1551 or 1552 into pressure vessel. Approximate maximum pressure: 300 PSI.
Model 1553.....**$17.00**

MODEL 225 RELATIVE HUMIDITY/ TEMPERATURE RECORDER



Electronically monitors relative humidity from 10% to 90% and temperature from 60° F to 90° F on a single chart. Chart lasts for two months of continuous monitoring operation. Ideal for use in computer rooms, offices, and similar applications. **Accuracy:** Temperature, ±1° F; humidity, ±4 (for 20–80% relative humidity at 77° F). **Response Time:** Temperature, 1 second (63%); humidity, 30 seconds (63%). **Sampling Rate:** 8 seconds for one cycle. **Paper:** Uses Style P chart paper (listed below). Complete with sensors and wall or panel mounting hardware. Size, 3 5/8" w. x 4 5/16" d. x 5 5/8" h. Shipping Weight, 5 lbs.

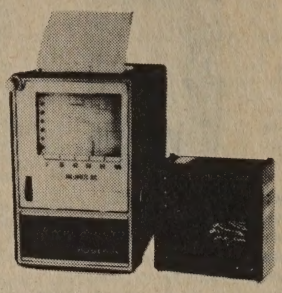
Rustrak Model 225 Humidity/Temperature Recorder—Net Each.....**$545.00**

Remote Cables—Permit remote operation of Model 225 recorder up to 100 feet from sensor. 25-foot Cable. Net Each...**$19.00**
50-foot Cable. Net...**$28.00** 100-foot Cable. Net... **43.00**

INSTRUMENT SECTION

CURRENT PRICES WILL APPLY ON ALL LINES

400A SERIES POTENTIOMETRIC RECORDERS



Continuous impression instrument records on pressure-sensitive paper. Offers basic sensitivity of 100 mV with ±1% full-scale accuracy. Features 2⅝" scale width; inkless writing; floating input; chart tear-off or reroll operation, easily interchanged. Standard chart speed is 1 inch per hour; changeable from ½" per hour to 240" per hour with optional gear boxes, listed below. Input resistance, 1 megohm minimum. 60 Hz rejection, 100 dB minimum. Finished in charcoal gray suede coating. Order chart paper listed below, with prefix "W" (WA, WB, etc.). Includes one roll of chart paper. Operates from 115 V, 60 Hz only; for DC operation, order Model 400ADC. Usable with all Add-A-Function Modules. Size, 3⅝" w. x 6" d. x 5⅝" h. Shipping Weight, 5 lbs.

Rustrak 400A Series Recorder—Net Each.....**$380.00**

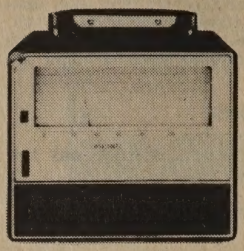
Rustrak 400ADC Series Recorder—With 12 VDC unregulated 2 RPM motor. Net Each.....**$615.00**

ADD-A-FUNCTION MODULES

Small solid-state modules plug into rear of Model 400A, 3400A, 4300A and 6400 Series recorders to change function, increase sensitivity or add ranges. No external power supply needed; no wiring required. Each module is interchangeable with any other in potentiometric series recorders. Supplied with recorder scale to match function.

Rustrak Type	Description or Range	Input Resis. or Freq.	Accuracy	Net Each
P4001	0–10 mV	10k	±0.5%	$290.00
P4004	0–50 mV	1 meg	±0.5%	242.00
P4005	0–10 VDC	50k	±0.5%	53.00
P4005	0–50 VDC	10k	±0.5%	53.00
P4005	0–100 VDC	10k	±0.5%	53.00
P4005	0–150 VDC	10k	±0.5%	53.00
P4005	0–500 VDC	10k	±0.5%	53.00
P4006	0–50 μA	5400 ohms	±0.5%	53.00
P4006	0–100 μA	4600 ohms	±0.5%	53.00
P4006	0–100 μA	1000 ohms	±0.5%	53.00
P4006	0–200 μA	2200 ohms	±0.5%	53.00
P4006	0–500 μA	200 ohms	±0.5%	53.00
P4006	0–1 mA	100 ohms	±0.5%	53.00
P4088R	0–150 VAC	60 Hz	±2%	75.00
P4088R	0–300 VAC	60 Hz	±2%	75.00
P4088R	0–600 VAC	60 Hz	±2%	75.00
P4093	75–135 VAC	60 Hz	±2%	91.00
P4093	150–270 VAC	60 Hz	±2%	91.00
P4093	300–540 VAC	60 Hz	±2%	91.00
P4186	100–130 VAC	60 Hz	±1 V	91.00
P4186	200–260 VAC	60 Hz	±2 V	91.00
P4186	400–520 VAC	60 Hz	±4 V	91.00
P4118	0–1 and 0–5 amps AC	.....	±2%	84.00

MODEL 6400 RECORDER



This new potentiometric recorder offers the same reliability and durability as the 2" Model 400A but features a 4" (100 mm) chart width. Specifications are the same as the 400A. Accepts full range of ADD-A-FUNCTION plug-in modules. Continuous inkless trace provides up to 30 day unattended operation.

Model 6400.....**$419.00**

Model 6400 DC
Inverted motor..... **814.00**
Unregulated motor..... **712.00**

DC Event Marker.....ea. **58.00**
1, 2, or 3 available. Specify 6, 12, 24 or 48 VDC

AC Event Marker.....ea. **76.00**
1, 2 or 3 available. Specify 6, 12, 24, 48, 115 or 230 VAC

Rack mountable
3176—19" panels..... **84.00**

Chart paper A100 mm.....roll **6.90**

ADD-A-FUNCTION MODULES (CON'T.)

Rustrak Type	Description or Range	Input Resis. or Freq.	Accuracy	Net Each
P4107S	0–10 thru 0–300 amps AC	60 Hz	±3%	$ 45.00
4107TS	Clamp-on transducer for use with P4107S	.....	.....	48.00
P4107L	0–100 thru 0–1000 amps AC	60 Hz	±3%	71.00
4107TL	Clamp-on transducer for use with P4107L	.....	.....	84.00
P4155A	T/C, specify type and range	.....	±2%	320.00
P4133	Thermistor, specify range	.....	±2%	147.00
P4144	Nickel wire, specify range	.....	±2.5%	147.00

Write for brochure on complete line.

ACCESSORIES

ACCESSORY GEAR BOXES

For quick change of chart speed on Rustrak recorders. When used with 2-rpm motor, gear box number equals chart speed (⅛ to 60 inches per hour). When used with Model 400A recorder, chart speed equals gear box number (⅛ to 60) times four (½ to 240, inches per hour). For other motor speeds, chart speed equals half of motor speed (rpm) times the gear box number.

Rustrak Gear Box—Specify number: ⅛, ¼, ½, 1, 2, 3, 4, 6, 10, 12, 15, 30, 45 or 60. Net Each.....**$11.00**

CHART PAPER IN 63-FOOT ROLLS

Rustrak No.	Description	Net Each
	200 SERIES PAPER	
WA	50 divisions	$4.80
WB	75 divisions	4.80
WC	65 divisions	4.80
WD	20-20 divisions	4.80
WE	4 or 8 events	4.80
WF	15-15 divisions	4.80
WG	20 divisions	4.80
WH	40 divisions	4.80
WI	30 divisions	4.80
WJ	4 cycle log	4.80
WK	60 divisions	4.80
WL	80 divisions	4.80
WM	3 cycle log	4.80
WN	50 divisions, 1 event	4.80
WP	Temperature/humidity	4.80
WQ	25, 100 and 300 amps	4.80
WR	150, 300 and 600 volts	4.80
C5873	Refrig. Temp. and Compressor on/off	4.80

Rustrak No.	Description	Net Each
	300 SERIES PAPER	
WA-A	50-50 divisions	$8.50
WA-EE	50 divisions. 8 events	8.50
WD-D	20-20/20-20 divisions	8.50
WD-EE	20-20 divisions, 8 events	8.50
16E	16 channels events	8.50
WGG	20-20 divisions	8.50
WII	30-30 divisions	8.50
WNN	50 divisions, 1 event per channel	8.50
	4300 SERIES PAPER	
WAAA	50-50-50 divisions	$14.00
WAAE	50-50 divisions, 8 events	14.00
24E	24 channels events	14.00
WDDD	20-20-20 divisions	14.00
WNNN	50 divisions, 1 event per channel	14.00
	6400 AND 7400 SERIES PAPER	
A100 MM	100 mm wide	$6.90

PRICES LISTED ARE FOR GUIDANCE ONLY

1″ and 1-1/2″ Panel Instruments

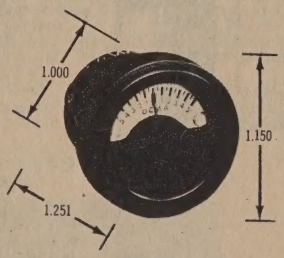
Designed for use in stationary, portable or airborne equipment where considerations of size, weight and high sensitivity require them.

Movement: D'Arsonval
Scale: black on white
Pointer: black lance type
Zero adjust: internal except 163 is external
Damping factor: 2 min.
Response time: 2 sec. max.
Accuracy: ±3% DC, ±5% AC
Terminals: solder lug
Standard ranges: over 30 AC and DC current and voltage ranges from 0-100 DCUA

SERIES 100

Scale length — .760″
Weight — 2 oz. approx.
-C designates commercial dust seal
-W designates water seal per MIL-M-10304
Also available as MR05 meters per MIL-M-10304

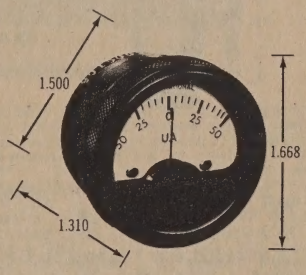
Bulletin IC-144



SERIES 150

Scale length — 1.25″
Weight — 4 oz. approx.
-C designates dust seal
-W designates water seal

Bulletin IC-120

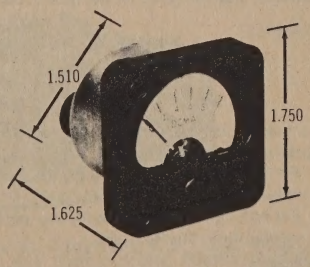


SERIES 163

Scale length — 1″
Weight — 4.2 oz. approx.

Also available as MR13 meters per MIL-M-10304

Bulletin IC-117



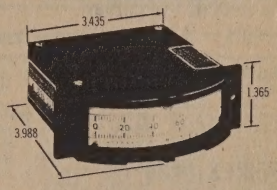
Electronic Control Meters

Every International Control Meter employs a D'Arsonval movement with a lightweight vane added to a rear extension of the meter pointer. A control signal is generated when this vane cuts the field of a pair of coils in the control circuit. The angular position of these coils, one an oscillator and the other a pickup coil, can be adjusted, from the front of the meter, by the setting of the set-point arm (or arms in the case of a double-set-point control meter).

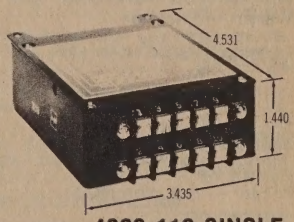
Simplicity and reliability characterize not only the mechanical structure and operation, but also the control circuitry, which is completely solid-state. An oscillator supplies a signal to the inductance coils, which feed a modulated output to a transistor amplifier. As the indicator vane cuts the field, the transistor becomes unbiased, switching to the conducting state to produce an output signal.

SERIES 2548

International Instrument's contactless electronic control meters provide continuous indication and control of virtually any quantity which can be represented by an electrical signal. Wide choice of current and voltage ratings, both AC and DC, or other special scales. Horizontal or vertical models. Also available as a complete pyrometer-controller (Model 2510), calibrated for use with thermocouples or thermistors.



Convenient plug-in module accepts meter signal, supplies power to control circuit, and produces final control outputs. Compact Power-Pac modules contain solid-state voltage-regulated power supply and load relays or other devices to drive the final control element. Other power supply models and accessories offer complete choice of control-circuit components to suit varying requirements.

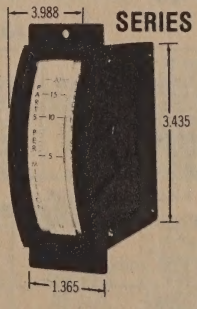


4000-110 SINGLE
4000-210 DUAL

A companion unit to the electronic control meter. Model 2500 indicating meter has similar performance characteristics, construction features, and appearance. The Model 2500, as with all others in the control line, has a bi-level anti-parallax scale.

Control meters and Model 2500 indicating meters are available with an interchangeable-scale as an extra-cost feature.

SERIES 2500



For complete information on all control products, see Bulletin IC-154.

To order two arm Electronic Control Meters follow the ordering instructions given for Edgewise Panel Instruments.

(For single-arm control meters only:)
A. For *low* control output from zero to set-point: add letter L
B. For *high* control output from set-point to full scale: add letter H
FINALLY, add full scale range, type of current, and units.

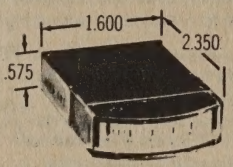
Edgewise Panel Instruments

Accuracy: ±2% for DC, ±3% for AC
except 1151/1251 — 1½% for DC, 2½% for AC
Response time: 2.5 sec. max. except 3 sec. 1146/1246
Damping factor: 2 min. except 1151/1251 5 min.
Dielectric strength: 500 V RMS
60 cps for 1 minute
except 1145 — 1500 V
1146/1246, 1151/1251 — 2600 V
Terminals: threaded stud type
except 1122, 1128 and 1140 solder post
Standard scale: black on white
Standard ranges: over 30 AC and DC current and voltage ranges.

SERIES 1122

Scale length — 1.24"
Pointer — red, lance type
Zero adjust — internal
Weight — 4 oz. max.

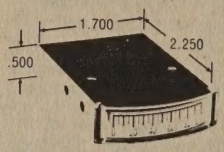
Bulletin IC-124



SERIES 1128

Scale length — 1.30"
Pointer — red, lance type
Zero adjust — internal
Weight — 4 oz. max.

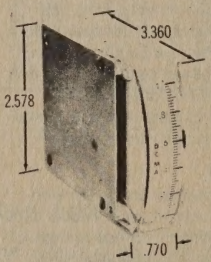
Bulletin IC-189



SERIES 1136

Scale length — 2.0"
Pointer — red, elongated delta type
Zero adjust — front external lever
Weight — 5 oz. max.

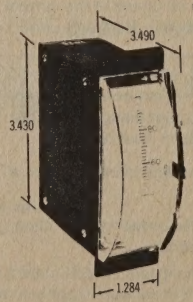
Bulletin IC-124



SERIES 1145

Scale length — 2.7"
Pointer — black target type
Zero adjust — front external lever
Weight — 9 oz. max.

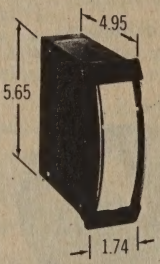
Bulletin IC-124



SERIES 1140

Scale length — 3.7"
Pointer — bar type
Zero adjust — internal
Weight — 6 oz. max.

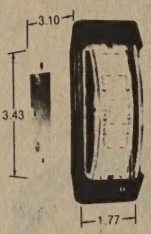
Bulletin IC-176



SERIES 1151 SINGLE
SERIES 1251 DUAL

Scale length — 4.5"
Pointer — red triangular type
Zero adjust — front ext. screw
Weight — 30 oz. max.

Bulletin IC-158



SERIES 1146 SINGLE
SERIES 1246 DUAL

Scale Length — 3.5"
Pointer — red triangular type
Zero adjust — front ext. screw
Weight — 10 oz. max.

Bulletin IC-182

First, specify Model No. Next,

A. For vertical-reading meters:
1. Add letter V
2. Then add letter T for zero top, C for zero center, B for zero bottom

B. For horizontal-reading meters:
1. Add letter H
2. Then add letter L for zero left, C for zero center, R for zero right

FINALLY, add full scale range, type of current and units.

EXAMPLE: **Model 1122 H L 100 DCUA**

Horizontal

Zero left **Range: 0-100 microamperes, DC**

For model 1251's and 1246's with two different ranges, specify each movement separately as follows:
1. For vertical meters, specify the left hand movement as viewed from the front-first
2. For horizontal meters, specify the upper movement as viewed from the front-first

EXAMPLE:

Model 1251 V – B 200 DCUA – C 100 DCUA

Vertical

Left hand meter
Range 0-200 DCUA

Right hand meter
Range 50-0-50 DCUA

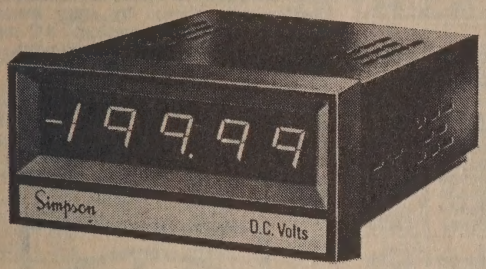
Left Hand Meter
Zero bottom

Right hand meter
Zero center

PRICES LISTED ARE FOR GUIDANCE ONLY

DIGITAL PANEL METERS

MODELS 2840, 2841

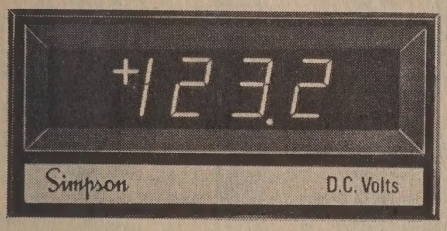


Self-contained, panel-mounting, 4¼ digit DPMS (19999 counts) readout, especially suited for system applications where extra 0.02% accuracy and 10μV resolution are needed. Solid-state integrated circuit electronics, with bright red 7 segment 0.43″ LED display, + and − indication, and fixed decimal point. Designed for 120/220/240 VAC 50-400, 4 VA operation. I/O edge connector included. **Accuracy** (at reference conditions): DC Voltage: + (0.003% of reading + 0.1 digit)/°C; DC Current: + (0.01% of reading + 0.1 digit)/°C. **Sensitivity:** 10μV for 200 mV unit; 10nA for 200μA unit. **Input Bias Current:** 100 pA max. at reference. **Normal Mode Rejection:** 60 dB min. at 60 Hz. **Common Mode Rejection:** 120 dB min. with 1000 ohm unbalanced at 60 Hz. **Dimensions:** 3.9″ wide x 1.93″ high x 4.27″ deep; panel cutout: 3.622″ x 1.68″. **Weight:** 1 lb.

Simpson Model No. 2840—Net Each..... **$189.45**

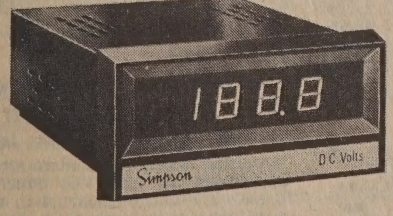
Simpson Model 2841—Also available with 5 VDC input in all ranges. Net Each..... **$189.45**

SERIES 2850



High reliability LSI circuitry and .55″ planar gas discharge or 0.43″ LED displays combine to provide digital panel meters with 0.1% of reading accuracy, automatic zero and polarity, 3½ digit readout, and BCD output. **Accuracy:** ±(0.1% of reading + 1 digit), from +15° C to +35° C. **Temperature Coefficient:** ± (0.01% of reading + 0.05 digit)/° C, from 0° C to +55° C. **Sensitivity:** 100μV for 200 mV unit, 10 nA for 20μA unit. **Resolution:** 1 part in 2000. **Operating Temperature Range:** 0° C to + 55° C. **Power Required:** Models 2850 & 2852, 120/240 VAC, 50-400 Hz, 4 VA; Models 2851 & 2853, 5 VDC ± 5%, 700 mA. **Size:** 3.9″ w. x 1.93″ h. x 4.27″ d. **Weight:** 1 lb. approx. **Panel Cutout:** Standard, 1.682″ x 3.622″; IEC/DIN, 1.77″ x 3.622″; other domestic, 1.682″ x 3.92″.

MODELS 2865, 2866



High performance at a low price, 7-segment, 0.43″ LED display with 0.1% reading accuracy. 3½ digit readout. Highly reliable LSI circuitry. Choice of 120/240 VAC, 50-400 Hz or 5 VDC operation. Input/output edge connector included. **Accuracy:** ±0.1% of reading +1 digit at reference conditions. **Temperature Coefficient:** ±0.01% of reading +0.05 digit per °C, from 0° C to 55° C. **Sensitivity:** 100 μV for 200 mV unit; 10 nA for 20 μA unit. **Resolution:** 1 part in 2,000. **Input Bias Current:** 100 pA max. at reference conditions. **Response Time:** Less than 800 msec. to rated accuracy. **Normal Mode Rejection:** 50 dB min. at 60 Hz. **Common Mode Rejection:** 90 dB min. with 1000 ohm unbalanced at 60 Hz. Automatic polarity with "−" indication. Decimal point fixed with range. **Operating Temperature Range:** 0° C to +55° C. **Power Requirements: Model 2865**—120 or 220 to 240 VAC ±10%, 50 to 400 Hz, 3 VA; **Model 2866**—5 VDC ±5% at 200 mA. **Size:** 3.9″ w. x 1.93″ h. x 4.27″ d. **Weight:** 1 lb. approx.

DC VOLTAGE

Range	Maximum Indication	Input Resistance μohm	Overload Protection	Model 2840
200 mV	+199.99 mV	100	250 V	24800
2 V	+1.9999 V	100	250 V	24801
20 V	+19.999 V	10	250 V	24802
200 V	+199.99 V	10	250 V	24803

DC CURRENT

Range	Maximum Indication	Voltage Drop	Max. I/I	Model 2840
200 μA	+199.99 μA	200 mV	20 mA	24804
2 mA	+1.9999 mA	200 mV	20 mA	24805
20 mA	+19.999 mA	200 mV	100 mA	24806
200 mA	+199.99 mA	200 mV	1 A	24807

DC VOLTAGE METERS

Range	Input Resis.	Overload Protection	Simpson No. Model 2850	Model 2851	Model 2852	Model 2853
±199.9 mV	>100 meg	350 V	22984	24101	24110	24119
±1.999 V	>100 meg	350 V	22976	24102	24111	24120
±19.99 V	10 meg	350 V	22977	24103	24112	24121
±199.9 V	10 meg	350 V	22978	24104	24113	24122

DC CURRENT METERS

Range	Voltage Drop, FS	Max. Input Curr.	Simpson No. Model 2850	Model 2851	Model 2852	Model 2853
±19.99 μA	200 mV	20 mA	22979	24105	24114	24123
±199.9 μA	200 mV	20 mA	22980	24106	24115	24124
±1.999 mA	200 mV	20 mA	22981	24107	24116	24125
±19.99 mA	200 mV	100 mA	22982	24108	24117	24126
±199.9 mA	200 mV	1 A	22983	24109	24118	24127

Simpson Model 2850—120/240 VAC input and .55″ gas discharge display. Complete with panel mtg. clips, edge connector and manual. Net each..... **$179.25**

Simpson Model 2851—5 VDC input and .55″ gas discharge display. Complete with panel mtg. clips, edge connector and manuals. Net Each..... **$179.25**

Simpson Model 2852—120/240 VAC input and .43″ LED display. Complete with panel mtg. clips, edge connector and manual. Net Each..... **$179.25**

Simpson Model 2853—5 VDC input and .43″ LED display. Complete with panel mtg. clips, edge connector and manual. Net Each..... **$179.25**

Simpson No. 22992—Adapter for IEC/DIN cutouts. Net Each..... **$4.50**

Simpson Model 22993—Adapter for domestic 1.682″ x 3.920″ cutouts. Net Each..... **$4.50**

Simpson Model 22991—Optional "U" type mtg. bracket. Net Each..... **$4.50**

Simpson No. 22990—Extra edge connector. Net Each... **$5.25**

DC VOLTAGE METERS

Range	Max. Indication	Input Resis.	Overload Protection	Simpson No. Model 2865	Model 2866
200 mV	±199.9 mV	100 meg	350 V	24500	24600
2 V	±1.999 V	100 meg	350 V	24501	24601
20 V	±19.99 V	10 meg	350 V	24502	24602
200 V	±199.9 V	10 meg	350 V	24503	24603

DC CURRENT METERS

Range	Max. Indication	Max. Input Current	Simpson No. Model 2865	Model 2866
20 μA	±19.99 μA	20 mA	20504	24604
200 μA	±199.0 μA	20 mA	24505	24605
2 mA	±1.999 mA	20 mA	24506	24606
20 mA	±19.99 mA	100 mA	24507	24607
200 mA	±199.9 mA	1 A	24508	24608

Simpson Model 2865—120/240 VAC input. Complete with panel mtg. clips, edge connector and manual. Net Each.... **$109.20**

Simpson Model 2866—5 VDC input. Complete with panel mtg. clips, edge connector and manual. Net Each..... **$96.30**

Simpson Model 22992—Adapter for IEC/DIN cutouts. Net Each..... **$4.50**

Simpson Model 22993—Adapter for domestic 1.682″ x 3.920″ cutouts. Net Each..... **$4.50**

Simpson Model 22991—Optional "U" type mtg. bracket. Net Each..... **$4.50**

Simpson Wide-Vue Panel Meters

INSTRUMENTS THAT STAY ACCURATE

Range	Approx. Resis., Ohms^	1½" Model 1212 Cat. No.	1½" Model 1212 Net Each	2½" Model 1227 Cat. No.	2½" Model 1227 Net Each	3½" Model 1327 Cat. No.	3½" Model 1327 Net Each	4½" Model 1329 Cat. No.	4½" Model 1329 Net Each
DC VOLTMETERS									
0–5		09540	$37.35	09550	$39.90	09720	$41.40	09870	$44.70
0–8		.....	.....	.....	.....	09730	41.40	09880	44.70
0–10		09541	37.35	09560	39.90	09740	41.40	09890	44.70
0–15	1000	09542	37.35	09570	39.90	09750	41.40	09900	44.70
0–25	Ohms	09543	37.35	09580	39.90	09760	41.40	09910	44.70
0–30	per	09544	37.35	09590	39.90	09770	41.40	09920	44.70
0–50	volt	09545	37.35	09600	39.90	09780	41.40	09930	44.70
0–100		09546	37.35	09610	39.90	09790	41.40	09940	44.70
0–150		09547	37.35	09620	39.90	09800	41.40	09950	44.70
0–200		.....	.....	09622	39.90	09810	41.40	09960	44.70
0–250		.....	.....	09623	39.90	09820	41.40	09970	44.70
0–300		.....	.....	09630	39.90	09830	41.40	09980	44.70
0–300	2000	09548	37.35	.....	.....	.....	.....	.....	.....
0–500	Ohms	09549*	46.20	09640	41.10	09840	43.20	09990	46.50
0–750	per	.....	.....	09650*	49.65	09850	43.20	10000	46.50
0–1000	volt	.....	.....	09660*	51.30	09860*	52.65	10010*	56.40
DC MILLIVOLTMETERS									
0–50	10	07005	$37.35	07010	$38.10	07020	$39.90	07030	$42.90
50–0–50	20	.....	.....	.....	.....	07021	39.90	07031	42.90
DC MILLIAMMETERS									
0–1	43	06163	$35.55	06175	$37.65	06310	$38.40	06470	$41.10
0–3	2	.....	.....	06180	37.65	06320	38.40	06480	41.10
0–5	2 (20)	06164	35.55	06190	37.65	06330	38.40	06490	41.10
0–10	10 (2.2)	06165	35.55	06200	37.65	06340	38.40	06495	41.10
0–15	6.6 (2.2)	06166	35.55	06210	37.65	06350	38.40	06502	41.10
0–20	5	.....	.....	06215	37.65	06360	38.40	06524	41.10
0–25	4 (6)	06167	37.35	06220	38.10	06370	39.90	06530	43.20
0–50	2 (3)	06168	37.35	06230	38.10	06380	39.90	06540	43.20
0–100	1 (1.5)	06169	37.35	06240	38.10	06390	39.90	06550	43.20
0–150	.66 (1)	06170	37.35	06250	38.10	06400	39.90	06560	43.20
0–200	.5 (.75)	06171	37.35	06260	38.10	06410	39.90	06570	43.20
0–250	.4 (.6)	06172	37.35	06270	38.10	06420	39.90	06580	43.20
0–300	.33 (.5)	06173	37.35	06280	38.10	06430	39.90	06590	43.20
0–500	.2 (.3)	06174	37.35	06290	38.10	06440	39.90	06600	43.20
0–750	.13	.....	.....	.....	.....	06450	39.90	06610	43.20
0–1000	.05	.....	.....	06292	38.10	06460	39.90	06620	43.20
DC AMMETERS									
0–1	.05	02431	$37.35	02440	$38.10	02640	$39.90	02820	$43.20
0–1.5	.033	.....	.....	02450	38.10	02650	39.90	02830	43.20
0–2	.025	02432	37.35	02460	38.10	02660	39.90	02840	43.20
0–3	.017	02433	37.35	02470	38.10	02670	39.90	02850	43.20
0–5	.01	02434	37.35	02480	38.10	02680	39.90	02860	43.20
0–10	.005	02435	37.35	02490	38.10	02690	39.90	02870	43.20
0–15	.003	02436†	37.35	02500	38.10	02700	39.90	02880	43.20
0–25	.002	02437†	37.35	02510	38.10	02710	39.90	02890	43.20
0–30	.0017	.....	.....	02520	38.10	02720	39.90	02900	43.20
0–50	.001	02438†	37.35	02530	38.10	02730	39.90	02910	43.20
0–100	10	.....	.....	02540†	38.10	02740†	39.90	02920†	43.20
0–150	10	.....	.....	02550†	38.10	02750†	39.90	02930†	43.20
0–200	10	.....	.....	02552†	38.10	02760†	39.90	02940†	43.20
0–300	10	.....	.....	02554†	38.10	02770†	39.90	02950†	43.20
0–500	10	.....	.....	.....	.....	02780†	39.90	02960†	43.20
10–0–15	.0033	.....	.....	.....	.....	02790	41.85	.....	.....
30–0–30	.0017	.....	.....	.....	.....	02800	41.85	.....	.....
50–0–50	.001	.....	.....	.....	.....	02810	41.85	.....	.....

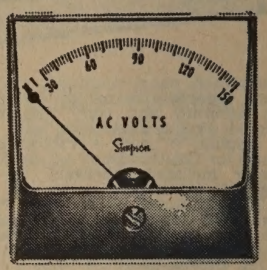
†50 mV movement requiring external shunt, not supplied; others self-contained.

Range	Approx. Imped. Ohms	1½" Model Not Available	2½" Model 1257 Cat. No.	2½" Model 1257 Net Each	3½" Model 1357 Cat. No.	3½" Model 1357 Net Each	4½" Model 1358 Cat. No.	4½" Model 1358 Net Each
DC MICROAMMETERS								
0–50	1800 (5500)		04294	$46.50	04310	$47.85	04380	$48.75	04480	$52.35
0–100	1800		04295	41.55	04320	43.20	04390	44.70	04490	49.65
0–200	1100		04296	37.95	04330	39.30	04400	41.10	04500	44.70
0–500	90 (190)		04297	37.35	04340	38.40	04410	40.35	04510	43.95
25–0–25	1800 (5500)		04298	46.95	.....	.....	04420	49.20	04520	52.65
50–0–50	1800		04302	41.85	04350	43.95	04430	44.70	04530	49.95
100–0–100	1100		04300	38.10	04351	39.90	04440	41.55	04540	45.30
500–0–500	43		04301	36.15	04352	37.95	04450	39.30	04550	41.55
AC VOLTMETERS—IRON-VANE TYPE								
0–5	33	.....	.....	.....	.....	.....	10160	$37.95	10260	$42.15
0–10	133	.....	.....	.....	09670	$36.15	10170	37.95	10270	42.15
0–15	300	.....	.....	.....	09675	36.15	10180	37.95	10280	42.15
0–25	833	.....	.....	.....	09680	36.15	10190	37.95	10290	42.15
0–50	3,333	.....	.....	.....	09690	36.15	10200	37.95	10300	42.15
0–100	16,666	.....	.....	.....	09695	37.35	10210	39.30	10310	42.15
0–150	25,000	.....	.....	.....	09700	37.95	10220	40.35	10320	43.20
0–250	41,166	.....	.....	.....	09705	37.95	10230	40.35	10330	43.20
0–300	50,000	.....	.....	.....	09710	37.95	10240	40.35	10340	43.20
0–500	83,333	.....	.....	.....	09715*	47.85	10250*	51.15	10350*	54.45

^Resistances of Model 1212 shown in parenthesis.

*External multiplier, Model 183, furnished; others self-contained.

Modern styling with durable, open face plastic cover for wide-angle readability and protection of meter face. DC meters have self-shielded meter movement (calibration not affected by stray magnetic fields or magnetic mounting). AC meters have iron-vane type movement. AC Milliammeters and Ammeters are calibrated for 25–800 Hz; Voltmeters are calibrated for use on 25–125 Hz; Wattmeters calibrated for either magnetic or non-magnetic panels and frequency range of 25–125 Hz. Other calibrations at frequencies up to 800 Hz, available on request.



SPECIFICATIONS

Size	Model	Accuracy Full Scale	Scale Length
1½"	1212, T	±2%	1.5"
	1214	±3%*	
2½"	1227, T	±2%	2.30"
	1247	±3%*	
	1257	±2%	
3½"	1327, T	±2%	3.14"
	1337	±2%	
	1347	±3%*	
	1357	±2%	
4½"	1329, T	±2%	3.93"
	1339	±2%	
	1349	±3%*	
	1359	±2%	
	1379	±2%	
8"	728T	±2%	6.9"

*At 25° C and 60 Hz sine wave.

DIMENSIONS

Size	Mtg. Hole	H. x W.	4 Mtg. Studs on
1½"	1.56" dia.	1.76" x 1.76"	1.32" ctrs. #4-40
2½"	2.22" dia.	2.47" x 2.47"	1.88" ctrs. #4-40
3½"	2.81" dia.	3.25" x 3.25"	2.24" ctrs. #4-40
4½"	2.81" dia.	4.00" x 4.68"	3.56" x 4" #6-32
8"	3" dia.	6.5" x 8"	4.5" x 6" #6-32

MOUNTING BEZEL AND ILLUMINATION KIT

FOR "WIDE-VUE" PANEL METERS

Mounting bezels add modern streamlined appearance to Wide-Vue panel meters. Groove and flange construction of diecast metal with satin black finish. For behind-panel mounting on panels ⅛" to 3/16" thick. With brackets, screws and template. Illumination kit is for 3½" and 4½" models.

Meter Size	For "Wide Vue" Models	Cat. No.	Net Each
3½"	1327, 1337, 1347, 1357	01253	$5.25
4½"	1329, 1339, 1349, 1359, 1379	01123	5.25
.....	Illum. Kit	01165	5.10

WIDE-VUE LISTING CONTINUED ON FOLLOWING PAGE

PRICES LISTED ARE FOR GUIDANCE ONLY

Simpson Wide-Vue Panel Meters

INSTRUMENTS THAT STAY ACCURATE

WIDE-VUE PANEL METERS (CONTINUED)

Range	Approx. Resis., Ohms*	1½" Model 1212T Cat. No.	1½" Model 1212T Net Each	2½" Model 1227T Cat. No.	2½" Model 1227T Net Each	3½" Model 1327T Cat. No.	3½" Model 1327T Net Each	4½" Model 1329T Cat. No.	4½" Model 1329T Net Each	8" Model 728T Cat. No.	8" Model 728T Net Each
TAUT-BAND DC MILLIAMMETERS											
0–1	10	.....	.....	.....	.....	.....	.....	.....	.....	11210	$69.95
TAUT-BAND DC MICROAMMETERS											
0–5	5750	.....	.....	.....	.....	04358	$90.00	04458	$95.85	.....	.....
0–10	4900	.....	.....	04303	$75.75	04359	79.20	04459	85.65	.....	.....
0–15	1960 (5000)	04601	$69.45	04304	69.45	04361	70.80	04461	76.95	.....	.....
0–25	1960 (5780)	04602	64.35	04306	65.85	04371	69.00	04471	74.70	.....	.....
0–50	960 (1600)	04603	51.00	04311	51.60	04381	52.65	04481	57.00	11201	$75.60
0–100	500	04604	45.30	04321	47.25	04391	48.75	04491	53.85	11203	73.50
0–200	234	04605	42.15	04331	44.25	04401	46.20	04501	51.00	.....	.....

*Resistances of Model 1212T shown in parenthesis.

Range	Approx. Imped Ohms	1½" Model Not Available		2½" Model 1257 Cat. No.	2½" Model 1257 Net Each	3½" Model 1357 Cat. No.	3½" Model 1357 Net Each	4½" Model 1359 Cat. No.	4½" Model 1359 Net Each
AC AMMETERS—IRON-VANE TYPE									
0–1	.213	.....	.....	02560	$34.50	03130	$36.15	03260	$38.25
0–1.5	.105	.....	.....	02570	34.50	03140	36.15	03270	38.25
0–2	.065	.....	.....	.....	.....	03150	36.15	03280	38.25
0–3	.028	.....	.....	02575	34.50	03160	36.15	03290	38.25
0–5	.008	.....	.....	02580	34.50	03170	36.15	03300	38.25
0–10	.004	.....	.....	02590	34.50	03180	36.15	03310	38.25
0–15	.0025	.....	.....	02599	34.50	03190	36.15	03320	38.25
0–25	.002	.....	.....	02609	35.55	03200	37.65	03330	39.90
0–30	.0015	.....	.....	02615	35.55	03205	37.65	03335	39.90
0–50	.001	.....	.....	02619	35.55	03210	37.65	03340	39.90
0–75	.0002	.....	.....	.....	.....	03215	40.35	03345	43.20
0–100	.008	.....	.....	02622#	34.50	03220#	36.15	03350#	38.25
0–150	.008	.....	.....	02624#	34.50	03230#	36.15	03360#	38.25
0–200	.008	.....	.....	02626#	34.50	03240#	36.15	03370#	38.25
0–300	.008	.....	.....	02627#	34.50	03250#	36.15	03380#	38.25

#Five ampere movement requiring external current transformer, not supplied; others self-contained.

Range	Approx. Resis., Ohms	3½" Model 1337 Cat. No.	3½" Model 1337 Net Each	4½" Model 1339 Cat. No.	4½" Model 1339 Net Each
RF AMMETERS					
0–1	.343	02970	45.30	03050	51.60
0–1.5	.2	02980	45.30	03060	51.60
0–2	.12	02990	45.30	03070	51.60
0–2.5	.1	03000	45.30	03080	51.60
0–3	.08	03010	45.30	03090	51.60
0–5	.045	03020	45.30	03100	51.60
0–8	.031	03030	45.30	03110	51.60
0–10	.023	03040	45.30	03120	51.60
RF MILLIAMMETERS					
0–500	.63	05362	53.70	05364	60.15

DUAL RANGE AC VOLTMETERS/AMMETERS

Range	Approx. Resis., Ohms	1½" Model Not Available		2½" Model 1257 Cat. No.	2½" Model 1257 Net Each	3½" Model 1357 Cat. No.	3½" Model 1357 Net Each	4½" Model 1359 Cat. No.	4½" Model 1359 Net Each
0–150 V, 0–5 A	15030, .021	.....	.....	.....	.....	03129	$51.30	03259	$54.60

AC MILLIAMMETERS—IRON-VANE TYPE

Range	Approx. Imped Ohms	1½" Model Not Available		2½" Model 1257 Cat. No.	2½" Model 1257 Net Each	3½" Model 1357 Cat. No.	3½" Model 1357 Net Each	4½" Model 1359 Cat. No.	4½" Model 1359 Net Each
0–10	1650	.....	.....	06294	$34.50	06625	$36.15	06665	$38.25
0–50	80	.....	.....	06295	34.50	06630	36.15	06670	38.25
0–100	17.2	.....	.....	06296	34.50	06640	36.15	06680	38.25
0–250	3.15	.....	.....	06297	34.50	06650	36.15	06690	38.25
0–500	.9	.....	.....	06300	34.50	06660	36.15	06699	38.25

WATTMETERS

Range	Range Volts	Max. Amps	4½" Model 1379 Cat. No.	4½" Model 1379 Net Each
DYNAMOMETER TYPE				
0–75	150	1	10960	$ 97.80
0–150	150	2	10970	97.80
0–300	150	4	10975	97.80
0–600	300	4	10980	103.95
0–750	150	10	10990	103.95
0–1500	300	10	11000	103.95
0–3000	300	20	11010	103.95
COMPENSATED TYPE				
0–10	300	.175	10930	$130.80
0–20	300	.400	10940	130.80

Range	Approx. Resis., Ohms	1½" Model 1214 Cat. No.	1½" Model 1214 Net Each	2½" Model 1247 Cat. No.	2½" Model 1247 Net Each	3½" Model 1347 Cat. No.	3½" Model 1347 Net Each	4½" Model 1349 Cat. No.	4½" Model 1349 Net Each
AC VOLTMETERS—RECTIFIER TYPE									
0–5		10011	$51.00	10015	$47.25	10020	$53.85	10090	$59.55
0–10	2000	10012	51.00	10016	47.25	10030	53.85	10100	59.55
0–15	Ohms	.....	.....	.....	.....	10040	53.85	10110	59.55
0–50	per	.....	.....	.....	.....	10050	53.85	10120	59.55
0–150	volt	10013	51.00	10017	47.25	10060	53.85	10130	59.55
0–300		10014	51.00	10018	47.25	10070	53.85	10140	59.55

DECIBEL METERS

Zero power level: 6 mW in 500-ohm line.

Range	Approx. Resis., Ohms	1½" Model 1214 Cat. No.	1½" Model 1214 Net Each	2½" Model 1247 Cat. No.	2½" Model 1247 Net Each	3½" Model 1347 Cat. No.	3½" Model 1347 Net Each	4½" Model 1349 Cat. No.	4½" Model 1349 Net Each
−10 to +6 dB	5000	.....	.....	03483	$52.35	03485	$55.80	03487	$57.45

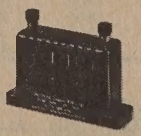
VOLUME LEVEL INDICATORS

Reference level: 1 mW in 600-ohm line.

Range	Approx. Resis., Ohms	1½" Model 1214 Cat. No.	1½" Model 1214 Net Each	2½" Model 1247 Cat. No.	2½" Model 1247 Net Each	3½" Model 1347 Cat. No.	3½" Model 1347 Net Each	4½" Model 1349 Cat. No.	4½" Model 1349 Net Each
A Scale	.....	10472	$56.40	10474	$62.40	10480	$63.45	10490	$69.45
B Scale	.....	.....	.....	.....	.....	10550	63.45	10560	69.45

Range	Sensitivity μA	1½" Model 1212 Cat. No.	1½" Model 1212 Net Each	2½" Model 1227 Cat. No.	2½" Model 1227 Net Each	3½" Model 1327 Cat. No.	3½" Model 1327 Net Each	4½" Model 1329 Cat. No.	4½" Model 1329 Net Each
DC GALVANOMETERS									
50–0–50	500–0–500	.....	.....	03700	$37.65	03730	$37.65	03732	$41.55
50–0–50	75–0–75	.....	.....	03710	40.35	03720	43.95	03734	47.85

MODEL 183 MULTIPLIERS



FOR AC VOLTMETERS

166 ohms/volt. Meter drop, 150 volts.

Cat. No.	Range, Volts	Resis., Ohms	Net Each
08562	0–500	58,333	$18.45
08563	0–600	75,000	20.70
08564	0–750	100,000	22.80
08565	0–1000	141,666	26.85

FOR DC VOLTMETERS

2000 ohms/volt. Meter sensitivity, 500μA.

Cat. No.	Range, Volts	Resis., Megs	Net Each
08552	0–500	1	$15.15
08553	0–750	1.5	15.75
08554	0–1000	2	15.75
08555	0–1250	2.5	15.75
08556	0–1500	3	17.25
08557	0–2000	4	17.25
08558	0–2500	5	17.70
08559	0–3000	6	17.70
08560	0–4000	8	18.60
08561	0–5000	10	20.55

Simpson Century Panel Meters

INSTRUMENTS THAT STAY ACCURATE

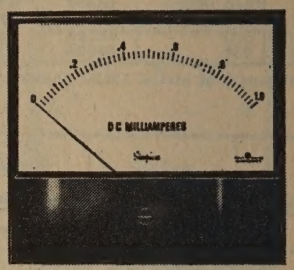
Range	Approx. Resis., Ohms	1½" Model 2121 Cat. No.	1½" Model 2121 Net Each	2½" Model 2122 Cat. No.	2½" Model 2122 Net Each	3½" Model 2123 Cat. No.	3½" Model 2123 Net Each	4½" Model 2124 Cat. No.	4½" Model 2124 Net Each
DC VOLTMETERS									
0–5		17840	$37.35	17445	$39.90	17525	$41.10	17618	$44.70
0–8		.....	.....	.....	.....	.....	.....	17619	44.70
0–10		17842	37.35	17446	39.90	17527	41.10	17620	44.70
0–15		17843	37.35	17447	39.90	17528	41.10	17621	44.70
0–25	1000	17844	37.35	17448	39.90	17529	41.10	17622	44.70
0–30	Ohms	17845	37.35	17449	39.90	17530	41.10	17623	44.70
0–50	per	17846	37.35	$7450	39.90	17531	41.10	17624	44.70
0–100	volt	17848	37.35	17451	39.90	17532	41.10	17625	44.70
0–150		17849	37.35	17452	39.90	17533	41.10	17626	44.70
0–200		.....	.....	.....	.....	17534	41.10	17627	44.70
0–250		.....	.....	.....	.....	17535	41.10	.....	.....
0–300		.....	.....	17455	39.90	17536	41.10	17629	44.70
0–300	2000	17850	37.35	.....	.....	.....	.....	.....	.....
0–500	Ohms	17851*	46.20	17456	41.10	17537	43.20	17630	46.50
0–750	per	.....	.....	.....	.....	17538	43.20	17631	46.50
0–1000	volt	.....	.....	17458*	51.30	17539*	52.65	17632*	56.40
*External multiplier, Model 183, furnished; others self-contained.									
DC MILLIVOLTMETERS									
0–50	10	.....	.....	17472	$38.10	17540	$39.90	17636	$43.20
50–0–50	20	.....	.....	.....	.....	17541	39.90	17635	43.20
DC AMMETERS									
0–1	.05	17800	$37.35	17400	$38.10	17475	$39.90	17565	$43.20
0–1.5	.033	.....	.....	17401	38.10	17476	39.90	.....	.....
0–2	.025	17801	37.35	17402	38.10	17477	39.90	17567	43.20
0–3	.017	17802	37.35	17403	38.10	17478	39.90	17568	43.20
0–5	.01	17803	37.35	17404	38.10	17479	39.90	17569	43.20
0–10	.005	17805	37.35	17405	38.10	17480	39.90	17570	43.20
0–15	.003	17806†	37.35	17406	38.10	17481	39.90	17571	43.20
0–25	.002	17807†	37.35	17407	38.10	17482	39.90	17572	43.20
0–30	.002	.....	.....	17408	38.10	17483	39.90	17573	43.20
0–50	.001	17808†	37.35	17409	38.10	17484	39.90	17574	43.20
0–100	10	.....	.....	17410†	38.10	17485†	39.90	17575†	43.20
0–150	10	.....	.....	.....	.....	17486†	39.90	17576†	43.20
0–200	10	.....	.....	17412†	38.10	17487†	39.90	17577†	43.20
0–300	10	.....	.....	.....	.....	17488†	39.90	17578†	43.20
0–500	10	.....	.....	.....	.....	17489†	39.90	17579†	43.20
15–0–15	.003	.....	.....	.....	.....	17490	41.85	.....	.....
30–0–30	.002	.....	.....	.....	.....	17491	41.85	.....	.....
†50 mV movement requiring external shunt, not supplied; others self-contained.									
DC MILLIAMMETERS									
0–1	43	17825	$35.55	17430	$37.65	17510	$38.40	17600	$41.10
0–3	2	.....	.....	17431	37.65	17511	38.40	17601	41.10
0–5	2	17826	35.55	17432	37.65	17512	38.40	17602	41.10
0–10	10	17827	35.55	17433	37.65	17513	38.40	17603	41.10
0–15	6.6	17828	35.55	17434	37.65	.....	.....	.....	.....
0–20	5	.....	.....	.....	.....	17515	38.40	.....	.....
0–25	4	17829	37.35	17436	38.10	17516	39.90	17606	43.20
0–50	2	17830	37.35	17437	38.10	17517	39.90	17607	43.20
0–100	1	17832	37.35	17438	38.10	17518	39.90	17608	43.20
0–150	.66	17833	37.35	17439	38.10	17519	39.90	17609	43.20
0–200	.5	17834	37.35	17440	38.10	17520	39.90	17610	43.20
0–250	.4	17835	37.35	17441	38.10	17521	39.90	17611	43.20
0–300	.33	17836	37.35	17442	38.10	17522	39.90	17612	43.20
0–500	.2	17837	37.35	17443	38.10	17523	39.90	17613	43.20
0–750	.13	.....	.....	.....	.....	17524	39.90	17614	34.20
0–1000	.05	.....	.....	17444	38.10	.....	.....	17615	43.20
DC MICROAMMETERS									
0–50	1800	17815	$46.50	17418	$47.85	17499	$48.75	17589	$52.35
0–100	1800	17816	41.55	17420	43.20	17501	44.70	17591	49.65
0–200	1100	17818	37.95	17422	39.30	17503	41.10	17593	44.70
0–500	90	17819	37.35	17424	38.40	17505	41.10	17595	43.95
25–0–25	1800	17820	46.95	.....	.....	17506	49.20	17596	52.65
50–0–50	1800	17821	41.85	17425	43.95	17507	44.70	17597	49.95
100–0–100	1100	17822	38.10	17426	39.90	17508	41.55	17598	45.30
500–0–500	43	17823	36.15	17427	37.95	17509	39.30	17599	41.55

Range	Sensitivity μA	1½" Model Not Available	2½" Model 2122 Cat. No.	2½" Model 2122 Net Each	3½" Model 2123 Cat. No.	3½" Model 2123 Net Each	4½" Model Not Available
DC GALVANOMETERS							
50–0–50	500–0–500	.....	17470	$37.65	17558	$39.30	.....
50–0–50	75–0–75	.....	.....	.....	17559	43.95	.....

Range	Approx. Resis., Ohms	1½" Model Not Available	2½" Model 2122T Cat. No.	2½" Model 2122T Net Each	3½" Model 2123T Cat. No.	3½" Model 2123T Net Each	4½" Model 2124T Cat. No.	4½" Model 2124T Net Each
TAUT BAND DC MICROAMMETERS								
0–5	5750	.....	.....	.....	17495	$90.00	17585	$95.85
0–10	4900	.....	17415	$75.75	17496	79.20	17586	85.65
0–15	1960	.....	17416	68.45	17497	70.80	17587	76.95
0–25	1960	.....	17417	65.85	17498	69.00	17588	74.70
0–50	960	.....	17419	51.60	17500	52.65	17590	57.00
0–100	500	.....	17421	47.25	17502	48.75	17592	53.85
0–200	234	.....	17423	44.25	.....	.....	17594	51.00

Range	Approx. Resis., Ohms	1½" Model 2141 Cat. No.	1½" Model 2141 Net Each	2½" Model 2142 Cat. No.	2½" Model 2142 Net Each	3½" Model 2143 Cat. No.	3½" Model 2143 Net Each	4½" Model 2144 Cat. No.	4½" Model 2144 Net Each
AC VOLTMETERS—RECTIFIER TYPE									
0–5		17855	$51.00	17460	$47.25	17542	$53.85	17640	$59.55
0–10	2000	17856	51.00	.....	.....	17543	53.85	17641	59.55
0–15	Ohms	.....	.....	.....	.....	17544	53.85	17642	59.55
0–50	per	.....	.....	.....	.....	17545	53.85	17643	59.55
0–150	volt	17860	51.00	17462	47.25	17546	53.85	17644	59.55
0–300		17861	51.00	.....	.....	.....	.....	17645	59.55

Century Series panel meters offer attractive design and easy reading. DC meters have self-shielded movements, with calibration unaffected by stray magnetic fields or magnetic mounting. AC meters have iron vane type movement. AC milliammeters and ammeters are calibrated for use on 25 through 800 Hz: AC voltmeters, 25–125 Hz. Calibration for frequencies up to 800 Hz available on request. **Flange Size:** 1½" meters. 1.75" sq.: 2½" meters, 2.38" sq.; 3½" meters, 3.00" sq.; 4½" meters, 4.66" x 4.20". **Depth Behind Panel:** 1.34" except 1½" meters, .90"; wattmeters, 1.75".



SPECIFICATIONS

Size	Model	Accuracy Full Scale	Scale Length
1½"	2121	±2%	1.25"
	2141	±3%	1.25"
2½"	2122	±2%	2.07"
	2122T	±2%	2.07"
	2142	±3%	2.07"
	2152	±2%	2.07"
3½"	2123	±2%	2.75"
	2123T	±2%	2.75"
	2143	±3%	2.75"
	2153	±2%	2.75"
	2133	±2%	2.75"
	2173	±2%	2.75"
4½"	2124	±2%	4.09"
	2124T	±2%	4.09"
	2144	±3%	4.09"
	2154	±2%	4.09"
	2134	±2%	4.09"
	2174	±2%	4.09"

DIMENSIONS

Size	Mtg. Hole	H. x W.	4 Mtg. Studs on
1½"	1.56" dia.	1.75" x 1.74"	1.32" ctrs. #4-40
2½"	2.22" dia.	2.38" x 2.38"	1.88" ctrs. #4-40
3½"	2.81" dia.*	3.00" x 3.00"	2.24" ctrs. #4-40
4½"	2.81" dia.*	4.20" x 4.66"	3.57" x 4" #6-32

*Except Models 2173, 2174, 2.75".

RF AMMETERS

Range	Approx. Imped., Ohms	2½" Model 2132 Cat. No.	2½" Model 2132 Net Each
0–1	.343	17905	$41.55
0–2	.12	17906	41.55
0–3	.08	17907	41.55
0–5	.045	17908	41.55
0–10	.023	17909	41.55

Range	Approx. Imped., Ohms	3½" Model 2133 Cat. No.	3½" Model 2133 Net Each
0–1	.343	.....	.....
0–2	.12	17552	$45.30
0–3	.08	17554	45.30
0–5	.045	17555	45.30
0–10	.023	17557	45.30

Range	Approx. Imped., Ohms	4½" Model 2134 Cat. No.	4½" Model 2134 Net Each
0–1	.343	17650	$51.60
0–2	.12	17652	51.60
0–3	.08	.....	.....
0–5	.045	.....	.....
0–10	.023	17657	51.60

PRICES LISTED ARE FOR GUIDANCE ONLY

CENTURY PANEL METERS (CONTINUED)

Range	Approx. Resis., Ohms	1½" Model 2141 Cat. No.	1½" Model 2141 Net Each	2½" Model 2142 Cat. No.	2½" Model 2142 Net Each	3½" Model 2143 Cat. No.	3½" Model 2143 Net Each	4½" Model 2144 Cat. No.	4½" Model 2144 Net Each
VOLUME LEVEL INDICATORS									
Reference level: 1 mW in 600-ohm line.									
A Scale	.....	17865	$56.40	17473	$62.40	17560	$63.45	17646	$69.45
A Scale♯	.....	.....	.....	.....	.....	.....	.....	17662	75.30
B Scale	.....	.....	.....	.....	.....	17561	63.45	17647	69.45
B Scale♯	.....	.....	.....	.....	.....	.....	.....	17663	75.30
DECIBEL METERS									
Zero power level: 6 mW in 500-ohm line.									
−10 to +6 dB	5000	.....	.....	17465	$52.35	17549	$55.80	17648	$57.45

♯Illuminated; 12 V, 120 mA lamps.

Range	Approx. Imped., Ohms	1½" Model Not Available		2½" Model 2152 Cat. No.	2½" Model 2152 Net Each	3½" Model 2153 Cat. No.	3½" Model 2153 Net Each	4½" Model 2154 Cat. No.	4½" Model 2154 Net Each
AC VOLTMETERS—IRON-VANE TYPE									
0–5	33	.....	.....	.....	.....	17725	$37.95	.....	.....
0–10	133	.....	.....	17685	$36.15	17726	37.95	17771	$42.15
0–15	300	.....	.....	17686	36.15	17727	37.95	17772	42.15
0–25	833	.....	.....	17687	36.15	17728	37.95	17773	42.15
0–50	3333	.....	.....	17688	36.15	17729	37.95	17774	42.15
0–100	16,666	.....	.....	.....	.....	17730	39.30	17775	42.15
0–150	25,000	.....	.....	17690	37.95	17731	40.35	17776	43.20
0–250	41,166	.....	.....	17691	37.95	17732	40.35	17777	43.20
0–300	50,000	.....	.....	17692	37.95	17733	40.35	17778	43.20
0–500	83,333	.....	.....	.....	.....	17734*	51.15	17779*	54.45
AC MILLIAMMETERS—IRON-VANE TYPE									
0–10	1650	.....	.....	17680	$33.75	.....	.....	17760	$38.25
0–50	80	.....	.....	17681	33.75	17716	$36.15	17761	38.25
0–100	17.2	.....	.....	17682	33.75	17717	36.15	17762	38.25
0–250	3.15	.....	.....	17683	33.75	17718	36.15	17763	38.25
0–500	.9	.....	.....	17684	33.75	17719	36.15	17764	38.25
AC AMMETERS—IRON-VANE TYPE									
0–1	.213	.....	.....	17665	$34.50	17695	$36.15	17740	$38.25
0–1.5	.105	.....	.....	17666	34.50	.....	.....	.....	.....
0–2	.065	.....	.....	.....	.....	17697	36.15	17742	38.25
0–3	.028	.....	.....	17667	34.50	17698	36.15	17743	38.25
0–5	.008	.....	.....	17668	34.50	17699	36.15	17744	38.25
0–10	.004	.....	.....	17669	34.50	17700	36.15	17745	38.25
0–15	.003	.....	.....	17670	34.50	17701	36.15	17746	38.25
0–25	.002	.....	.....	17671	35.55	17702	37.65	17747	39.90
0–30	.002	.....	.....	17672	35.55	17703	37.65	17748	39.90
0–50	.001	.....	.....	17673	35.55	17704	37.65	17749	39.90
0–75	.0002	.....	.....	.....	.....	17710	36.15	17755	43.20
0–100	.008	.....	.....	17674†	34.50	17706†	36.15	17751†	38.25
0–150	.008	.....	.....	.....	.....	17707†	36.15	17752†	38.25
0–200	.008	.....	.....	.....	.....	17708†	36.15	17753†	38.25
0–300	.008	.....	.....	.....	.....	17709†	36.15	17754	38.25

*External multiplier, Model 183, furnished; others self-contained.

†Five ampere movement requiring external current transformer, not supplied; others self-contained.

WATTMETERS
DYNAMOMETER TYPE

Range	Range Volts	Max. Amps	3½" Model 2173 Cat. No.	3½" Model 2173 Net Each	4½" Model 2174 Cat. No.	4½" Model 2174 Net Each
0–75	150	1	17881	$79.20	17896	$ 97.80
0–150	150	2	17882	79.20	17897	97.80
0–300	150	4	17883	79.20	17898	97.80
0–600	300	4	17884	85.80	17899	103.95
0–750	150	10	17885	85.80	17900	103.95
0–1500	300	10	17886	85.80	17901	103.95
0–3000	300	20	17887	85.80	17902	103.95

WATTMETERS
COMPENSATED TYPE

Range	Range Volts	Max. Amps	3½" Model 2173 Cat. No.	3½" Model 2173 Net Each	4½" Model 2174 Cat. No.	4½" Model 2174 Net Each
0–10	300	.175	17875	$125.55	17890	$130.80
0–20	300	.4	17876	125.55	17891	130.80
0–20	500	.175	17878	125.55	17892	130.80
0–30	300	.65	17877	125.55	17894	130.80
0–30	500	.3	17879	125.55	17895	130.80
0–50	500	.5	17880	125.55		

DUAL RANGE AC VOLTMETERS/AMMETERS

Ranges	Approx. Imped., Ohms	3½" Model 2153 Cat. No.	3½" Model 2153 Net Ea.	4½" Model 2154 Cat. No.	4½" Model 2154 Net Ea.
0-150 V, 0-5 A	15030, .021	17694	51.30	17739	54.60

MODEL 2100 4½" PORTABLE INSTRUMENT WITH BUILT-IN CENTURY SERIES METERS

Best suited for electric measurements in schools, labs and industry. Features large, easy to read scale, knife-edge pointer; non-fogging glass lens. Self-shielded DC and AC rectifier movements. Four color-coded, multi-range binding posts, one common and 3 for range selection. Rear hole permits mounting fuse holder; nylon plug covers hole when not in use. **Accuracy:** DC instruments, ±2% full-scale; AC instruments, ±3% full-scale. **Size:** 5.15" w. x 5.55" d. x 5.70" h.

Simpson Model 2100 Portable Instrument—Comes in white case with black and white panel. Built-in Century meters with following ranges are stock items.

Wide-Vue meters, other ranges available on special order.

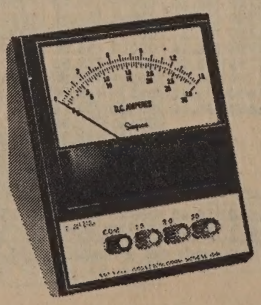
DC METERS

Cat. No.	Ranges	Net Each
17950	0–1.5–3–30 Amps	$ 59.40
17951	0–1–10–100 mA	59.40
17952	0–25–50–500 mA	59.40
17953	0–10–50–250 μA	113.85
17954	0–1.5–3–30 V	59.50
17955	0–10–25–100 V	61.05
17960	0–1K–100K ohms	66.90

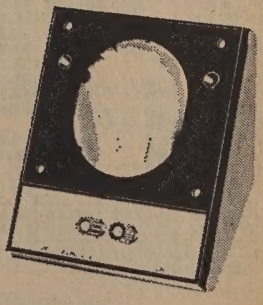
AC METERS

17956	0–3–15–150 V	$84.75
17957	0–30–150–300 V	84.75
17958	0–150–300–600 V*	78.45

*Moving iron vanetype; other AC meters rectifier type.



Model 2100



Model 2100 Case Kit

Simpson Model 2100, Catalog No. 17949 Case Kit—Case assembly for mounting a 4½" meter to meet specific needs. Includes case, panel assembly, legend overlay, two binding posts, nylon plug and hardware. Net Each.....$14.55

Simpson Panel Meters

INSTRUMENTS THAT STAY ACCURATE

RECTANGULAR AND ROUND PANEL METERS

ACCURACY AND SCALE LENGTH

DC meters and AC iron vane type meters, ±2% full scale; dB and rectifier types, ±3% full scale at 25° C, 60 Hz sine wave; VU meters per ANSI specs.

Size	Models	Scale	Size	Models	Scale
2½"	125, 125T, 127, 127T, 135, 137, 145, 147	1.8"	3½"	55, 57, 75, 77	2.3"
2½"	155, 157, 175, 177	1.6"	4½"	29, 29T, 39, 49, 142	3.8"
3½"	25, 25T, 27, 27T, 35, 37, 45, 47	2.5"	4½"	59, 79	3.5"

DC meters: All have self-shielded movement. Calibration not affected by strong magnetic fields or magnetic mounting.

AC meters: All have iron vane type movement. AC Milliammeters and Ammeters are calibrated for use on 25–800 Hz; all AC Voltmeters calibrated for use on 25–125 Hz. Wattmeters have dynamometer movement for magnetic or non-magnetic panels; calibrated for 25–125 Hz. AC Voltmeters available for other frequencies; specify and request prices. **Note**—Special dials are available for substitution; write for availability and prices before ordering.

DIMENSIONS

Model	Size, Inches
127, 127T, 137, 147, 157	2.37 sq.; body, 2.17 dia. x 1.45 d.
177	2.37 sq.; body, 2.17 dia. x 2.02 d.
125, 125T, 135, 145, 155	Flange, 2.69 dia.; body, 2.17 dia. x 1.39 d.
175	Flange, 2.69 dia.; body, 2.17 dia. x 1.98 d.
27, 27T, 37, 47	3 w. x 3.12 h.; body, 2.75 dia. x 1.36 d.
57	3 w. 3.12 h.; body, 2.75 dia. x 1.45 d.
77	3 w. x 3.12 h.; body, 2.75 dia. x 2.11 d.
25, T, 35, 45, 55	Flange, 3.5 dia.; body, 2.75 dia. x 1.31 d.
75	Flange, 3.5 dia.; body, 2.75 dia. x 2.06 d.
29, 29T, 39, 49	4.66 w. x 4.2 h.; body, 2.75 dia. x 1 d.
59	4.66 w. x 4.2 h.; body, 2.75 dia. x 1.09 d.
79	4.66 w. x 4.2 h.; body, 2.75 dia. x 1.68 d.
142	4.25 w. x 3.94 h.; body, 3.25 dia. x 1 d.

Range	Approx. Resis., Ohms	2½" Case Styles: Round Model 125 Cat. No.	Round Model 125 Net Each	Square Model 127 Cat. No.	Square Model 127 Net Each	3½" Case Styles: Round Model 25 Cat. No.	Round Model 25 Net Each	Square Model 27 Cat. No.	Square Model 27 Net Each	4½" Case Styles Rectangular Model 29 Cat. No.	4½" Case Styles Rectangular Model 29 Net Each
DC VOLTMETERS											
0–1.5		08850	$39.90	09020	$39.90	.....	.....	07290	$41.10	07620	$44.70
0–3		.....	.....	09030	39.90	07070	$41.10	07300	41.10	07630	44.70
0–5		08870	39.90	09040	39.90	07080	41.10	07310	41.10	07640	44.70
0–8		.....	.....	09050	39.90	.....	.....	.....	.....	07650	44.70
0–10		08890	39.90	09060	39.90	07100	41.10	07330	41.10	07660	44.70
0–15	1000	08900	39.90	09080	39.90	07110	41.10	07350	41.10	07670	44.70
0–25	Ohms	08910	39.90	09090	39.90	07120	41.10	07360	41.10	07680	44.70
0–30	per	08920	39.90	09100	39.90	07130	41.10	07370	41.10	07690	44.70
0–50	volt	08930	39.90	09110	39.90	07140	41.10	07380	41.10	07700	44.70
0–100		08940	39.90	09130	39.90	07150	41.10	07400	41.10	07710	44.70
0–150		08950	39.90	09140	39.90	07160	41.10	07410	41.10	07720	44.70
0–200		08960	39.90	09160	39.90	07170	41.10	07430	41.10	07730	44.70
0–250		08970	39.90	09170	39.90	07180	41.10	07440	41.10	07740	44.70
0–300		.....	.....	09180	39.90	07190	41.10	07450	41.10	07750	44.70
0–500		.....	.....	09200	41.10	07200	43.20	07470	43.20	07760	46.50
0–750		.....	.....	.....	.....	07210	43.20	07490	43.20	07770	46.50
0–1000		.....	.....	.....	.....	07220*	52.65	07495*	52.65	07780*	56.40
0–1500	2000	.....	.....	.....	.....	.....	.....	07520*	52.65	07790*	57.15
0–2000	Ohms	.....	.....	09225*	51.15	07240*	54.60	07530*	54.60	07800*	58.20
0–2500	per	.....	.....	.....	.....	.....	.....	07550*	55.20	07810*	59.25
0–3000	volt	.....	.....	.....	.....	07260*	56.25	07560*	56.25	07820*	59.70
0–4000		.....	.....	.....	.....	.....	.....	.....	.....	07830*	60.15
0–5000		.....	.....	.....	.....	07280*	57.45	07600*	57.45	07840*	63.15

*External multiplier, Model 183, furnished; others self-contained.

Range	Approx. Resis., Ohms	Round Model 125 Cat. No.	Round Model 125 Net Each	Square Model 127 Cat. No.	Square Model 127 Net Each	Round Model 25 Cat. No.	Round Model 25 Net Each	Square Model 27 Cat. No.	Square Model 27 Net Each	Rectangular Model 29 Cat. No.	Rectangular Model 29 Net Each
DC MILLIVOLTMETERS											
0–50	10	06970	$38.10	06990	$38.10	06910	$39.90	06930	$39.90	06950	$43.20
0–100	20	.....	.....	.....	.....	.....	.....	06940	39.90	06960	43.20
DC AMMETERS											
0–1	.05	01460	$38.10	01680	$38.10	00005	$39.90	00230	$39.90	00450	$43.20
0–1.5	.033	.....	.....	01690	38.10	.....	.....	00240	39.90	00460	43.20
0–2	.025	.....	.....	01709	38.10	00030	39.90	00250	39.90	00470	43.20
0–3	.017	01490	38.10	01710	38.10	00040	39.90	00260	39.90	00480	43.20
0–5	.01	01500	38.10	01720	38.10	00050	39.90	00270	39.90	00490	43.20
0–10	.005	01510	38.10	01730	38.10	00060	39.90	00280	39.90	00500	43.20
0–15	.003	01520	38.10	01740	38.10	00070	39.90	00290	39.90	00512	43.20
0–25	.002	01530	38.10	01750	38.10	00080	39.90	00300	39.90	00520	43.20
0–30	.0017	01540	38.10	01760	38.10	00090	39.90	00310	39.90	00530	43.20
0–50	.001	01550	38.10	01770	38.10	00099	39.90	00320	39.90	00540	43.20
0–75	10	01560†	38.10	01780†	38.10	00110†	39.90	00330†	39.90	00550†	43.20
0–100	10	01570†	38.10	01790†	38.10	00120†	39.90	00340†	39.90	00560†	43.20
0–150	10	01580†	38.10	01800†	38.10	00130†	39.90	00350†	39.90	00570†	43.20
0–200	10	01590†	38.10	01810†	38.10	00140†	39.90	.....	.....	00580†	43.20
0–250	10	.....	.....	.....	.....	00151†	39.90	.....	.....	00590†	43.20
0–300	10	01610†	38.10	.....	.....	00160†	39.90	00380†	39.90	00600†	43.20
0–500	10	01620†	38.10	.....	.....	00170†	39.90	00390†	39.90	00610†	43.20
0–750	10	.....	.....	.....	.....	00177†	39.90	00400†	39.90	00620†	43.20
0–1000	10	.....	.....	.....	.....	00188†	39.90	00410†	39.90	00630†	43.20
15–0–15	.0033	.....	.....	.....	.....	00200	41.85	.....	.....	00640	44.10
30–0–30	.0017	01660	38.40	01880	38.40	00210	41.85	00430	41.85	00650	44.10
50–0–50	.001	01670	38.40	01890	38.40	00220	41.85	00440	41.85	00660	44.10

†50 mV movement calibrated for 5 foot leads and external shunt, not supplied; others self-contained.

RECTIFIER TYPE AC METERS

Available only in 3½" and 4½" case styles.

Range	3½" Case Styles: Round Model 45 Cat. No.	Round Model 45 Net Each	Square Model 47 Cat. No.	Square Model 47 Net Each
AC MILLIAMMETERS				
0–1	06820	$51.60	06850	$51.60
0–2	.....	.....	.....	.....
0–5	06840	51.60	06870	51.60
AC MICROAMMETERS				
0–100	04080	$59.55	04120	$59.55
0–300	.....	.....	04140	51.60
0–500	.....	.....	04150	51.30
AC VOLTMETERS				
2000 ohms/volt.				
0–1	.....	.....	08120	$53.85
0–3	.....	.....	08130	53.85
0–100	.....	.....	08180	53.85
0–150	08010	$53.85	08190	53.85

Range	4½" Case Style: Rectangular Model 49 Cat. No.	Rectangular Model 49 Net Each
AC MILLIAMMETERS		
0–1	06880	$56.40
0–5	06900	56.40
AC MICROAMMETERS		
0–100	04160	$63.30
0–200	04170	57.45
0–300	04180	56.40
0–500	04190	55.20
AC VOLTMETERS		
2000 ohms/volt.		
0–1	08300	$59.55
0–3	08310	59.55
0–5	08320	59.55
0–10	08330	59.55
0–15	08340	59.55
0–50	08350	59.55
0–100	08360	59.55
0–150	08370	59.55
0–300	08371	59.55

LISTING CONTINUED ON FOLLOWING PAGE

PRICES LISTED ARE FOR GUIDANCE ONLY

Simpson Panel Meters

INSTRUMENTS THAT STAY ACCURATE

RECTANGULAR AND ROUND PANEL METERS (CONT'D)

Range	Approx. Resis., Ohms	2½" Case Styles: Round Model 125 Cat. No.	Round Model 125 Net Each	Square Model 127 Cat. No.	Square Model 127 Net Each	3½" Case Styles: Round Model 25 Cat. No.	Round Model 25 Net Each	Square Model 27 Cat. No.	Square Model 27 Net Each	4½" Case Styles Rectangular Model 29 Cat. No.	Rectangular Model 29 Net Each
DC MICROAMMETERS											
0–50	1800	04210	$47.85	04260	$47.85	03760	$48.75	03860	$48.75	03960	$52.35
0–100	1800	04220	43.20	04270	43.20	03770	44.70	03870	44.70	03970	49.65
0–200	1100	04230	39.30	04280	39.30	03780	41.10	03880	41.10	03980	44.70
0–500	90	04240	38.40	.....	.....	03790	40.35	03890	40.35	03990	43.95
25–0–25	1800	.....	.....	04243	49.65	.....	.....	03900	49.20	04000	52.65
50–0–50	1800	04194	43.95	04245	43.95	03810	44.70	03910	44.70	04010	49.95
100–0–100	1100	04196	39.90	04247	39.90	03820	41.55	03920	41.55	04020	45.30
500–0–500	43	.....	.....	.....	.....	03830	37.65	03930	37.65	04030	41.55

Range	Approx. Resis., Ohms	2½" Case Styles: Round Model 125T Cat. No.	Round Model 125T Net Each	Square Model 127T Cat. No.	Square Model 127T Net Each	3½" Case Styles: Round Model 25T Cat. No.	Round Model 25T Net Each	Square Model 27T Cat. No.	Square Model 27T Net Each	4½" Case Styles Rectangular Model 29T Cat. No.	Rectangular Model 29T Net Each
TAUT BAND DC MICROAMMETERS											
0–5	5750	.....	.....	.....	.....	03738	$90.00	03838	$90.00	03938	$96.15
0–10	4900	04197	$75.75	04246	$75.75	.....	.....	03839	79.20	03939	85.65
0–15	1960	.....	.....	04248	69.45	03741	70.80	03841	70.80	03941	76.95
0–25	1960	04201	65.85	04251	65.85	03751	69.00	03851	69.00	03951	74.70
0–50	960	04211	51.60	04261	51.60	03761	52.65	03861	52.65	03961	57.00
0–100	500	.....	.....	.....	.....	03771	48.75	03871	48.75	03971	53.85

Range	Approx. Resis., Ohms	2"½ Case Styles: Round Model 125 Cat. No.	Round Model 125 Net Each	Square Model 127 Cat. No.	Square Model 127 Net Each	3½" Case Styles: Round Model 25 Cat. No.	Round Model 25 Net Each	Square Model 27 Cat. No.	Square Model 27 Net Each	4½" Case Styles Rectangular Model 29 Cat. No.	Rectangular Model 29 Net Each
DC MILLIAMMETERS											
0–1	43	05580	$37.65	05760	$37.65	04610	$38.40	04790	$38.40	05070	$41.10
0–1.5	43	.....	.....	.....	.....	04620	38.40	04810	38.40	05080	41.10
0–3	2	.....	.....	05790	37.65	.....	.....	04820	38.40	05090	41.10
0–5	2	05610	37.65	05800	37.65	04640	38.40	04830	38.40	05100	41.10
0–10	10	05620	37.65	05810	37.65	04650	38.40	04840	38.40	05110	41.10
0–15	6.6	05630	37.65	05830	37.65	04660	38.40	04860	38.40	05120	41.10
0–20	5	.....	.....	.....	.....	.....	.....	04880	38.40	05130	41.10
0–25	4	05650	38.10	05860	38.10	04680	39.90	04890	39.90	05140	43.20
0–50	2	.....	.....	05880	38.10	04690	39.90	04910	39.90	05150	43.20
0–75	1.3	05670	38.10	.....	.....	.....	.....	.....	.....	.....	.....
0–100	1	05680	38.10	05910	38.10	04710	39.90	04940	39.90	05170	43.20
0–150	.66	05690	38.10	05930	38.10	04720	39.90	04960	39.90	05180	43.20
0–200	.5	05700	38.10	05940	38.10	04730	39.90	04980	39.90	05190	43.20
0–250	.4	05710	38.10	.....	.....	.....	.....	05000	39.90	05200	43.20
0–300	.33	.....	.....	.....	.....	04750	39.90	05010	39.90	05210	43.20
0–500	.2	05730	38.10	05990	38.10	04760	39.90	05030	39.90	05220	43.20
0–750	.13	.....	.....	.....	.....	.....	.....	05050	39.90	05230	43.20
0–1000	.05	.....	.....	06020	38.10	04780	39.90	05060	39.90	05240	43.20

Range	Imped., Ohms	2½" Case Styles: Round Model 155 Cat. No.	Round Model 155 Net Each	Square Model 157 Cat. No.	Square Model 157 Net Each	3½" Case Styles: Round Model 55 Cat. No.	Round Model 55 Net Each	Square Model 57 Cat. No.	Square Model 57 Net Each	4½" Case Styles Rectangular Model 59 Cat. No.	Rectangular Model 59 Net Each
AC VOLTMETERS—IRON-VANE TYPE											
0–1.5	3	.....	.....	.....	.....	.....	.....	.....	.....	08710	$42.15
0–3	12	.....	.....	.....	.....	.....	.....	08540	$37.95	08720	42.15
0–5	33	.....	.....	09390	$36.15	08410	$37.95	08550	39.00	08730	42.15
0–10	133	.....	.....	09400	36.15	08420	37.95	08566	37.95	08740	42.15
0–15	300	.....	.....	09420	36.15	08430	37.95	08580	37.95	08750	42.15
0–25	833	.....	.....	09440	36.15	08440	37.95	08599	37.95	08760	42.15
0–50	3333	09290	$36.15	09450	36.15	08450	37.95	08610	37.95	08770	42.15
0–100	16,666	.....	.....	09460	37.35	08460	39.30	08620	39.30	08780	43.20
0–150	25,000	09310	37.95	09470	37.95	08470	40.35	08630	40.35	08790	44.10
0–250	41,166	09320	37.95	09490	37.95	08480	40.35	08650	40.35	08800	44.10
0–300	50,000	09330	37.95	09500	37.95	08490	40.35	08660	40.35	08810	43.20
0–500	83,333	09340*	47.85	09520*	47.85	08500*	51.15	08680*	51.15	08820*	54.45
0–750	125,000	.....	.....	.....	.....	08510*	51.15	08690*	51.15	08830*	59.25
0–1000	166,666	.....	.....	.....	.....	.....	.....	08700*	59.25	08840*	60.90

*External multiplier, Model 183, furnished; others self-contained.

AC MILLIAMMETERS—IRON-VANE TYPE

0–10	1650	.....	.....	.....	.....	.....	.....	05440	$36.15	05510	$38.25
0–15	887	.....	.....	.....	.....	05380	$36.15	05460	36.15	.....	.....
0–25	270	.....	.....	.....	.....	.....	.....	05470	36.15	05530	38.25
0–50	80	.....	.....	06130	$34.50	05400	36.15	05480	36.15	05540	38.25
0–100	17.2	.....	.....	06140	34.50	05410	36.15	05490	36.15	05550	38.25
0–250	3.15	06080	$34.50	06150	34.50	05420	36.15	05499	36.15	05560	38.25
0–500	.9	.....	.....	06152	34.50	05430	36.15	05500	36.15	05570	38.25

DC GALVANOMETERS

Dial scales calibrated 50–0–50, but with sensitivities as listed.

Sensitivity μA	2½" Case Styles: Round Model 125 Cat. No.	Round Model 125 Net Each	Square Model 127 Cat. No.	Square Model 127 Net Each
500–0–500	03670	$37.65	03690	$37.65
75–0–75	.....	.....	03680	40.35

Sensitivity μA	3½" Case Styles: Round Model 25 Cat. No.	Round Model 25 Net Each	Square Model 27 Cat. No.	Square Model 27 Net Each
500–0–500	03630	$39.30	03650	$39.30
75–0–75	.....	.....	03640	43.95

Sensitivity μA	4½" Case Styles: Round Model 29 Cat. No.	Round Model 29 Net Each
500–0–500	03654	$41.55
75–0–75	03652	47.85

RF AMMETERS

Range	2½" Case Styles: Round Model 135 Cat. No.	Round Model 135 Net Each	Square Model 137 Cat. No.	Square Model 137 Net Each
0–1	01901	$41.55	01980	$41.55
0–1.5	01910	41.55	02000	41.55
0–2	.....	.....	02010	41.55
0–2.5	01930	41.55	.....	.....
0–3	01940	41.55	02040	41.55
0–5	01950	41.55	02060	41.55
0–8	.....	.....	02080	41.55
0–10	.....	.....	02090	41.55

Range	3½" Case Styles: Round Model 35 Cat. No.	Round Model 35 Net Each	Square Model 37 Cat. No.	Square Model 37 Net Each
0–1	00670	$45.30	00750	$45.30
0–1.5	.....	.....	00770	45.30
0–2	.....	.....	00780	45.30
0–2.5	.....	.....	00800	45.30
0–3	00710	45.30	00810	45.30
0–5	00720	45.30	00830	45.30
0–8	.....	.....	00850	45.30
0–10	00736	45.30	00860	45.30

Range	4½" Case Styles: Rectangular Model 39 Cat. No.	Rectangular Model 39 Net Each
0–1	00870	$51.60
0–1.5	00880	51.60
0–2	00890	51.60
0–2.5	00900	51.60
0–3	00910	51.60
0–5	00920	51.60
0–8	00930	51.60
0–10	00940	51.60

RF MILLIAMMETERS

Range	3½" Case Styles: Round Model 35 Cat. No.	Round Model 35 Net Each	Square Model 37 Cat. No.	Square Model 37 Net Each
0–115	.....	.....	05290	$81.15
0–150	05260	$53.70	05300	53.70
0–250	05270	53.70	05310	53.70
0–500	05280	53.70	05320	53.70

Range	4½" Case Styles: Rectangular Model 39 Cat. No.	Rectangular Model 39 Net Each
0–115†	05330	$85.20
0–150	05340	60.15
0–250	05350	60.15
0–500	05360	60.15

†0–100 uniformly divided scale.

LISTING CONTINUED ON FOLLOWING PAGE

Simpson Panel Meters

INSTRUMENTS THAT STAY ACCURATE

RECTANGULAR AND ROUND PANEL METERS (CONT'D)

Range	Imped., Ohms	2½" Case Styles: Round Model 155 Cat. No.	2½" Case Styles: Round Model 155 Net Each	2½" Case Styles: Square Model 157 Cat. No.	2½" Case Styles: Square Model 157 Net Each	3½" Case Styles: Round Model 55 Cat. No.	3½" Case Styles: Round Model 55 Net Each	3½" Case Styles: Square Model 57 Cat. No.	3½" Case Styles: Square Model 57 Net Each	4½" Case Styles Rectangular Model 59 Cat. No.	4½" Case Styles Rectangular Model 59 Net Each
AC AMMETERS—IRON-VANE TYPE											
0–1	.213	02100	$34.50	02270	$34.50	00950	$36.15	01120	$36.15	01290	$38.25
0–1.5	.105	.....	.....	.....	.....	00960	36.15	01130	36.15	01302	38.25
0–2	.065	02120	34.50	02290	34.50	00970	36.15	01140	36.15	01310	38.25
0–3	.028	02130	34.50	02300	34.50	00980	36.15	01145	36.15	01320	38.25
0–5	.008	02140	34.50	02310	34.50	00990	36.15	01160	36.15	01330	38.25
0–10	.004	02150	34.50	02320	34.50	01001	36.15	01170	36.15	01340	38.25
0–15	.0025	02160	34.50	02330	34.50	01010	36.15	01180	36.15	01350	38.25
0–25	.002	02170	35.55	02340	35.55	01020	37.65	01190	37.65	01360	39.90
0–30	.0015	02180	35.55	02350	35.55	02030	37.65	01200	37.65	01370	39.90
0–50	.001	02190	35.55	02360	35.55	01040	37.65	01210	37.65	01380	39.90
0–75	.0002	.....	.....	.....	.....	03432	40.35	03434	40.35	03436	43.20
0–75	.008	02200#	34.50	02370#	34.50	.....	.....	.....	.....	.....	.....
0–100	.008	02210#	34.50	02380#	34.50	01060#	36.15	01230#	36.15	01400#	38.25
0–150	.008	02220#	34.50	02390#	34.50	01070#	36.15	01240#	36.15	01410#	38.25
0–200	.008	.....	.....	.....	.....	01080#	36.15	01250#	36.15	01420#	38.25
0–250	.008	02240#	34.50	02410#	34.50	01090#	36.15	01260#	36.15	01430#	38.25
0–300	.008	.....	.....	02420#	34.50	01100#	36.15	01270#	36.15	01440#	38.25
0–500	.008	02260#	34.50	02422#	34.50	01110#	36.15	01280#	36.15	01450#	38.25

#5 ampere movement requiring external current transformer, not supplied; others self-contained.

Range	Max. Volts	Max. Amps	2½" Case Styles: Round Model 175 Cat. No.	2½" Case Styles: Round Model 175 Net Each	2½" Case Styles: Square Model 177 Cat. No.	2½" Case Styles: Square Model 177 Net Each	3½" Case Styles: Round Model 75 Cat. No.	3½" Case Styles: Round Model 75 Net Each	3½" Case Styles: Square Model 77 Cat. No.	3½" Case Styles: Square Model 77 Net Each	4½" Case Styles Rectangular Model 79 Cat. No.	4½" Case Styles Rectangular Model 79 Net Each
WATTMETERS—DYNAMOMETER TYPE												
0–75	150	1	.....	.....	10860	$75.30	.....	.....	10650	$79.20	10720	$97.80
0–150	150	2	.....	.....	.....	.....	.....	.....	.....	.....	10730	97.80
0–300	150	4	.....	.....	.....	.....	10600	$79.20	.....	.....	10740	97.80
0–600	300	4	.....	.....	.....	.....	.....	.....	10680	85.80	10750	103.95
0–750	150	10	.....	.....	10900	82.35	.....	.....	10690	85.80	10760	103.95
0–1500	300	10	.....	.....	10910	82.35	.....	.....	10700	85.80	10770	103.95
0–3000	300	20	.....	.....	10920	82.35	.....	.....	10710	85.80	10780	103.95
WATTMETERS—COMPENSATED TYPE												
0–10	300	.175	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
0–20	330	.4	.....	.....	.....	.....	.....	.....	.....	.....	10714	130.80
0–30	500	.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

VOLUME LEVEL INDICATORS

Range	3½" Case Styles: Round Model 45 Cat. No.	3½" Case Styles: Round Model 45 Net Each	3½" Case Styles: Square Model 47 Cat. No.	3½" Case Styles: Square Model 47 Net Each
A Scale	.....	.....	10450	$63.45
B Scale	.....	.....	.....	.....

Range	4½" Case Styles: Rectangular Model 142 Cat. No.	4½" Case Styles: Rectangular Model 142 Net Each
A Scale	10460	$69.45
A Scale#	10470	75.30
B Scale	10530	69.45
B Scale#	10540	75.30

#Illuminated; 6 V, 150 mA lamps.

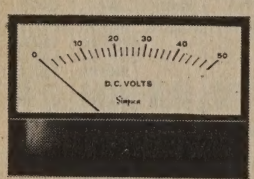
DECIBEL METERS

Reference level: 1 mW, 600-ohm line.

Range	3½" Case Styles: Round Not Available		3½" Case Styles: Square Model 47 Cat. No.	3½" Case Styles: Square Model 47 Net Each
−10 to +6 dB	.....	.....	03450	$53.85

Range	4½" Case Styles: Rectangular Model 49 Cat. No.	4½" Case Styles: Rectangular Model 49 Net Each
−10 to +6 dB	03460	$58.05

DESIGNER SERIES PANEL METERS



Molded black phenolic-cased panel meters for compact equipment designs. Clean, professional styling. All have self-shielded spring backed jewel movement with ±2% accuracy and utilize maximum scale length for full readability. **Size:** Models 523, 543 and 553: 3.95" w. x 1.81" d. (behind panel) x 2.67" h.; mtg. ctrs., 2.936". Models 524, 544 and 554: 4½" w. x 1.81" d. (behind panel) x 2.9" h.; mtg. ctrs., 3½". All models supplied with necessary mounting and terminal hardware. Knife-edge pointer.

Range	Approx. Resis., Ohms	3½" Case Style Model 523 Cat. No.	3½" Case Style Model 523 Net Each	4½" Case Style Model 524 Cat. No.	4½" Case Style Model 524 Net Each
DC VOLTMETERS					
0–5		15038	$41.10	15108	$44.70
0–10		15039	41.10	15109	44.70
0–15	1000	15040	41.10	15110	44.70
0–30	Ohms	15042	41.10	15112	44.70
0–50	per	15044	41.10	15114	44.70
0–100	volt	15045	41.10	15111	44.70
0–150		15046	41.10	15116	44.70
DC MILLIVOLTMETERS					
0–50	10	15048	$39.30	15118	$43.20
DC AMMETERS					
0–1	.05	15031	$39.90	15101	$43.20
0–3	.017	15032	39.90	15102	43.20
0–5	.01	15033	39.90	15103	43.20
0–10	.005	15030	39.90	15100	43.20
0–15	.003	15034	39.90	15104	43.20
0–25	.002	15035	39.90	15105	43.20
0–50	.001	15036	39.90	15106	43.20
DC MILLIAMMETERS					
0–1	43	15000	$38.40	15070	$41.10
0–5	2	15001	38.40	15076	41.10
0–10	10	15002	38.40	15077	41.10
0–50	2	15003	39.90	15078	43.20
0–100	1	15010	39.90	15080	43.20
0–200	.5	15004	39.90	15079	43.20
0–300	.33	15012	39.90	15081	43.20
0–500	.2	15013	39.90	15082	43.20

DC MICROAMMETERS

Range	Approx. Resis., Ohms	3½" Case Style Model 523 Cat. No.	3½" Case Style Model 523 Net Each	4½" Case Style Model 524 Cat. No.	4½" Case Style Model 524 Net Each
0–15	1960	15014	$70.20	15092	$76.95
0–25	2100	15015	60.15	15085	66.15
0–50	1800	15017	48.75	15087	52.35
0–100	1800	15019	44.70	15089	49.65
0–200	1100	15021	41.10	15091	44.70
0–500	90	15022	40.35	15093	43.95
25–0–25	1800	15023	49.20	15094	52.65
50–0–50	1800	15025	44.70	15095	49.95
100–0–100	1100	15027	41.55	15097	45.30
500–0–500	43	15024	39.30	15096	41.55

AC VOLTMETERS—IRON-VANE TYPE

Range	Approx. Resis., Ohms	3½" Case Style Model 553 Cat. No.	3½" Case Style Model 553 Net Each	4½" Case Style Model 554 Cat. No.	4½" Case Style Model 554 Net Each
0–150	25,000	15060	$40.35	15130	$43.20
0–250	41,166	15061	40.35	15131	43.20
0–300	50,000	15062	40.35	15132	43.20

AC AMMETERS—IRON-VANE TYPE

Range	Approx. Resis., Ohms	3½" Case Style Model 553 Cat. No.	3½" Case Style Model 553 Net Each	4½" Case Style Model 554 Cat. No.	4½" Case Style Model 554 Net Each
0–1	.213	15049	$36.15	15121	$41.85
0–5	.008	15050	36.15	15120	41.85
0–10	.004	15052	36.15	15122	41.85
0–15	.003	15051	36.15	15123	41.85
0–25	.002	15053	36.15	15125	43.20
0–50	.001	15054	36.15	15124	43.20
0–100	.008	15056*	36.15	15127*	41.85
0–150	.008	15057*	36.15	15128*	41.85

*Requires external current transformer, not supplied.

Range	Approx. Resis., Ohms	3½" Case Style Model 543 Cat. No.	3½" Case Style Model 543 Net Each	4½" Case Style Model 544 Cat. No.	4½" Case Style Model 544 Net Each
VOLUME LEVEL INDICATORS					
A Scale	.....	15064	$63.45	15134	$69.45
A Scale#	.....	15065	69.90	15135	75.30
B Scale#	.....	15066	69.90	15136	75.30

#Illuminated; 28 V, 220 mA lamps.

PRICES LISTED ARE FOR GUIDANCE ONLY

Simpson Panel Meters

INSTRUMENTS THAT STAY ACCURATE

EDGEWISE PANEL METERS MODELS 3623 AND 3643

Self-shielding, 1 1/16" core magnet movement. Front bezel zero adjust on right side. Horizontal mounting is standard; vertical available on special order. Accuracy: ±2% is standard; ±1% available on special order. Scale Length: 2.6". Illuminated models are available on special order. Types: DC and AC rectifier, pivot and jewel or taut band. Size: 3.6" w. x 1.125" h. x 4.33" d. behind panel.

MODEL 3623 DC PANEL METERS

Range	Approx. Resis., Ohms	Cat. No.	Net Each
MICROAMMETERS			
0–25*	2730	16862	$71.55
0–50*	1010	16863	67.50
0–100*	400	16864	63.90
0–200	400	16865	60.15
0–500	166	16866	58.35
25–0–25	1010	16867	67.95
MILLIAMMETERS			
0–1	62	16868	$56.85
4–20	1	16869	62.40
MILLIVOLTMETER			
0–50	10	16870	$58.50
VOLTMETERS			
0–25	1000	16873	$60.45
0–50	Ohms	16874	60.45
0–10	per	16880	60.45
0–15	volt	16881	60.45

*Taut-band movement.

MODEL 3643 AC PANEL METERS

Range	Approx. Resis., Ohms	Cat. No.	Net Each
0–5 AAC‡	.....	16871	$80.25
100–130 VAC†	500Ω/V	16879	145.65

‡Rectifier type, internal transformer burden 0.5 VA. †Segmental.

EDGEWISE PANEL METERS MODELS 1521, 1522, 1541 AND 1542

For mounting wherever space is a problem. Supplied with mounting hardware, including bezel and nuts for quick, easy mounting. Accuracy: ±2% of full scale. Terminals: Stud type on ammeters; solder type on all others. Size: 1521, 1¾" w. x 2" d. x 1.13" h. overall; mtg. ctrs. 2"; cutout 1.812" x .53"; scale 1⅜" lg. 1522, 2½" w. x 3½" d. x 1.72" h. overall; mtg. ctrs. 2.938"; cutout 2.56" x .68"; scale 1⅞" lg. Vertical mounting available on special order, also available in rectifier type AC voltmeters.

Range	Resis., Ohms	1½" Case Styles Model 1521 Cat. No.	1½" Case Styles Model 1521 Net Each	2½" Case Styles Model 1522 Cat. No.	2½" Case Styles Model 1522 Net Each
DC MILLIVOLTMETERS					
0–50	10	07013	$38.10	07011	$41.85
DC VOLTMETERS					
0–10	1000	10354	$36.15	10360	$39.90
0–15	Ohms	10355	36.15	10370	39.90
0–25	per	10356	36.15	10375	39.90
0–50	volt	10357	36.15	10380	39.90
0–150		.....	.....	10390	39.90
0–500	2000Ω/V	.....	.....	10410	40.20
DC MICROAMMETERS					
0–25	3150	.....	.....	04560	$58.20
0–50	1800	04553	$47.70	04570	51.15
0–100	1100	04554	42.15	04580	46.20
0–200	290	04555	38.10	04590	41.85
0–500	90	04556	37.35	04600	40.35
DC MILLIAMMETERS					
0–1	20	06811	$35.55	06710	$39.30
0–5	2.5	06812	35.55	06720	39.30
0–10	13.5	06813	35.55	06730	39.30
0–25	5.4	06815	37.35	06740	40.95
0–50	2.7	06816	37.35	06750	40.95
0–100	1.35	06817	37.35	06760	40.95
0–200	.5	06818	37.35	.....	.....
0–500	.27	06819	37.35	06810	40.95
DC AMMETERS					
0–5	.01	.....	.....	03390	$41.85
0–25	.002	.....	.....	03420	41.85

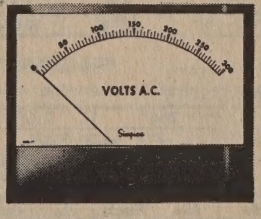
STACKING EDGEWISE PANEL METERS MODELS 1622, 1642, 1921 AND 1941

Stack horizontally or vertically. Feature self-shielding core magnet meter movement to eliminate protruding barrel. Steel housing, plastic window, dust-proof construction. Accuracy: DC, ±2% of full scale; AC rectifier type, ±3% of full scale. Terminals: 1622 and 1642, 6-32 studs; 1921 and 1941, solder type. Size: 1622 and 1642, 2.35" w. x .53" h. x 3.48" d. overall; 1921 and 1941, 1.69" w. x 0.50" h. x 2.30" d. overall. Available as vertical mount on special order.

Range	Resis., Ohms	1½" Case Styles Model 1921 Cat. No.	1½" Case Styles Model 1921 Net Each	2½" Case Styles Model 1622 Cat. No.	2½" Case Styles Model 1622 Net Each
DC MILLIVOLTMETERS					
0–50	20	18028	$48.90	18029	$52.05
DC VOLTMETERS					
0–10		18000	$46.80	18006	$49.35
0–15	5000	18001	46.80	18007	49.35
0–25	Ohms	18002	46.80	18008	49.35
0–50	per	18003	46.80	18009	49.35
0–150	volt	18004	46.80	18010	49.35
0–500		.....	.....	.....	.....
DC MICROAMMETERS					
0–25	7760	18030	$59.85	18035	$60.75
0–50	2020	18031	57.90	18036	59.85
0–100	1060	18032	51.30	18037	56.55
0–200	310	18033	48.90	18038	52.05
0–500	63	18034	46.50	18039	50.40
DC MILLIAMMETERS					
0–1	18	18012	$46.20	18019	$48.75
0–5	2	18013	46.20	18020	49.05
0–10	5	18014	46.20	18021	49.05
0–25	2	18015	48.75	18022	51.60
0–50	1	18016	48.75	18023	51.60
0–100	.5	18017	48.75	18024	51.60
0–500	.1	18018	48.75	18025	51.60

Range	Resis., Ohms	1½" Case Styles Model 1941 Cat. No.	1½" Case Styles Model 1941 Net Each	2½" Case Styles Model 1642 Cat. No.	2½" Case Styles Model 1642 Net Each
AC VOLTMETERS					
0–150	5000Ω/V	18042	$58.20	18043	$61.05

"RUGGED SEAL" PANEL METERS



Metal-cased panel instruments for use in field test equipment or where rigorous environments are encountered. Completely sealed, commercially ruggedized, metal case and shielded against steel panel mounting. External magnet movement. AC meters are rectifier type with ±3% of full scale accuracy. DC meters have ±2% of full scale accuracy.

Range	Approx. Resis., Ohms	3½" Case Styles Model 3343 Cat. No.	3½" Case Styles Model 3343 Net Each	4½" Case Styles Model 3344 Cat. No.	4½" Case Styles Model 3344 Net Each	4" x 6" Case Styles Model 3346 Cat. No.	4" x 6" Case Styles Model 3346 Net Each
AC VOLTMETERS—RECTIFIER TYPE							
0–150	1000 Ohms	16065	$55.35	16160	$58.35	16255	$64.20
0–300	per volt	16070	55.35	16165	58.35	16260	64.20
AC AMMETERS—RECTIFIER TYPE							
0–5	.5 VA max.	16080	$68.70	16175	$71.40	16270	$77.25
AC MILLIAMMETERS—RECTIFIER TYPE							
0–1	600	16085	$54.90	16180	$58.05	16275	$68.70
AC MICROAMMETERS—RECTIFIER TYPE							
0–100	4000	16190	$54.90	16185	$60.45	.....	.....

Range	Approx. Resis., Ohms	3½" Case Styles Model 3323 Cat. No.	3½" Case Styles Model 3323 Net Each	4½" Case Styles Model 3324 Cat. No.	4½" Case Styles Model 3324 Net Each	4" x 6" Case Styles Model 3326 Cat. No.	4" x 6" Case Styles Model 3326 Net Each
DC VOLTMETERS							
0–1.5		16000	$46.05	.....	.....	16190	$54.90
0–10		16005	46.05	16100	$50.10	16195	54.90
0–15	1000	16010	46.05	16105	50.10	16200	54.90
0–25	Ohms	16015	46.05	16110	50.10	16205	54.90
0–50	per	16020	46.05	16115	50.10	16210	54.90
0–100	volt	16025	46.05	.....	.....	16215	54.90
0–500		16030	46.05	.....	.....	.....	.....
DC MILLIVOLTMETERS							
0–50	10	16062	$46.20	16157	$50.85	16252	$55.65
DC AMMETERS							
0–5	.....	16035	$47.10	.....	.....	.....	.....
0–10	.....	16040	47.10	16135	$50.55	.....	.....
DC MILLIAMMETERS							
0–1	80	16045	$44.70	16140	$48.15	16235	$53.25
DC MICROAMMETERS							
0–50	3000	16055	$59.25	16150	$63.60	16245	$68.85
0–100	1450	16060	53.55	16155	58.05	16250	64.20

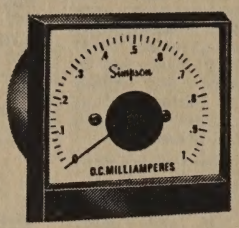
DIMENSIONS

Size	Model	Scale Lgth.	Mtg. Hole	H. x W.	4 Mtg. Studs on
3½"	3323 3343	2.74"	2.81" dia.	3.25" x 3.25"	2.25" x 2.25" ctrs. #4-40
4½"	3324 3344	4.05"	2.81" dia.	4.15" x 4.68"	3.56" x 4.00" ctrs. #6-32
4" x 6"	3326 3346	4.94"	2.81" dia.	4.62" x 5.84"	3.00" x 5.25" ctrs. #6-32

Simpson Panel Meters

INSTRUMENTS THAT STAY ACCURATE

250° LONG-SCALE METERS



Designed for applications that require high-accuracy readings, 250° panel meters provide more than double the scale length of the standard 90° or 100° movements. They are self-shielded, permanent magnet, moving coil instruments with non-magnetic pivots and spring-backed jewels. Round style 2523, 2543 and 2524, 2544 are metal cased and sealed to MIL-M-10304. Square styles 2123L and 2143L use phenolic unsealed cases. External front access zero adjust. Red, knife edge type pointer. **Accuracy:** DC, 2% of full scale; AC, 3% of full scale. **Scale Length:** 4.77" for 3½" meters; 6.54" for 4½" meters.

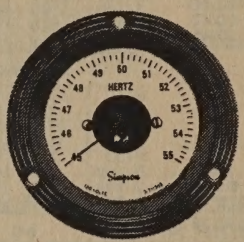
The 0–10 VAC rectifier type voltmeters may be used with current transformer Model 186 to provide 17 common AC ammeter ranges from 0–50 mA to 0–50 amps. Prices on another Simpson page.

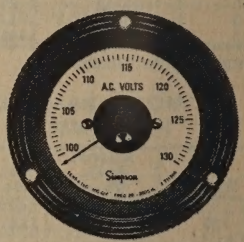
Range	Approx. Resis., Ohms	3½" Case Styles Model 2523 Cat. No.	Model 2523 Net Each	Model 2123L Cat. No.	Model 2123L Net Each	4½" Case Styles Model 2524 Cat. No.	Model 2524 Net Each
DC MICROAMMETERS							
0–50	8000	17970	$96.30	17910	$78.45	17980	104.55
0–100	4200	17971	93.30	17911	72.15	17981	99.00
0–500	340	17972	84.30	17912	67.05	17982	89.70
DC MILLIAMMETERS							
0–1	135	17973	$79.20	17913	$64.95	17983	$84.45
0–10	10	17974	79.20	.....	.....	17984	84.45
0–500	.2	17975	83.25	.....	.....	17985	88.50
1–0–1	50	17996	79.35	.....	.....	17997	84.30
DC AMMETERS							
0–10	.005	17976	$83.25	.....	.....	17986	$88.50
DC MILLIVOLTMETERS							
0–50	10	17977	$83.40	17914	$63.75	17987	$88.80

Range	Approx. Resis., Ohms	3½" Case Styles Model 2543 Cat. No.	Model 2543 Net Each	Model 2143L Cat. No.	Model 2143L Net Each	4½" Case Styles Model 2544 Cat. No.	Model 2544 Net Each
AC VOLTMETERS—RECTIFIER TYPE							
0–10	2000	17990	103.95	17915	$84.45	17995	109.20
0–150	Ohms	17978	103.95	17916	84.45	17988	109.20
0–300	per volt	17979	103.95	17917	84.45	17989	110.40
AC AMMETERS							
0–5	.....	.....	.....	17918	$84.45	.....	.....
0–5% load	.....	.....	.....	17919	84.45	.....	.....

SEGMENTAL METERS

Segmental meters make it possible to measure very small changes in input conditions. The significant portion of the overall voltage or frequency range is expanded to cover the full scale length. Thus, only that segment of the range that is important appears. Segmental voltmeters are available in either average sensing or true rms sensing units. In addition to those listed, special segmental voltmeters can be built on special order. **Frequency Meter Accuracy:** 0.5%, except 400 Hz units, 0.3%. **Voltmeter Accuracy:** 0.5%, except Rugged Seal Style, 1.0%.





AC VOLTMETERS

Range VAC	3½" Rectangular Wide-Vue Model 1347 Cat. No.	Model 1347 Net Each	3½" Square Century Model 2143 Cat. No.	Model 2143 Net Each	4½" Rectangular Wide-Vue Model 1349 Cat. No.	Model 1349 Net Each	4½" Square Century Model 2144 Cat. No.	Model 2144 Net Each
100–130	10152	115.95	17548	115.95	10155	116.55	17638	116.55
100–130 200–260 400–520	.....	.....	.....	.....	10157†	143.70	17639†	143.70

†Supplied with external potential transformer.

AC VOLTMETERS—AVERAGE SENSING

Range VAC	3½" 250° Long Scale Round Model 2543 Cat. No.	Model 2543 Net Each	3½" 250° Long Scale Rectangular Model 2143L Cat. No.	Model 2143L Net Each
100–130	17991	$107.85	17926	$107.85

AC VOLTMETERS—TRUE RMS SENSING

Range	3½" Rectangular Rugged Seal Model 3383 Cat. No.	Model 3383 Net Each	4½" Rectangular Rugged Seal Model 3384 Cat. No.	Model 3384 Net Each	4" x 6" Rectangular Rugged Seal Model 3386 Cat. No.	Model 3386 Net Each
100–130	16365	$154.80	16395	$170.25	16425	$182.25

FREQUENCY METERS

Power required for operation is 110–120 VAC (150 V max.).

Range Hz	3½" 250° Long Scale Round Model 2583 Cat. No.	Model 2583 Net Each	3½" 250° Long Scale Rectangular Model 2183L Cat. No.	Model 2183L Net Each	3½" Standard Scale Rectangular Model 2183 Cat. No.	Model 2183 Net Each	4½" Standard Scale Rectangular Model 2184 Cat. No.	Model 2184 Net Each
44–55	17992	109.65	17007	110.55	17920	100.20	17923	103.20
55–65	17993	109.65	17008	110.55	17921	100.20	17924	103.20
380–420	17994	109.65	17009	110.55	17922	100.20	17925	103.20

CURRENT TRANSFORMERS

Inserted one-turn primary type. For use with AC ammeters. Secondary, 5 amps.

Primary Amps	Secondary Amps	Cat. No.	Net Each
50	5	01293	$16.50
75	5	01306	16.50
100	5	01297	16.50
150	5	01298	16.50
200	5	01299	16.50
250	5	01313	16.50
300	5	01300	16.50
400	5	01305	16.50
500	5	01301	16.50
600	5	02303	16.50
750	5	02459	21.00
1000	5	02304	30.00

SWITCHBOARD SHUNTS

For DC switchboard ammeters. Drop, 50 mV. Accuracy, ±1%. With 5-ft. leads.

Amps	Cat. No.	Net Each
100	06500	$ 22.95
150	06503	24.60
200	06504	24.60
250	06505	24.60
300	06506	24.60
400	06507	29.85
500	06508	35.25
600	06509	40.95
750	06510	52.35
800	06511	55.35
1000	06512	67.20
1200	06513	79.80
1500	06514	99.00
2000	06515	109.65
2500	06516	138.30
3000	06517	163.50

PORTABLE SHUNTS

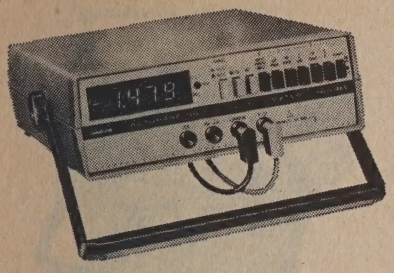
For DC panel ammeters requiring external shunt. Drop, 50 mV. Accuracy, ±1%. Phenolic base; with 5-ft. leads.

Amps	Cat. No.	Net Each
1	06700	$22.95
5	06703	22.95
10	06704	22.95
15	06705	22.95
25	06707	22.95
30	06708	22.95
50	06709	22.95
75	06711	22.95
100	06713	22.95
150	06714	22.95
200	06715	22.95

PRICES LISTED ARE FOR GUIDANCE ONLY

Simpson Digital Multimeters

INSTRUMENTS THAT STAY ACCURATE



MODEL 465-3 AUTORANGING DIGITAL MULTIMETER

Range HOLD for repeated tests
3½ digit, 0.43″ LED readout
MOS/LSI circuitry
Automatic range selection
Pushbutton function selection
Complete with leads and manual

DC Volts: 0 to 0.2, 2, 20, 200, 1000 volts.
AC Volts: 0 to 0.2, 2, 20, 200, 600 volts.
DC Current: 0 to 200 μA; 0 to 2, 20, 200 mA; 0 to 2, 10 amps.
AC Current: 0 to 200 μA; 0 to 2, 20, 200 mA; 0 to 2, 10 amps.
Resistance (High Power): 1Ω to 2K, 20K, 200K, 20 megohms at 2.5 volts open circuit.
Resistance (Low Power): 1Ω to 2K, 20K, 200K, 2000K at 0.35 volts open circuit.
Accuracy: ±0.1% + 1 digit on DC volts; ±0.5% + 2 digits on AC volts; ±0.4% + 2 digits on resistance; ±0.25% + 1 digit on DC current; ±1% + 2 digits on AC current.

Simpson Model 465A-3 Autoranging Digital Multimeter—For AC peration only. Complete with test leads line cord and operator's manual. Net Each..... **$403.00**

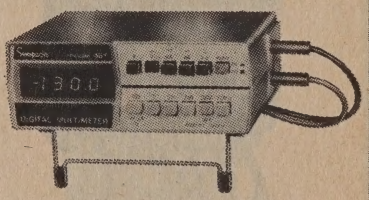
Simpson Model 465D-3 Autoranging Digital Multimeter—For AC and battery operation. Complete with test leads, operator's manual and line cord. Less batteries. Net Each..... **$453.00**

MODELS 461-2 AND 462 AUTORANGING DIGITAL MULTIMETERS

Compact, portable.
3½ digit, 0.3″ LED display.
Automatic polarity and zeroing.
10 megohm input impedance.
Resolves 100 μV, 0.1 ohm, 100 nA.
Complete with nickel-cadmium batteries, battery charger/adapter, test leads and manual.
120 and 230 VAC versions available (specify when ordering).
26 ranges.
LSI circuitry.

SPECIFICATIONS

DC Volts: 0–200 mV, 0–2, 20, 200, 1000 volts.
Accuracy: Model 461, ±0.5% of reading + 1 digit; Model 462, ±0.25% + 1 digit.
AC Volts: 0–200 mV, 0–2, 20, 200, 600 volts.
Accuracy: Model 461, ±1% of reading + 2 digits; Model 462, ±0.75% + 2 digits at 50–1000 Hz; ±5% + 2 digits at 1–5 kHz.
DC Current: Model 461, 0–200 μA, 0–2, 20, 200 mA, 0–2 amps; Model 462, 0–2, 20, 200, 2000 mA.
Accuracy: Model 461, ±2% of reading + 2 digits for 0–2 amp range, ±1.5% + 2 digits for all others. Model 462, ±1.5% of reading ± 1 digit for 0–2000 mA range, ±1% + 1 digit for all others.
AC Current: Model 461, 0–200 μA, 0–2, 20, 200 mA, 0–2 amps; Model 462, 0–2, 20, 200, 2000 mA.
Accuracy: Model 461, ±2% of reading + 2 digits for 0–2 amp range, ±1.5% + 2 digits for all others; Model 462, ±2% of reading + 5 digits for 0–2000 mA range, ±1.5% + 5 digits for all others.
Resistance: Model 461, 0–200, 2K, 20K, 200K, 2000K, 20 megohms; Model 462, 0–2K, 20K, 200K, 2000K, 20 megohms.
Accuracy: ±1% of reading + 1 digit for 0–20 megohm range, ±0.5% + 1 digit for all others.
Size: 2″ h. x 5.6″ w. x 4.6″ d.
Weight: Approximately 1 lb., 8 oz. with batteries.



Simpson Model 461-2 Digital Multimeter—Catalog No. 12528. For 120 VAC operation. Net Each..... **$194.00**
Simpson Model 461-2 Digital Multimeter—Catalog No. 12529. For 230 VAC operation. Net Each..... **$194.00**
Simpson Model 462 Autoranging Multimeter—Catalog No. 12547. For 120 VAC operation. Net Each..... **$244.00**
Simpson Model 462 Autoranging Multimeter—Catalog No. 12548. For 230 VAC operation. Net Each..... **$244.00**
Simpson No. 00749—40 kV H.V. Probe. Net Each..... **49.25**
Simpson No. 00748—RF Probe. Net Each..... **39.75**
Simpson No. 00814—Carrying Case. Net Each..... **27.00**
Simpson No. 00044—Replacement Batteries. Net Each..... **18.75**

MODEL 463 DIGITAL MULTIMETER

Compact, portable.
3½ digit, 0.5″ LCD readout
Automatic polarity and zeroing.
10 megohm input impedance.
0.2% accuracy on DC Voltage ranges.
Complete with battery, test leads, alligator clips and manual.
Pushbutton selection of all functions and ranges.
26 ranges.
LSI circuitry.
Wide, 20 kHz AC Voltage response.
Battery operated.
Low battery indication.

SPECIFICATIONS

DC Volts: 0–200 mV; 0–2, 20, 200, 1000 V.
Accuracy (+20°C to +30°C): ±0.2% of reading +1 digit.
AC Volts: 0–200 mV; 0–2, 20, 200, 750 V.
Accuracy (+20°C to +30°C): ±1.5% of reading +3 digits from 20 to 40 Hz; ±0.5% of reading +2 digits from 40 to 1000 Hz; ±1.5% of reading +3 digits from 1 to 10 kHz; ±5% of reading +5 digits from 10 to 20 kHz.
DC Current: 0–200 μA; 0–2, 20, 200, 2000 mA.
Accuracy (+20°C to +30°C): ±0.5% of reading +2 digits, except ±1% of reading +2 digits on 2000 mA range.
AC Current: 0–200 μA; 0–2, 20, 200, 2000 mA.
Accuracy (+20°C to +30°C): ±1.5% of reading +3 digits from 40 to 1000 Hz; ±5% of reading +5 digits from 1 to 5 kHz.
Resistance: 0–200, 2K, 20K, 200K, 2000K; 0–2 megohms.
Accuracy (+20°C to +30°C): ±0.25% of reading +2 digits, except ±0.75% of reading +2 digits on 20 megohm range.

Simpson Model 463 Digital Multimeter—Cat. No. 12649. Net Each.... **$200.00**
Simpson No. 00748 RF Probe—Net Each..... **39.75**
Simpson No. 00749 40 kV High Voltage Probe—Net Each..... **49.25**
Simpson No. 00814 Carrying Case—Net Each..... **27.00**

ACCESSORIES LISTED ON ANOTHER SIMPSON PAGE

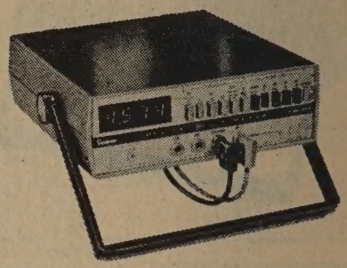
CURRENT PRICES WILL APPLY ON ALL LINES

Simpson Portable Digital Multimeters

INSTRUMENTS THAT STAY ACCURATE

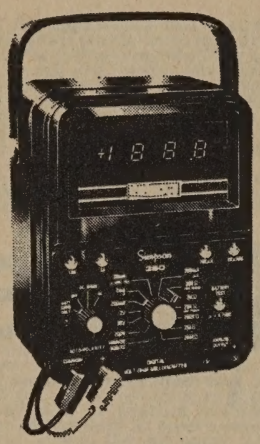
MODEL 464-3 DIGITAL MULTIMETER

3½ digit, 0.43" LED readout.
0.1% Accuracy on DC Voltage ranges.
Complete with line cord, leads and manual.
Pushbutton selection of all functions and ranges.
28 ranges.
Battery or AC line operation.
LSI circuitry.



SPECIFICATIONS

DC Volts: 0 to 0.2, 2, 20, 200, 1000 volts.
AC Volts: 0 to .2, 2, 20, 200, 600 volts.
DC Current: 0 to 200 μA; 0 to 2, 20, 200 mA; 0 to 2, 10 amps.
AC Current: 0 to 200 μA; 0 to 2, 20, 200 mA; 0 to 2, 10 amps.
Resistance: 0 to 200, 2K, 20K, 200K, 2000K; 0 to 20 megohms.
Accuracy (+15°C to +35°C): See table below.
Simpson Model 464A-3 Digital Multimeter—For AC line operation only. Complete with test leads, line cord and manual. Net Each.....**$290.00**
Simpson Model 464D-3 Digital Multimeter—For AC line and battery operation. Complete with test leads, line cord and manual. Net Each.....**$338.00**



360-2 DIGITAL MULTIMETER

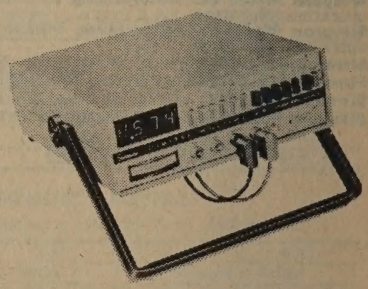
3½ digit, 0.43" LED readout.
29 ranges including "low power" ohms.
Analog indicator for nulls and peaks.
Analog output provision for recording.
Complete with line cord, leads and manual.
Solid-state, IC design.

SPECIFICATIONS

DC Volts: 0 to 0.2, 2, 20, 200, 1000 volts.
AC Volts: 0 to 0.2, 2, 20, 200, 600 volts.
DC Current: 0 to 200 μAmps; 0 to 2, 20, 200 mAmps; 0 to 2, 10 Amps.
AC Current: 0 to 200 μAmps; 0 to 2, 20, 200 mAmps; 0 to 2, 10 Amps.
Resistance: 0 to 200, 2K ohms at low power; 0 to 20K, 200K, 2 megohms, 20 megohms.
Accuracy: (+15°C to +35°C): See table below.
Simpson 360-2 Digital Multimeter—For 110 VAC operation. Net Each.....**$350.00**
Simpson 360-2 Digital Multimeter—For 220 VAC operation. Net Each.....**$350.00**
Simpson No. 0045—Replacement Batteries. Net Each.....**$20.75**

460-5 DIGITAL MULTIMETER

3½ digit, 0.43" LED readout.
AC line or battery operation.
Analog indicator with linear and dBm markings.
Digital LSI circuitry.
Complete with leads and manual.
26 ranges.



SPECIFICATIONS

DC Volts: 0 to 0.2, 2, 20, 200, 1000 volts.
AC Volts: 0 to 0.2, 2, 20, 200, 600 volts.
DC Current: 0 to 200 μAmps; 0 to 2, 20, 200 mAmps; 0 to 2 Amps.
AC Current: 0 to 200 μAmps; 0 to 2, 20, 200 mAmps; 0 to 2 Amps.
Resistance: (Normal and low-power) 0 to 200, 2K, 20K, 200K, 2 megohms, 20 megohms.
Accuracy: (+15° C to + 35° C): See table below.
Simpson 460A-5 Digital Multimeter—For VAC operation only. Net Each.....**$378.00**
Simpson 460D-5 Digital Multimeter—For VAC and battery operation. Net Each.....**$430.00**

ACCURACIES

MODEL 464-3 DMM

DC Voltage: ± (0.1% of reading +1 digit).

AC Voltage: ± (0.5% of reading +2 digits) from 40 Hz to 1 kHz; ± (1.0% of reading +2 digits) from 1 kHz to 10 kHz.

DC Current: ± (0.5% of reading +1 digit), except ± (1.0% of reading + 1 digit) on 2 A and 10 A ranges.

AC Current: ± (1.5% of reading + 2 digits), except ± (2.0% of reading + 2 digits) on 2 A and 10 A ranges.

Resistance: ± (0.5% of reading + 1 digit), except ± (1.0% of reading + 1 digit) on 20 megohm ranges.

360-2 DMM

DC Voltage: ± (0.25% + 1 digit).

AC Voltage: ± (0.5% + 1 digit) from 40 Hz to 1 kHz; ± (1.0% + 1 digit) from 1 kHz to 10 kHz; ± (2.0% of reading + 2 digits) from 10 kHz to 20 kHz; except ± (5% of reading + 2 digits) on 200 V range.

DC Current: ± (0.5% + 1 digit), except ± (1.0% + 1 digit) on 2 A and 10 A ranges.

AC Current: ± (1.0% + 1 digit) from 40 Hz to 10 kHz, except ± (2% + 2 digits) on 2 A and 10 A ranges.

Resistance: ± (0.5% + 1 digit), except ± (1.0% + 2 digits) on 2 and 20 megohm ranges.

460-5 DMM

DC Voltage: ± (0.1% + 1 digit).

AC Voltage: ± (0.5% + 2 digits) from 40 Hz to 10 kHz, except 600 V range which is 40 Hz to 400 Hz; ± (1.0% + 2 digits) from 10 kHz to 20 kHz, except 600 V range which is 400 Hz to 20 kHz.

DC Current: ± (0.25% + 1 digit), except ± (1.0% + 1 digit) on 2 A and 10 A ranges.

AC Current: ± (0.7% + 2 digits), except ± (1.5% + 2 digits) on 2 A and 10 A ranges.

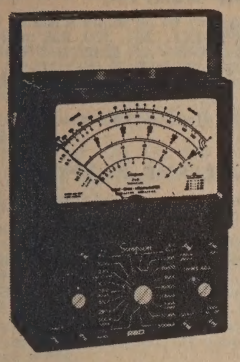
Resistance: ± (0.25% + 1 digit), except ± (0.5% + 2 digits) on 2 and 10 megohm ranges.

ACCESSORIES LISTED ON ANOTHER SIMPSON PAGE

PRICES LISTED ARE FOR GUIDANCE ONLY

Simpson Portable VOM's

INSTRUMENTS THAT STAY ACCURATE



260-6XL VOM

Shock and drop resistant construction.
33 ranges including "low power" ohms.
Complete with batteries, test leads and manual.
Low-power ohms open-circuit voltage. 100 mV maximum.
Large viewing area.

SPECIFICATIONS

DC Volts: 0 to .25, 1, 2.5, 10, 25, 100, 250, 500, 1000 volts at 20,000 ohms per volt sensitivity.
AC Volts: 0 to 2.5, 10, 25, 100, 250, 500, 1000 volts at 5000 ohms per volt sensitivity.
DC Current: 0 to 50 μA; 0 to .5, 5, 50, 500 mA; 0 to 5 amps.
AC Current: Direct dial scale reading to 250A when Amp-Clamp adapter is used.
dB: −20 to +10, −9 to +21, −1 to +29, +11 to +41, +19 to +49.
Output: 0.1 μF capacitor in series with ACV ranges thru 250 volts.
Resistance: Low-power: Rx1 (1K ohms) and Rx10 (10K ohms);
Conventional: Rx1 (1K ohms), Rx100 (100K ohms),
Rx1K (1 megohm), Rx10K (10 megohms).
Accuracy: DC volts ±2%; AC volts ±3%; DC current ±2%; Resistance ±2.5° of arc.

Simpson 260-6XL—Catalog No. 12177. With standard scale. Net Each..... **$134.00**
Simpson 260-6XLM—Catalog No. 12186. With mirror scale. Net Each..... **139.00**
Simpson 260-6XLP—Catalog No. 12176. Same as 260-6XL but has protective overload circuit with reset button that pops out when overload is present. Net Ea.... **$183.00**
Simpson 260-6XLPM—Catalog No. 12187. With mirror scale. Net Each.... **188.00**

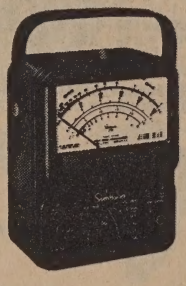
260-7 VOM

Same as the Model 260-6 plus new insulated panel connectors, an Off/Transit position on the function switch, doubly fused protection network and functionally engineered test leads.

Simpson Model 260-7—Catalog No. 12268. Net Each..... **$114.00**
Simpson Model 260-7M—Catalog No. 12269. With mirror scale. Net Each.. **119.00**
Simpson Model 260-7RT—Catalog No. 12272. In roll-top protective case.
Net Each..... **$129.00**
Simpson Model 260-7MRT—Catalog No. 12273. With mirror scale and roll-top case.
Net Each..... **$134.00**
Simpson Model 260-7P—Catalog No. 12274. With relay overload protection.
Net Each..... **$162.00**
Simpson Model 260-7PM—Catalog No. 12277. With relay protection and mirror scale.
Net Each..... **$167.00**
Simpson Model 260-7PRT—Catalog No. 12279. With relay protection and roll-top case.
Net Each..... **$177.00**

MODEL 250 VOM

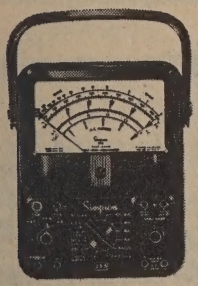
Fused input circuits.
Varistor protected movement.
Complete with test leads, batteries and manual.
For solid-state servicing.
Taut band movement.
50mV drop on DC current.



SPECIFICATIONS

DC Volts: p to .05, .25, 2.5, 10, 50, 250, 500, 1000 volts at 20,000 ohms per volt sensitivity.
AC Volts: 0 to .25, 10, 50, 250, 500, 1000 volts at 5000 ohms per volt sensitivity.
DC Current: 0 to 50 μA; 0 to 1, 10, 100, 500 mA; 0 to 10 amps.
AC Current: Direct dial scale reading to 250A when Amp-Clamp adapter is used.
dB: −20 to +10, −8 to +22, +6 to +36, +20 to +50.
Resistance: Rx1 (2K ohms), Rx100 (200K ohms), Rx10K (20 megohms).
Accuracy: DC volts ±2%; AC volts ±3%; DC current ±2%; Resistance ±2° of arc.

Simpson Model 250—Catalog No. 12158. Net Each..... **$126.00**



MODEL 255 VOM

Designed for gas and electrical appliance servicing.
Complete with test leads, batteries, thermocouple lead and manual.
Measures temperatures from +100° F to +1050° F.
22 ranges including temperature.

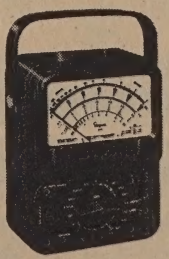
SPECIFICATIONS

DC Volts: 0 to .05, .25, 1, 1.5, 10, 50, 250, 1000 volts at 20,000 ohms per volt sensitivity.
AC Volts: 0 to 2.5, 10, 50, 250, 1000 volts at 5000 ohms per volt sensitivity.
DC Current: 0 to 50 μA; 0 to 1, 10, 100, 500 mA.
AC Current: Direct dial scale reading to 250A when Amp-Clamp adapter is used.
Resistance: Rx1 (2K ohms), Rx100 (200 ohms), Rx10K (20 megohms).
Temperature: +100° F to 1050° F.
Accuracy: DC volts ±2%; AC volts ±3%; DC current ±2%; Resistance ±2° of arc.

Simpson Model 255—Catalog No. 12155. Complete test leads, 5′ thermocouple lead and instruction manual. Net Each..... **$147.00**

MODEL 265 INDUSTRIAL VOM

AC and DC currents to 12 amperes.
Taut band movement for high resolution.
Complete with test leads, batteries and operator's manual.
Simultaneous AC voltage and current measurements.



SPECIFICATIONS

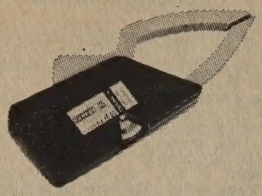
DC Volts: 0 to 0.3, 3, 12, 60, 300, 600 volts at 20,000 ohms per volt sensitivity.
AC Volts: 0 to 3, 12, 60, 300, 600 volts at 5000 ohms per volt sensitivity.
DC Current: 0 to 60 μA; 0 to 1.2, 12, 120, 600 mA; 0 to 1.2, 12 amps.
AC Current: 0 to 120 mA, 0 to 1.2, 12 amps.
Resistance: Rx1, Rx100, Rx1K, Rx10K.
Accuracy: DC volts ±2%; AC volts ±3%; DC current ±2%.

Simpson Model 265 Industrial VOM—Catalog No. 12184. Net Each..... **$205.00**

ACCESSORIES LISTED ON ANOTHER SIMPSON PAGE

Simpson Portable Test Instruments

INSTRUMENTS THAT STAY ACCURATE



MODEL 150-2 AMP-CLAMP ADAPTER

Clamp-on type AC ammeter adapter allows measurement to be made without breaking the circuit being tested. Adapter plugs into 160, 260, 260XL, 261, 270, 250 or 255 VOM and can be used with any VOM having a 0–2.5, 0–3 or 0–5 VAC scale. Set VOM to the 2.5, 3, or 5 VAC scale. AC current ratings are: on 2.5 VAC scale, 0 to 5, 10, 25, 50, 100, and 250 amps; on 3 VAC scale, 0 to 6, 12, 30, 60, 120 and 300 amps; on 5 VAC scale, 10, 20, 50, 100, 200, and 500 amps. Accuracy, ±3% F.S.

Simpson Model 150-2 Amp-Clamp Adapter—Catalog No. 00541 for Series 6; 00545 for Series 7. Complete with test lead. Net Each..... **$48.25**

MODELS 153-2 AND 154-2 AMP-CLAMP ADAPTERS

Clamp-on type AC ammeter adapter allows measurement to be made without breaking the circuit being tested. Adapter plugs into digital multimeter. Readout is on 0.2, 2 or 20 VAC scale. Ranges are: on 0.2 VAC scale, 0–2 A; 2 VAC scale, 20 A; 20 VAC scale, 200 A. **Accuracy:** ±3% on 20 and 200 A ranges; ±4% on 2 A range.

Simpson Model 153-2 Amp-Clamp Adapter—Catalog No. 00542. For Model 461 DMM. Net Each..... **$48.25**

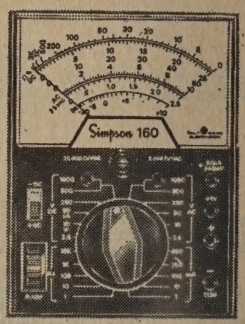
Simpson Model 154-2 Amp-Clamp Adapter—Catalog No. 00543. For Models 360-2, 460-3 and 464 DVMs. Net Each..... **$48.25**

Simpson No. 00533—Extra Test Lead. Net Each..... **4.75**

Simpson No. 00548—Carrying Case. Net Each..... **15.75**

160 HANDI-VOM

Miniature VOM is shock and drop resistant. Has self-shielding, taut band movement, varistor protected from overloads, accuracy and sensitivity of full-size VOM.



SPECIFICATIONS

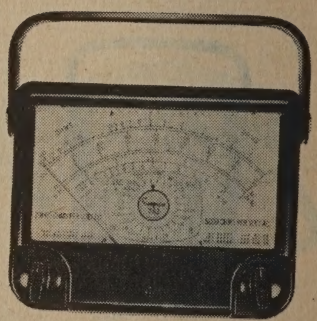
DC Volts: 0 to .25, 1, 2.5, 10, 50, 250, 500, 1000 volts at 20,000 ohms per volt sensitivity.
AC Volts: 0 to 2.5, 10, 50, 250, 500, 1000 volts at 5000 ohms per volt sensitivity.
DC Current: 0 to 50 μA; 0 to 1, 10, 100, 250, 500 mA.
dB: −20 to +10, −8 to +22, +6 to +36, +20 to +50.
Resistance: Rx1, Rx10, Rx100, Rx1K, Rx10K.
Accuracy: DC ±2%; AC ±3%.
Size: 4⅜″ h. x 3⅜″ w. x 1¾″ d.
Weight: 12 ozs.

Simpson 160 Handi-VOM—Catalog No. 12271. Complete with alligator clip leads, batteries and operator's manual. Net Each..... **$98.00**

Simpson No. 02056—Amp-Clamp Adapter Pins for 160 VOM. Net Each..... **3.75**

MODEL 262-3 VOM

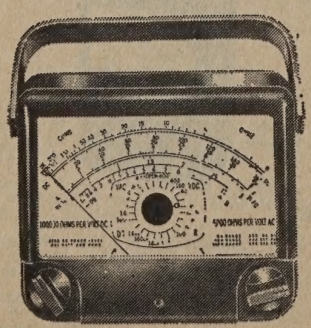
Compact design covers 34 ranges on easy-to-read 7″ scale with repetitive accuracy. Diode overload protection.



SPECIFICATIONS

DC Volts: 0 to 1.6, 8, 40, 160, 400, 800, 1600, 4000 (with probe) volts at 20,000 ohms per volt sensitivity.
AC Volts: 0 to 3, 8, 40, 160, 400, 800 volts at 5000 ohms per volt sensitivity.
DC Current: 0 to 80, 160 μA; 0 to 1.6, 16, 160 mA; 0 to 1.6, 8 amps.
dB: −12 to +45.5 in four ranges.
Output: 0.1 μF capacitor in series with AC voltage ranges thru 160 volts.
Resistance: Rx1 (500 ohms), Rx10 (5K ohms), Rx100 (50K ohms), Rx1K (500K ohms), Rx10K (5 megohms), Rx100K (50 megohms).
Accuracy: DC volts ±2%; AC volts ±3%; DC current ±2%; Resistance ±2.5° of arc.
Size: 7¼″ w. x 6″ h. x 3″ d.
Weight: 4 lbs.

Simpson Model 262-3—Catalog No. 12182. Complete with test leads, 4000 VDC probe extension, batteries and manual. Net Each..... **$179.00**



MODEL 269-3 VOM

Self-shielded taut band movement gives better repeatability of readings. Input circuits protected by fuse; movement protected by varistor. Meter has mirror scale and knife-edge pointer for more accurate readings; ±1.5% DC and ±2.5% AC accuracy.

SPECIFICATIONS

DC Volts: 0 to 0.8, 1.6, 8, 40, 160, 400, 800, 1600, 4000 at 100,000 ohms/volt sensitivity.
AC Volts: 0 to 3, 8, 40, 160, 400, 800 at 5000 ohms/volt sensitivity.
DC Current: 0 to 16, 160 μA; 0 to 1.6, 16, 160 mA; 0 to 1.6, 8 amps.
dB: −12 to +45.5 in four ranges.
Output: External 0.1 μF capacitor required when DC is present.
Resistance: Rx1 (2K ohms), Rx10 (20K ohms), Rx100 (200K ohms), Rx1K (2 megohms), Rx10K (20 megohms), Rx100K (200 megohms).
Accuracy: All ranges ±1.5%; Resistance ±2° of arc.
Size: 7¼″ w. x 6″ h. x 3″ d.
Weight: 4 lbs.

Simpson Model 269-3—Catalog No. 12192. Complete with test leads, 4 KV probe extension, and manual. Net Each..... **$208.00**

ACCESSORIES LISTED ON ANOTHER SIMPSON PAGE

PRICES LISTED ARE FOR GUIDANCE ONLY

INSTRUMENTS THAT STAY ACCURATE

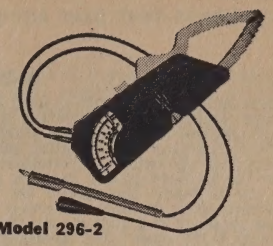
AMP-CLAMP SERIES

Compact instruments for faster, easier measurement of AC systems and easy location of grounds and shorts in motors, relays, transformers and control circuits. Load balance tests and AC current measurements can be made without equipment shutdown or power interruption.

MODEL 296-2 VOLT/OHM/AMMETER

SPECIFICATIONS

AC Volts: 0 to 30 150, 300, 600 volts.
AC Current: 0 to 6, 15, 30, 60, 150, 300 amps.
Resistance: 0 to 500 ohms.
Accuracy: ±3%.
Size: 10″ l. x 2.7″ w. x 1.4″ d.
Weight: 14 ozs.
Simpson Model 296-2 Volt/Ohm/Ammeter—Catalog No. 12225. Complete with test leads, battery, two fuses and operator's manual. Net Each..... **$99.00**

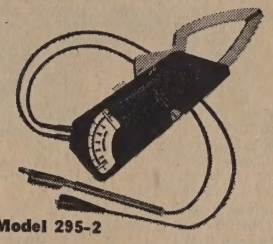


Model 296-2

MODEL 295-2 VOLT/AMMETER

SPECIFICATIONS

AC Volts: 0 to 30, 150, 300, 600 volts.
AC Current: 0 to 6, 15, 30, 60, 150, 300 amps.
Accuracy: ±3%.
Size: 10″ l. x 2.7″ w. x 1.4″ d.
Weight: 14 ozs.
Simpson Model 295-2 Volt/Ammeter—Catalog No. 12224. Complete with test leads and manual. Net Each..... **$88.00**

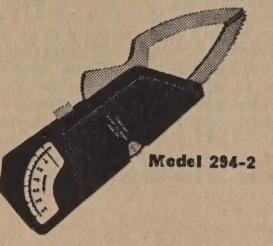


Model 295-2

MODEL 294-2 AC AMMETER

SPECIFICATIONS

AC Current: 0 to 6, 15, 30, 60, 150, 300 amps.
Accuracy: ±3%.
Size: 10″ l. x 2.7″ w. x 1.4″ d.
Weight: 14 ozs.
Simpson Model 294-2 AC Ammeter—Catalog No. 12223. Complete with manual. Net Each..... **$75.00**



Model 294-2

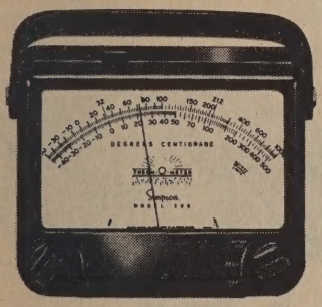
ACCESSORIES

Simpson No. 02226—Deluxe black vinyl carrying case for Amp-Clamp meters. Net Each..... **$27.50**
Simpson No. 02228—Economy black vinyl carrying case for Amp-Clamp meters. Net Each..... **$10.75**
Simpson No. 02227—Voltage probe and holding bracket. Net Each..... **4.75**

MODEL 151-2 LINE SPLITTER

Line splitter measures AC line currents up to 10 amperes continuously or to 15 amperes intermittently, all without power interruption. Unit provides 10X multiplication for low current values. Permits appliance ground to be connected directly to earth ground. The tough, durable, high-impact resistant housing withstands industrial and heavy-duty maintenance conditions.
Model 151-2 AC Line Splitter—Catalog No. 00544. Complete with 2 ft. line cord, 3-prong plug and operator's manual. Net Each..... **$12.50**

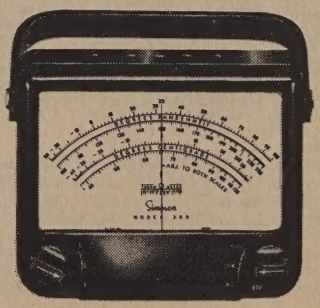
Model 151-2



MODEL 388-3L THERM-O-METER

Measures the temperature of gases, air, solids or liquids over a range from −50° F to +1000° F (−40° C to +500° C). Combination Fahrenheit and Centigrade scale. Iron-Constantan thermocouple sensing element. **Accuracy:** ±1½ scale divisions. **Size:** 7 15/16″ w. x 6″ h. x 2 15/16″ d. **Weight:** 4 lbs. Meter is switchable between three probes.

Simpson Model 388-3L Therm-O-Meter—Catalog No. 12460. Complete with one probe on 8 foot lead, battery and operator's manual. Net Each..... **$184.00**



MODEL 389-3L DUAL RANGE THERM-O-METER

Dual range temperature tester makes readings in three different locations with switch selection of probes. Dial has combination Fahrenheit and Centigrade scales. **Ranges:** −50° F to +100° F (−40° C to + 35° C); +100° F to +250° F (+40° C to + 120° C). **Accuracy:** ±2° F at center scale; ±3° F elsewhere. **Size:** 7 15/16″ w. x 6″ h. x 2 15/16″ d. **Weight:** 4 lbs.

Simpson Model 389-3L Therm-O-Meter—Catalog No. 12470. Complete with 15 foot thermistor lead and operator's manual. Net Each..... **$173.00**

Model 385-3L

Model 387

MODEL 385-3L TEMPERATURE METER

Compact instrument ideal for measuring temperatures from −50° F to +70° F under conditions where fast, accurate readings are important. Thermistor type sensing element. Takes temperature readings in three different locations with switch selection. **Accuracy:** ±1° F at center scale; ±2° F at ends. **Size:** 5⅞″ h. x 3″ w. x 2½″ d. **Weight:** 1½ lbs.

Simpson Model 385-3L Temperature Meter—Catalog No. 12420. Complete with one 15 foot thermistor lead and operator's manual. Net Each..... **$98.00**

MODEL 387 APPLIANCE TESTER

Millivoltmeter makes gas appliance servicing faster and more accurate. Connect the probe to the thermocouple output and test for the correct current output. Checks all gas-fired appliances. **Ranges:** 0 to 10, 30, 100, 300, 1000 millivolts. **Accuracy:** ±3% of full scale. **Size:** 5⅞″ h. x 3″ w. x 2½″ d. **Weight:** 1½ lbs.

Simpson Model 387 Appliance Tester—Catalog No. 12440. Net Each..... **$77.00**

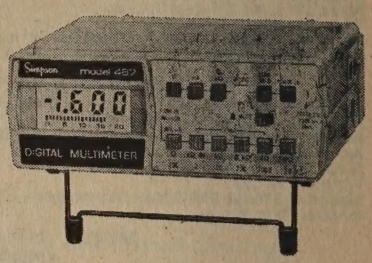
ACCESSORIES LISTED ON ANOTHER SIMPSON PAGE

Simpson Test Equipment

INSTRUMENTS THAT STAY ACCURATE

MODEL 467 DMM

3½ digit hand portable DMM with LCD digital and analog display, 50 sec pulse detection, and visible/audible indication of continuity and logic level. The model 467 combines the best features of high quality DDMs in a combination of digital and analog display to analyze both steady and pulsating signals, differential + and − peak-holding capability, and fast pulse detection and audible indication. This versatile instrument can actually replace the oscilloscope and the logic probe in many applications. In the differential peak mode, for instance, the Model 467 can make percent modulation and signal tracing measurements; in the pulse detection mode, it can give a visual and/or audible indication of pulse presence and logic states. Other standard features include: True Rms measuring capability, 0.1% basic VDC accuracy, continuity detection with both visual and audible indications, high voltage transient projection, and excellent overload protection. The unit is also safety designed to meet UL-1244 requirements. Available in blue (model 467) or black (model 467B) (specify). Unit comes complete with 9-volt battery, test leads with screw-on alligator clips, and instruction manual.



MODEL 467

SPECIFICATIONS

DC Volts: 200 mV; 2, 20, 200, 100 V
Accuracy: ±(1% of input = 10 digits)
AC Volts: 200 mV; 2, 20, 200, 750 V
Accuracy: 20 to 40 Hz, ±(1.5% of input + 5 counts); 40 Hz to 1 KHz, ±(0.5% of input + 5 counts, to 400 Hz only over 20 V); 1 KHz to 5 KHz, ±(0.5% of input + 5 counts, not specified over 20 V)
DC Current: 200 µA, 2, 20, 200, 200 mA
Accuracy: ±(1% of input + 10 digits)
Resistance: 0–200 Ω, 2, 20, 200, 2000 KΩ, 20 MΩ
Accuracy: ±(0.25% of input + 1 count, or for 20 megohm ±1% of input + 1 count)
Temperature Coefficient: (0° C to +18° C and +28° C to +55° C). Less than 0.1 times the applicable accuracy specification per °C.

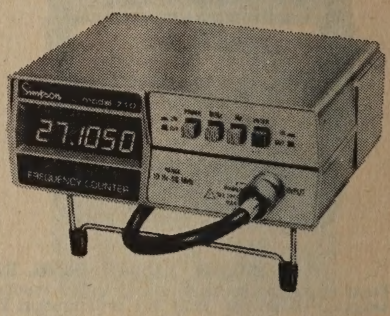
Simpson Model No. 467 (blue) and 467B (black)—Net Each..... **$257.00**
Model No. 00748 RF Probe—Net Each..... **39.75**
Model No. 00749 Hi-Voltage Probe—Net Each..... **49.25**
Model No. 00758 Temperature Probe—Net Each..... **115.75**
Model No. 153-2 AC Amp Clamp Adapter—Net Each..... **48.25**
Model No. 00043 Extra Test Leads w/Alligator Clips—Net Each..... **9.00**
Model No. 00813 Carrying Case—Net Each..... **25.50**

MODEL 710 60 MHz FREQUENCY COUNTER

10 Hz to 60 MHz.
2 Ranges—Hz and MHz.
6 digit, 0.35″ LED display with overrange indicator.
Accuracy—±1 count (±time base accuracy), standard 10 ppm time base.
Resolves 1 Hz.
Switchable low-pass filter.
LSI circuitry.
Folding bench stand.

SPECIFICATIONS

Frequency Range: 10 Hz to 60 MHz.
Gate Time: 10 msec. (0.1 kHz resolution), 1 sec. (1 Hz resolution).
Accuracy: ±1 count ± time base accuracy.
Input Impedance: 1 megohm, shunted by 30 pF.
Input Sensitivity (sine wave): 50 mV rms from 10 Hz to 50 MHz; 100 mV rms from 50 MHz to 60 MHz.
Max. Input Voltage: 240 V peak from 10 Hz to 100 kHz; derated to 100 V peak at 1 MHz and 25 V peak at 60 MHz.
Internal Time Base:
Frequency: 6.5536 MHz.
Temperature Stability: ±10 ppm max., 0° C to +45° C.
Aging Rate: ±5 ppm max. per year.
Stability (with line voltage variations): ±1 ppm for ±10% line voltage variation
Input Filter: Low pass, 3 dB at 1 MHz
Display: 0.35″, 7 segment, 6 digit.
Sample Rate: 5 samples/sec. at MHz switch position; 0.5 samples/sec. at Hz position.
Operating Temperature: 0° C to +45° C.
Storage Temperature: −40° C to +70° C.
Power Requirements: 120 VAC ±10%, 50–400 Hz, approximately 5 VA.
Size: 2″ h. x 5.63″ w. x 4.6″ d.
Weight: 12 oz.



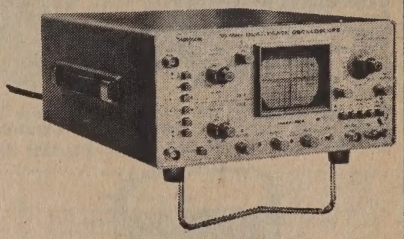
Simpson Model 710 Frequency Counter—Catalog No. 12707. Net Each..... **$199.00**
Simpson No. 00754—RF Connecting Cable. Net Each..... **11.50**
Simpson No. 00755—Dummy Load, 50 ohm, 15 Watt capacity. Net Each.... **22.50**
Simpson No. 00753—RF Connecting Cable For Use With Dummy Load. Net Each..... **11.50**
Simpson No. 00756—12 VDC Auto Lighter Adapter. Net Each..... **19.25**
Simpson No. 00791—Low-Capacity Probe. Net Each..... **44.00**
Simpson No. 00747—Carrying Case. Net Each..... **29.50**

ACCESSORIES LISTED ON ANOTHER SIMPSON PAGE

PRICES LISTED ARE FOR GUIDANCE ONLY

MODEL 454 DUAL TRACE, 15 MHz OSCILLOSCOPE

Automatic chop and alternate sweep
Frequency response from DC to 15 MHz
29 nanosecond rise time
1 KHz square wave calibrator
X5 expansion
All solid state



SPECIFICATIONS

VERTICAL AMPLIFIERS

Sensitivity: 5 mV/div to 10 V/div calibrated in 1-2-5 sequence in 11 steps, uncalibrated continuous control between steps.
Bandwidth: DC coupled, DC to 15 MHz at −3 dB; AC coupled, 5 Hz to 15 MHz at −3 dB.
Rise Time: 2 nanoseconds.
Input Impedance: 1 megohm shunted by 25 pF.
Display Modes: CH A, CH B, CH A and CH B, CH A plus CH B, CH A minus CH B.

HORIZONTAL AMPLIFIERS

Sensitivity: 5 mV/div to 10 V/div calibrated in 1-2-5 sequence in 11 steps, uncalibrated continuous control between steps.
Bandwidth: DC coupled, DC to 800 KHz; AC coupled, 5 Hz to 800 KHz.
Input Impedance: 1 megohm shunted by 50 pF.

HORIZONTAL SWEEP RANGES

Time/cm: 0.5 μsec/div to 0.5 sec/div in 1-2-5 sequence in 11 calibrated steps; uncalibrated continuous control between steps.
TV: Pushbutton TV sync.

TRIGGERING

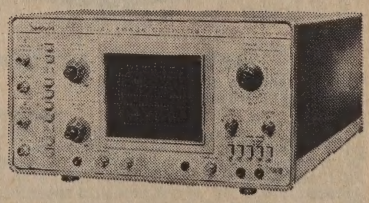
Source: External, CH A, CH B.
Mode: Normal or automatic.
Coupling: AC.
Slope: − or + of trigger signal.
Sensitivity: Internal, 1 div. from 5 Hz to 15 MHz; TV, 0.5 div.; external, 0.5 V p-p from 5 Hz to 15 MHz.

GENERAL

Power Requirements: 120/240 VAC, 50/60 Hz, 16 VA.
Size: 4⅝″ h. x 9⅞″ w. x 13¼″ d.
Weight: 13 lbs.
Simpson Model 454 Oscilloscope—Catalog No. 12524. For 120 VAC operation. With two 10:1/direct probes. Net Each.....**$730.00**
Simpson Model 454 Oscilloscope—Catalog No. 12533. For 240 VAC operation. With two 10:1/direct probes. Net Each.....**$730.00**

MODEL 452 DUAL TRACE 5″ OSCILLOSCOPE

Internal or external triggering with TVV, TVH and VITS TV sync positions.
Dual matched differential vertical amplifiers.
Automatically shifts between Chop and Alternate as sweep time is changed.
5X magnification.
24 nanoseconds rise time.



SPECIFICATIONS

VERTICAL AMPLIFIERS

Bandwidth: DC coupled, DC to 15 MHz at −3 dB; AC coupled, 2 Hz to 15 MHz at −3 dB.
Sensitivity: 11 calibrated steps from 5 mV/cm to 10 V/cm, calibrated in 1–2–5 sequence; uncalibrated continuous control between steps.
Input Impedance: 1 megohm, shunted by 25 pF.
Rise Time: 24 nanoseconds.
Overshoot: 5% or less.
Max. Input Voltage: 500 V (DC + peak AC).
Display Modes: Ch. A only, Ch. B only, Channels A and B (chopped at 1 msec/cm and slower sweeps; alternated for faster speeds), Add (A + B), Channel B invert (A − B).
Chop Frequency: 200 kHz.

HORIZONTAL AMPLIFIERS

Bandwidth: DC coupled, DC to 1.5 MHz at −3 dB; AC coupled, 2 Hz to 1.5 MHz at −3 dB.
Sensitivity: 5 mV/cm to 10 V/cm, calibrated in 1–2–5 sequence in 11 steps; accuracy within ±5% of full screen deflection; uncalibrated continuous control between steps.
Input Impedance: 1 megohm, shunted by 25 pF.
Max. Input Voltage: 500 V (DC + peak AC).

HORIZONTAL SWEEP RANGES

Time/cm (20 ranges): 0.2 μsec/cm to 0.5 sec/cm (±5%), calibrated to 1–2–5 sequence in 20 steps; uncalibrated continuous control between steps.
TV-H: 12.7 μsec/cm.
TV-V: 3.33 msec/cm.
VITS: 0.1 msec/cm.
Magnifier: 5X expands fastest sweep speed, from 0.2 μsec/cm to 40 nsec/cm.

TRIGGERING

Source: External, Channel A, Channel B.
Mode: Normal or Automatic.
Coupling: AC.
Slope: Positive or negative.
Sensitivity: Internal (Ch. A or Ch. B), 0.5 cm p-p from 10 Hz to 10 MHz; 1 cm p-p from 3 Hz to 15 MHz. Auto, 0.5 cm p-p from 50 Hz to 10 MHz. External, 0.5 cm p-p from 3 Hz to 15 MHz. TV sync, 0.5 cm p-p of deflection.

GENERAL

Power Requirements: 120 VAC ±10%, 220 VAC, ±10% or 240 VAC ±10%; 50/60 Hz; 45 VA average.
Fuse Rating: 2 amperes, 125 V, 3 AG slow-blow for 120 VAC operation.
Size: 6½″ h. x 12″ w. x 16″ d.
Weight: 20 lbs.
Simpson Model 452 Oscilloscope—Catalog No. 12537. For 120 VAC operation. With two 10:1/direct probes. Net Each.....**$997.00**
Simpson Model 452 Oscilloscope—Catalog No. 12536. For 240 VAC operation. With two 10:1/direct probes. Net Each.....**$997.00**

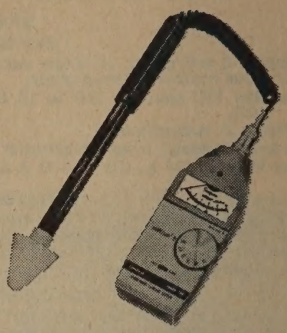
ACCESSORIES LISTED ON ANOTHER SIMPSON PAGE

Simpson Test Equipment

INSTRUMENTS THAT STAY ACCURATE

MODEL 380M MICROWAVE LEAKAGE TESTER

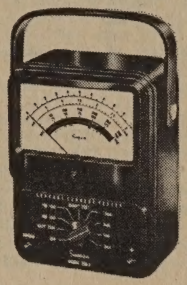
Meets the measurement requirements of the federal performance standard for leakage from microwave ovens.
Measures microwave leakage from domestic, industrial and commercial equipment operating at 2450 MHz.
Fast or slow response time for best measurement.
Tripod mount for stable measurements.
Non-polarized, hand-held probe for power density measurement provides automatic 5 cm spacing with maximum operator safety.
Battery powered operation.



SPECIFICATIONS

Calibration Frequency: 2450 MHz, ±10 MHz.
Power Density Ranges: 0 to 2.5, 10, 25, 100 mW/cm² at ±1 dB accuracy.
Response Time: Fast, 1.2 sec. max.; Slow, 3.0 sec. nom.
Temperature Coefficient: ±0.1 dB/10° C.
Power Required: Two NEDA #1604 batteries.
Size: 8.18″ l. x 3.03″ w. x 1.87″ d.
Weight: Under 1 lb.

Simpson Model 380M Microwave Leakage Tester—Catalog No. 12381. Complete with probe, foam spacer, two batteries and operator's manual in fitted carrying case. Net Each..... **$340.00**



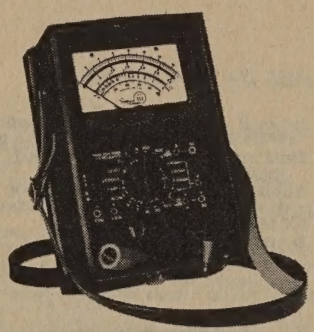
MODEL 229, SERIES 2, AC LEAKAGE TESTER

For measurement of leakage current in 120 and 240 VAC appliances and electrical equipment in accordance with ANSI C101.1–1973 and proposed UL 1244.

SPECIFICATIONS

AC Current: 0 to 0.3, 1, 3, 10 mA.
AC Volts: 0 to 150, 300 volts.
Short Test: Red arc, 1500 ohms; Green arc, 1 megohm.
Accuracy: ±2% at 60 Hz.
Input Impedance: 1500 ohms in parallel with 0.15 μF.
Size: 7″ h. x 5¼″ w. x 3⅛″ d.
Weight: 3 lbs.

Simpson Model 229-2 AC Current Leakage Tester—Catalog No. 12267. Complete with test leads, batteries and operator's manual. Net Each..... **$165.00**



MODEL TS-111 VOM

Designed for railroad servicing.
Built-in pointer stop for peak current measurements.
Special "power present" warning circuit for resistance measuring.
Complete with battery, test leads, leather case and operator's manual.
Measures "ON" time of coded track signals directly in percent.
Measures AC voltage superimposed on DC track signals.

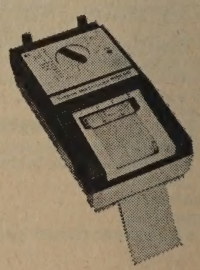
SPECIFICATIONS

DC Volts: 0 to 0.6, 3, 15, 60, 300 volts at 1000 ohms per volt sensitivity.
AC Volts: 0 to 3, 15, 150, 600 volts at 300 ohms per volt sensitivity. Will measure up to 100 VAC superimposed on up to 20% DCV.
DC Current: 0 to 15, 60, 300 mA; 0 to 1.5, 6, 30 amps.
AC Current: 0 to 3, 30 amps.
Resistance: 0 to 100, 10,000 ohms.
Accuracy: DC volts ±2%; AC volts ±3%; DC current ±2%; AC current ±3%; Pulse On ±2%.
Pulse "ON" Time: 0 to 100%.

Simpson Model TS-111—Catalog No. 12159. Net Each..... **$310.00**

MODEL 605-2 MULTICORDER® CHART RECORDER

Three selectable chart speeds.
24 selectable ranges.
Shock-proof, taut-band movement.
Inkless recording of range and value.



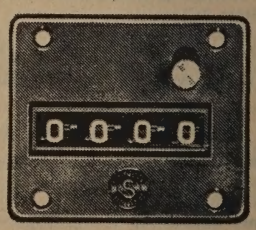
SPECIFICATIONS

DC Volts: 0 to 12, 30, 60 millivolts; to 3, 15, 60, 300, 600 volts.
AC Volts: 0 to 6, 30, 150, 300, 600 volts.
DC Current: 0 to 600 μA; 0 to 1.5, 3, 6, 30, 150 mA; 0 to 1.2, 6 Amps.
AC Current: 0 to 3, 15, 60, 300 mA; 0 to 1.2, 6 Amps.
Accuracy: ±2.5% of full scale on recording; ±1.5% of full scale indicating.
Chart Speeds: 1, 3, 12 inches per hour.
Impression Rate: 1 or 2 seconds, selectable.
Size: 9.75″ l. x 4.19″ w. x 4″ d.
Weight: 5½ lbs.

Simpson Model 605-2 Multicorder—Catalog No. 12613. For 120 VAC operation. Complete with test leads, two rolls chart paper and instructions. Net Each.. **$520.00**
Simpson Model 605-2 Multicorder—Catalog No. 12614. For battery operation. Complete with test leads, two rolls chart paper and instructions. Net Each.. **$619.00**

ELECTRO-MECHANICAL COUNTERS

Provide accurate counting up to 600 counts per minute. Features include: Rugged, rigid structure; instant numerical switching, only complete figures visible; readable from wide angles; resets with front panel pushbutton control; counts dependably on 50 milliseconds pulses. Built to operate reliably under actual field conditions of vibration, humidity and extreme temperatures. **Max. Indication:** 9,999. **Numerals:** White on black, .15″ w. x .2″ h. **Power Required:** 4.2 watts nominal, ±15% of rated voltage. **Size:** Panel 2.14″ w. x 0.4″ d. x 1.84″ h.; 1.88″ deep behind panel. **Construction:** Bezel of rugged thermosetting materials, black matte finish; heavy steel frame with a formed aluminum cover.



Voltage	Model No.	Cat. No.	Net Each
120 AC, 60 Hz	103	12643	$40.20
6 DC	104	12641	40.20
12 DC	104	12642	40.20

ACCESSORIES LISTED ON ANOTHER SIMPSON PAGE

PRICES LISTED ARE FOR GUIDANCE ONLY

Simpson Instrument Accessories

INSTRUMENTS THAT STAY ACCURATE

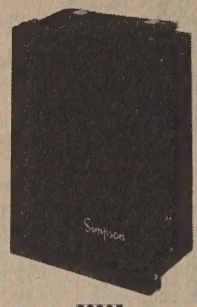
INSTRUMENT CARRYING CASES

Provide protection and carrying convenience for your instruments.

Fits Model(s)	Description	Cat. No.	Net Each
150	Carrying case	00548	$15.75
160	Low cost vinyl	02935	10.25
160	Vinyl	02225	21.50
160	Vacuum formed	02929	35.25
208, 209	Carrying case	00578	21.75
250, 255, 260, 260XL, 261, 265, 270, 303XL	Utility vinyl	00549	38.75
250, 260, 260XL, 261, 265, 270	Vinyl	01818	28.00
250, 260, 260XL, 261, 265, 270, 303	Ever-Redy vinyl	00805	34.25
	Deluxe case	00812	34.25
260 and Add-A-Tester	Leather case	01871	34.25
260-2, Model 9, Model 10, 880	Roll top safety case	06192	23.50
250; 255; 260-3, -4, -5 family; 261; 265; 270	Roll top safety case	00249	25.75
260-6 family, 270-4	Roll top safety case	00248	25.75
260 series except 260-6XL	Snap-on protective face cover	02163	30.50
262, 263, 267, 268, 269, 388-3L	Ever-Redy vinyl	05262	30.50
262, 263, 269	Leather, sponge lined	01613	31.00
294, 295, 296	Vinyl	02226	27.50
294, 295, 296	Low cost vinyl	02228	10.75
312, 313, 314	Vinyl	00577	33.00
312, 313, 314	Leather, sponge lined	01565	38.00
355	Ever-Redy, vinyl	06355	11.75
360-2	Carrying case	00816	39.75
380	Vinyl	00782	34.25
385-3L, 387	Ever-Redy, leather	08073	23.50
391, 392	Leatherette covered	03413	23.75
400	Vinyl carrying case	01615	28.25
401, 405	Vinyl case	01616	31.75
408	Carrying case	00809	30.50
410	Vinyl	00811	35.00
460-3, 464, 465	Vinyl	01617	40.25
461, 710	Carrying Case	00747	29.50
461-2	Carrying case	00814	27.00
603	Sponge lined case	20196	38.75
884, 886	Package case	00217	56.75
Microtesters	Ever-Redy vinyl	04299	21.50
Microtesters	Leatherette covered	03011	17.50
H. V. Probe	Snaps onto 00549	00574	11.75
TS-111	Carrying case	00719	42.00

SPECIAL USE PROBES

For Meter(s)	Description	Cat. No.	Net Each
260-2	40,000 VDC	00033	$40.00
250; 255; 260 (series 3, 4, 4M, 5, 5M, 5P, 6, 6M, 6P, 6XL, 6XLP); 261; 261-2; 267; 270; 270 (series 2, 3, 4)	40,000 VDC	00168	40.00
	10,000 VDC	00034	40.00
	10,000 VAC	00036	40.00
260 (series 6, 6M, 6P, 6XL, 6XLP); 270-4	5,000 VDC	00795	13.75
	5,000 VAC	00794	13.75
263; 265	40,000 VDC	00037	40.00
269	40,000 VDC	00039	40.00
303-1	RF probe	00073	25.00
311-1	RF probe	00731	40.00
	40,000 VDC	00725	40.00
311-2	RF probe	00174	31.00
	40,000 VDC	00725	40.00
311-3	RF probe	00176	31.00
	40,000 VDC	00726	40.00
312	RF probe	00152	25.00
	40,000 VDC	00727	40.00
313	RF probe	00191	23.00
	40,000 VDC	00728	40.00
314	RF probe	00193	23.00
	40,000 VDC	00729	40.00
360; 303XL; 460; 464; 465	40,000 VDC	00432	49.25
461	40,000 VDC	00749	49.25



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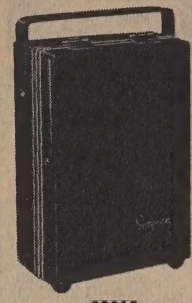

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TEST LEADS AND PROBES

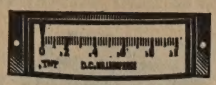
For Meter(s)	Description	Cat. No.	Net Each
150	Test leads	00533	$ 4.75
150 with 160	Adapter pins	02056	3.75
160	Probe tip leads	02055	6.75
	Alligator clip leads	01927	6.50
202, 208, 209, 229-2, 250, 255, 260 (series 3-6 only), 260XL, 261, 262 (series 3 only), 263, 265, 267, 268, 269 (series 2&3 only), 270, 360, 460, 464, 465	Comb. probe tip and removable alligator clip leads	00115	9.00
	Probe tip leads	07538	7.75
	Alligator clip leads	07500	7.00
	Retractable grip tip probe for use with 00115 leads	00118	8.50
230, 240, 260 (series 1&2 only), 372, 279	Probe tip leads	08381	7.75
	Alligator clip leads	08375	6.50
250, 255, 260, 261, 270	Low-power ohms probe	00735	51.25
256, 257	Comb. probe tip and removable alligator clip leads	07541	8.50
262 (series 1&2 only), 269 (series 1 only)	Comb. probe tip and removable alligator clip leads	08463	6.25
295, 296	Voltage probe	02227	4.75
303 (series 1 only), 651	DC probe tip lead	00067	11.75
	AC probe tip lead	00068	11.75
	Ground lead, 303-1	00069	6.25
303 (series 2 only),	AC/DC probe tip lead	00150	25.00
311	AC/DC probe tip lead	00175	24.75
313	AC/DC probe and ground clip lead	00189	24.00
314	AC/DC probe and ground clip lead	00194	55.00
355	Probe tip leads	08600	7.00
362, 371, 373, 374, 375, 376, 377, 378, 387	Probe tip leads	08379	7.75
	Alligator clip leads	08376	6.50
383A	Test lead assembly	07509	6.50
390	Test cord assembly	08418	15.75
400, 401, 405	Probe and clip	00737	4.50
455, 458, 459	Shielded input cable	07549	11.50
461	Comb. probe tip and removable alligator clip leads	00043	9.00
466, 715	Shielded input cable	00100	10.00
650	Test lead	07545	4.25
TS-111	Test leads	00236	8.75

TEMPERATURE TESTER LEADS AND PROBES

Fits Meter(s)	Description	Cat. No.	Net Each
385-3L, 389-3L, 651	Free air temp. probe	00789	$27.00
	15 ft. thermistor & lead	00010	23.75
	30 ft. thermistor & lead	00216	23.75
	50 ft. thermistor & lead	00415	25.50
	100 ft. thermistor & lead	00416	31.00
	150 ft. thermistor & lead	00417	38.75
	Surface temp. probe	00790	21.50
388, 388-2L	8 ft. rugged service lead	00496	20.00
	Gen pur. thermocouple	00190	20.00
	Surface temp. thermocouple. 1000° F max.	00187	25.50
255	5 ft. thermocouple	00163	14.00

TRIPLETT Panel Meters

EDGEWISE METERS



Designed for strikingly clean appearance. Edgewise panel meters occupy minimum space and provide performance of conventional panel meters. Available in five different sizes. **Case and Composition:** Model .5-E, thermoplastic front and steel back; all others thermoplastic front and thermosetting plastic back. **Scale Length:** Model .5-E, .84″; Models 120 & 150, 1.15″; Model 220-E, 1.75″; Model 320-E, 2.75″; Model 420-E, 3.87″. **Panel Hole Required:** Model .5-E, 1.27″ x .516″; Models 120 & 150, 1.687″ x .531″; Model 220-E, 2.25″ x .531″; Model 320-E, 3.45″ x 1.30″; Model 420-E, 4.562″ x 1.531″. **Depth Behind Panel:** Model .5-E, 1.431″; Models 120 & 150, 1.066″; Model 220-E, 3.03″; Model 320-E, 2.583″; Model 420-E, 3.53″. Bezels available (optional) for 3½″ and 4½″ Models can be mounted from front or rear of the panel.

Triplett Number 11977A—Metal bezel for 3½″ models. Net Each **$4.60**

Triplett Number 11967A—Metal bezel for 4½″ models. Net Each **4.60**

To Order: Specify Model, range, type and Triplett number from the appropriate tables below. Example, .5-E, 0–1, DC Ammeter, 1020102.

DC MICROAMMETERS (PIVOT AND JEWEL)

Range	Resis., Ohms	.5-E No.	Net Each	120 No.	Net Each	220-E No.	Net Each	320-E No.	Net Each	320-EG No.	Net Each	420-E No.	Net Each
0–50	2300	52–3188	$63.60	152–0296	$46.90	52–6253	$63.60	152–1313	$68.50	52–6630	$82.30	152–1971	$70.20
0–100	825	152–1164	58.30	152–0298	41.10	52–6315	58.30	152–1314	65.20	52–6631	78.90	152–1972	67.10
0–200	360	152–1166	53.30	152–0300	35.70	52–6628	53.30	152–1315	59.50	52–6632	75.40	152–1973	64.20
0–500	156	152–1169	52.00	152–0303	35.20	52–6629	52.00	152–1316	58.10	52–6633	73.40	152–1974	61.90
50–0–50	825	.....	.....	152–1194	41.10	.....	.....	.....	.....	.....	.....	.....	.....
100–0–100	360	.....	.....	152–1195	35.70	.....	.....	.....	.....	.....	.....	.....	.....
500–0–500	55	.....	.....	152–1196	33.30	.....	.....	.....	.....	.....	.....	.....	.....

DC MICROAMMETERS (SUSPENSION TYPE)

0–10	15000	.....	.....	.....	.....	.....	.....	152–1361	$98.00	.....	.....	152–1975	$100.10
0–20	7500	.....	.....	.....	.....	.....	.....	152–1983	87.60	.....	.....	152–1976	89.60
0–50	2300	.....	.....	.....	.....	.....	.....	152–1981	73.40	.....	.....	152–1977	76.10
0–100	825	.....	.....	.....	.....	.....	.....	152–1982	68.50	.....	.....	152–1978	70.20
0–200	360	.....	.....	.....	.....	.....	.....	152–1984	65.90	.....	.....	152–1979	68.50
0–500	56	.....	.....	.....	.....	.....	.....	152–1346	65.10	.....	.....	152–1980	67.10

DC MILLIAMMETERS

0–1	55	152–1176	$50.30	152–0305	$32.00	52–2238	$50.30	152–1300	$56.90	152–2433	$70.90	152–1950	$59.50
0–5	8.5	152–1181	50.30	152–0310	32.00	52–6576	50.30	152–1301	56.90	52–6581	70.90	152–1951	59.50
0–10	3.1	152–2399	50.30	152–0312	32.00	52–6577	50.30	152–1302	56.90	52–6582	70.90	152–1952	59.50
0–50	1.0	152–2400	51.20	152–0317	33.30	52–6578	51.20	152–1303	58.20	52–6583	72.30	152–1953	60.60
0–100	.5	152–2401	51.20	152–0319	33.30	52–6579	51.20	152–1304	58.20	52–6584	72.30	152–1954	60.60
0–200	.25	152–2402	51.20	152–0321	33.30	52–6279	51.20	152–1305	58.20	52–6585	72.30	152–1955	60.60
0–500	.1	152–2403	51.20	152–0324	33.30	52–6580	51.20	152–1307	58.20	52–6586	72.30	152–1957	60.60

DC AMMETERS

0–1	.....	52–6588	$51.40	152–1343	$33.30	52–6589	$51.40	152–1350	$58.20	52–6590	$72.30	152–1959	$60.60
0–5	.....	.....	.....	.....	.....	.....	.....	152–1353	58.20	52–6591	72.30	152–1960	60.60
0–10	.....	.....	.....	.....	.....	.....	.....	252–1400	58.20	52–6592	72.30	152–1961	60.60
0–30	.....	.....	.....	.....	.....	.....	.....	152–1404	58.20	52–6593	72.30	52–6657	60.60
0–50	.....	.....	.....	.....	.....	.....	.....	152–1405	58.20	52–6594	72.30	152–1963	60.60

DC MILLIVOLTMETERS (PIVOT AND JEWEL)

0–50	6.7	52–3720	$51.40	152–0326	$33.00	52–6600	$51.40	152–1333	$56.90	52–6601	$72.30	152–1958	$60.60

DC VOLTMETERS (1000 OHMS/VOLT)

0–5	.....	152–1221	$52.10	152–0336	$35.20	52–6604	$52.10	152–1410	$59.30	52–6609	$74.70	152–1964	$63.00
0–10	.....	152–1254	52.10	152–0338	35.20	52–6605	52.10	152–1317	59.30	52–6610	74.70	152–1965	63.00
0–25	.....	152–1257	52.10	152–0341	35.20	52–6280	52.10	152–1320	59.30	52–6611	74.70	152–1966	63.00
0–30	.....	152–1258	52.10	152–0342	35.20	52–6606	52.10	152–1321	59.30	52–6612	74.70	152–2364	63.00
0–50	.....	152–1259	52.10	152–0343	35.20	52–6607	52.10	152–1322	59.30	52–6613	74.70	152–1967	63.00
0–150	.....	152–1286	52.10	152–0346	35.20	52–6608	52.10	152–1337	59.30	52–6614	74.70	152–1968	63.00
0–500	.....	.....	.....	.....	.....	.....	.....	152–1341	61.90	52–6615	75.40	152–1970	63.90

VOLUME UNIT METERS

Scale	Resis., Ohms	.5-E No.	Net Each	150 No.	Net Each	220-E No.	Net Each	320-E No.	Net Each	320-EG No.	Net Each	420-E No.	Net Each
A	3900	.....	.....	52–3007	$61.90	.....	.....	.....	.....	.....	.....	.....	.....
B	3900	.....	.....	52–3163	61.90	.....	.....	.....	.....	.....	.....	.....	.....

WATTMETERS

Single phase wattmeters are available in 3½″ size only. Electrodynamometer type panel instruments come in three different styles. **Flange Size:** Model 360-G, 3.50″ w. x 2.99″ h.; Model 361, 3.50″ dia.; Model 367-A, 3.00″ w. x 3.00″ h. **Body Size:** Model 360-G, 2.75″ dia. x 1.75″ d.; Model 361, 2.75″ dia. x 1.937″ d.; Model 367-A, 2.75″ dia. x 2.047″ d. **Term. Extend:** Model 360-G, .687″ max.; Model 361, .687″ max.; Model 367-A, .687″ max.

Range, Watts	Normal V	Normal A	360-G Number	Net Each, Lots of 1-24	Net Each, Lots of 25-49	Net Each, Lots of 50 Up	361 Number	367-A Number	Net Each, Lots of 1-24	Net Each, Lots of 25-49	Net Each, Lots of 50 Up
0–150	150	1.0	54–0064	$79.80	$63.84	$59.85	154–0009	154–0018	$71.80	$57.44	$53.85
0–300	150	2.0	54–0065	79.80	63.84	59.85	154–0010	154–0019	71.80	57.44	53.85
0–750	150	5.0	154–0002	79.80	63.84	59.85	154–0011	154–0020	71.80	57.44	53.85
0–300	300	1.0	154–0001	87.20	69.76	65.40	154–0013	154–0022	79.50	63.60	59.63
0–600	300	2.0	154–0005	87.20	69.76	65.40	154–0014	154–0023	79.50	63.60	59.63

CONTACT US FOR THE AVAILABILITY OF ADDITIONAL RATINGS

PRICES LISTED ARE FOR GUIDANCE ONLY

TRIPLETT Panel Meters

GENERAL PANEL METER INFORMATION

Triplett meters offer ±2% accuracy, rugged construction, high overload capacity and long-term reliability. **DC meters** are d'Arsonval type with spring back, pivot and jewel construction except for certain microammeters with high-sensitivity suspension movement; linear scales; extra light moving coil; self-shielded Bar-Ring® magnet; one-piece diecast frame. **AC meters** are moving iron vane type, viscous damped, with light moving parts. All have spring back jewel bearings; specially treated pivots; white enameled metal dials; ceramic pointer stops; molded zero adjusters, case and base. **Accuracy:** 2 ±% except AC rect. type, ±3%. **Repeatability:** Suspension type, ±0.5%; pivot, ±2%. **Overload Capacity:** 1 second: current, 1000% except AC rect. and RF, 150%; voltage, 0–100 V, 1000% except RF thermocouple, AC rect., 150%. **Continuous Overload:** 120% except DC and AC (iron vane) current, 150%. **Damping Factor:** 2.5 min. **G-Series Meters (Fig. A):** Flexible and interchangeable design with optional mounting bezel for mounting behind panel. Large dial area for multiple scales. Natural aluminum insert. **GL-Series Meters:** Same as G Series, except black thermosetting plastic case. **Phenolic Series:** Model 221-T (Fig. B) come with glass window, thermosetting plastic case and three stud mountings. Optional illumination available for certain models. Model 227-T (Fig. C) comes with glass window, thermosetting plastic case and four stud mtgs. Optional illumination available for certain models.

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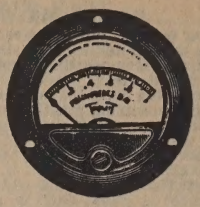
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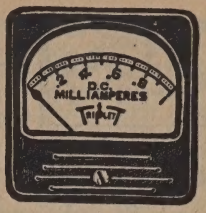

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2½" PANEL INSTRUMENTS

AC, DC or RF 2½" meters come in three different styles. Table below indicates the dimensions of the meters. **To Order:** Specify both model and Triplett part number from the appropriate tables below. Example, model 220-G, number 10696 15 indicates DC Microammeter, pivot and jewel type with 0–50 μA range in G-series case. Bezel and illumination kit available for G-series.

Triplett Number 13-238—Metal bezel for G-series. Size, 3.09" w. x 1.69" h. Allow .5" additional width for bezel mounting hardware.
Net Each..... **$4.60**
Triplett Number 66-80—Illumination kit for G-series.
Net Each..... **$5.00**

Model	Meter Type	Nominal Size	Fig.	Scale Length	Flange Size, W. x H.	Body Size, Dia. x Depth	Term. Extend
220-G	DC	2½"	A	2.48"	2.77" x 2.39"	2.2" x 1.39"	.73"
230-G	AC	2½"	A	2.11"	2.77" x 2.39"	2.2" x 1.39"	.73"
240-G	RF	2½"	A	2.48"	2.77" x 2.39"	2.2" x 1.39"	.73"
221-T	DC	2½"	B	1.76"	2.687" dia.	2.203" x .937"	.75"
231-S	AC	2½"	B	1.58"	2.687" dia.	2.203" x 1.312"	.75"
241-T	RF	2½"	B	1.76"	2.687" dia.	2.203" x .937"	.75"
227-T	DC	2½"	C	1.76"	2.375" x 2.375"	2.156" x 1.00"	.75"
237-S	AC	2½"	C	1.58"	2.375" x 2.375"	2.156" x 1.375"	.75"
247-T	RF	2½"	C	1.76"	2.375" x 2.375"	2.156" x 1.00"	.75"

DC MICROAMMETERS (PIVOT AND JEWEL)

Range	Resis., Ohms	220-G 220-GL Number	221-T Number	227-T Number	Net Each, Lots of 1-24	25-49	50 Up
0–50	2300	152-0143	152-1473	152-1542	$46.90	$37.52	$35.18
0–100	825	152-0145	152-1474	152-1543	41.10	32.88	30.83
0–200	360	152-0147	152-1475	152-1544	35.70	28.56	26.78
0–500	156	152-0150	152-1476	152-1545	35.20	28.16	26.40

DC MICROAMMETERS (SUSPENSION TYPE)

0–5	15000	152-1155	152-1477	152-1546	$88.40	$70.72	$66.30
0–10	7500	152-0226	152-1478	152-1547	76.10	60.88	57.08
0–20	2500	152-0228	152-1479	152-1548	65.20	52.16	48.90
0–50	825	152-0231	152-1480	152-1549	51.30	41.04	38.48
0–100	360	152-0247	152-1481	152-1550	46.00	36.80	34.50
0–200	156	152-0249	152-1482	152-1551	41.90	33.52	41.43
0–500	40	152-0252	152-1483	152-1552	40.80	32.64	30.60
0–1000†	12.5	152-1270	152-1484	152-1576	38.60	30.88	28.95
0–50‡	360	152-1236	152-1485	152-1553	46.00	36.80	34.50
0–100‡	156	152-1237	152-1486	152-1554	41.90	33.52	31.43
0–500‡	12.5	152-1238	152-1487	152-1555	38.60	30.88	28.95

†Reads 0–1 mA. ‡Zero center range.

DC MILLIAMMETERS

0–1	55	152-0152	152-1425	152-1494	$33.30	$26.64	$24.98
0–5	8.5	152-0157	152-1428	152-1497	33.30	26.64	24.98
0–10	3.1	152-0159	152-1429	152-1498	33.30	26.64	24.98
0–25	2.0	152-0162	152-1431	152-1500	34.50	27.60	25.88
0–50	1.0	152-0164	152-1432	152-1501	34.50	27.60	25.88
0–100	0.5	152-0166	152-1434	152-1503	34.50	27.60	25.88
0–200	0.25	152-0168	152-1436	152-1505	34.50	27.60	25.88
0–500	0.1	152-0171	152-1440	152-1509	34.50	27.60	25.88

DC AMMETERS

0–1	.....	152-0173	152-1443	152-1512	$33.30	$26.64	$24.98
0–5	.....	152-0176	152-1445	152-1514	33.30	26.64	24.98
0–10	.....	152-0177	152-1446	152-1515	33.30	26.64	24.98
0–30	.....	152-0182	152-1449	152-1518	34.90	27.92	26.18
0–50	.....	.....	152-1450	152-1519	34.90	27.92	26.18

DC VOLTMETERS (1000 OHMS/VOLT)

0–5	.....	152-0193	152-1456	152-1525	$35.20	$28.16	$26.40
0–10	.....	152-0195	152-1457	152-1526	35.20	28.16	26.40
0–25	.....	152-0198	152-1459	152-1528	35.20	28.16	26.40
0–30	.....	152-0199	152-1460	152-1529	35.20	28.16	26.40
0–50	.....	152-0200	152-1461	152-1530	35.20	28.16	26.40
0–100	.....	152-0202	152-1462	152-1531	35.20	28.16	26.40
0–150	.....	152-0203	152-1463	152-1532	35.20	28.16	26.40

*2000 ohms/volt; external multiplier box furnished.

DC MILLIVOLTMETERS (PIVOT AND JEWEL)

Range	Resis., Ohms	220-G 220-GL Number	221-T Number	227-T Number	Net Each, Lots of 1-24	25-49	50 Up
0–50	6.7	152-0183	152-1451	152-1520	$33.30	$26.64	$24.98

AC MILLIAMMETERS

Range	Resis., Ohms	220-G 220-GL Number	231-S Number	237-S Number	Net Each, Lots of 1-24	25-49	50 Up
0–10	4000	153-0142	153-0369	153-0398	$32.40	$25.92	$24.30
0–50	120	153-0147	153-0372	153-0401	32.40	25.92	24.30
0–100	40	153-0149	153-0373	153-0402	32.40	25.92	24.30
0–250	5.9	153-0152	153-0375	153-0404	32.40	25.92	24.30
0–500	1.55	153-0155	153-0376	153-0405	32.40	25.92	24.30

AC AMMETERS

For ranges above 50, use AC ammeter current transformers.

0–1	.38	153-0001	153-0348	153-0377	$32.40	$25.92	$24.30
0–2	.092	153-0003	153-0349	153-0378	32.40	25.92	24.30
0–3	.039	153-0005	153-0350	153-0379	32.40	25.92	24.30
0–5	.014	153-0006	153-0351	153-0380	32.40	25.92	24.30
0–10	.004	153-0065	153-0352	153-0381	32.40	25.92	24.30
0–15	.003	153-0066	153-0353	153-0382	32.40	25.92	24.30
0–25	.002	153-0068	153-0354	153-0383	32.40	25.92	24.30
0–30	.001	153-0069	153-0355	153-0384	32.40	25.92	24.30
0–50	.00035	153-0070	153-0356	153-0385	32.40	25.92	24.30

AC VOLTMETERS

0–10	10	153-0072	153-0360	153-0389	$32.40	$25.92	$24.30
0–50	50	153-0077	153-0363	153-0392	32.40	25.92	24.30
0–100	91	153-0022	153-0364	153-0393	32.40	25.92	24.30
0–150	125	153-0023	153-0365	153-0394	35.90	28.72	26.93
0–250	144	153-0025	153-0366	153-0395	36.30	29.04	27.23
0–300	144	153-0026	153-0367	153-0396	36.30	29.04	27.23
0–500*	125	153-0214	153-0368	153-0397	54.30	43.44	40.73

*External multiplier box furnished.

RF THERMOAMMETERS

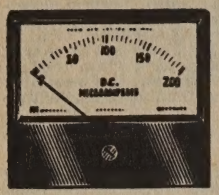
Range	Resis. Ohms	240-G Number	241-T Number	247-T Number	Net Each, Lots of 1-24	25-49	50 Up
0–1	.35	52-3435	152-1489	152-1557	$40.50	$32.40	$30.38
0–1.5	.21	52-3531	152-1490	152-1558	40.50	32.40	30.38
0–5	.06	52-3169	152-1492	152-1560	40.50	32.40	30.38
0–10	.03	52-3422	152-1493	152-1561	40.50	32.40	30.38

CONTACT US FOR AVAILABILITY OF ADDITIONAL RATINGS

CURRENT PRICES WILL APPLY ON ALL LINES

TRIPLETT Panel Meters

A



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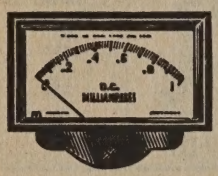


C

PANEL METERS—3.5″ AND 4.5″ SIZES

Similar to 2½″ panel meters. Same specifications except the size. **G and T Series** are similar to 2½″ size meters. **GL Series** comes with glass window, flat black thermosetting plastic case, two stud mounting and contoured base with sealed meter movement permitting utilization of lower part of front for mounting controls, switches, etc. **R Series** comes with thermoplastic front and thermosetting plastic back with flat scale arc. **GL/B Series** is similar to GL Series except includes integral bezel for behind the panel mounting. Bezel also available for 3½″ and 4½″ G Series (optional).

Triplett Number 13-239—Metal bezel for 320-G series. Panel cutout, 3.718″ w. x 2.156″ h. Bezel, 3.83″ w. x 2.27″ h. Net Each..... **$4.60**

Triplett Number 13-236—Metal bezel for 420-G series. Panel cutout, 4.812″ w. x 2.75″ h. Bezel, 4.92″ w. x 2.85″ h. Net Each..... **$4.60**

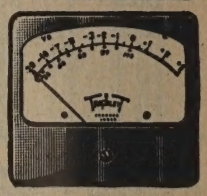
Triplett Number 66-80—Illumination kit for G Series. Net Each... **5.00**

To Order: When ordering specify Model, range, type and catalog number from the appropriate tables below. Example, 320-G, 0–1, DC Ammeter, 1029702.

D

E

F


G

DIMENSIONS

Model	Nom. Size	Fig.	Scale Lgth.	Flange Size, W. x H.	Body Size, Dia. x Depth	Term. Extend
320-G*	3½″	A	3.16″	3.50″ x 2.99″	2.75″ x 1.39″	.73″
330-G	3½″	A	2.68″	3.50″ x 2.99″	2.75″ x 1.39″	.73″
320-GL†	3½″	B	3.16″	3.743″ x 3.233″	2.156″ x 1.105″	.367″
330-GL	3½″	B	2.62″	3.743″ x 3.233″	2.156″ x 1.105″	.367″
320-GL/B‡	3½″	C	3.16″	3.86″ x 2.911″	2.156″ x 1.105″	.367″
330-GL/B	3½″	C	2.62″	3.86″ x 2.911″	2.156″ x 1.105″	.367″
320-R	3½″	D	2.96″	3.954″ x 2.673″	2.156″ x 1.311″	.75″
330-R	3½″	D	2.50″	3.954″ x 2.673″	2.156″ x 1.311″	.75″
321-T§	3½″	E	2.44″	3.50″ dia.	2.75″ x .92″	.75″
331-S	3½″	E	2.22″	3.50″ dia.	2.75″ x 1.312″	.75″
327-T#	3½″	F	2.49″	3.00″ x 3.00″	2.75″ x .987″	.75″
337-S	3½″	F	2.22″	3.00″ x 3.00″	2.75″ x 1.375″	.75″
420•	4½″	G	4.04″	4.625″ x 4.187″	2.75″ x .843″	.75″
430	4½″	G	3.60″	4.625″ x 4.187″	2.75″ x .968″	.75″
420-G▲	4½″	A	4.03″	4.55″ x 4.068″	2.75″ x 1.39″	.73″
430-G	4½″	A	3.43″	4.55″ x 4.068″	2.75″ x 1.39″	.73″
420-GL■	4½″	B	4.03″	4.718″ x 4.218″	2.203″ x 1.105″	.73″
430-GL	4½″	B	3.36″	4.718″ x 4.218″	2.203″ x 1.105″	.73″
420-GL/B♦	4½″	C	4.03″	4.96″ x 3.749″	2.203″ x 1.105″	.73″
430-GL/B	4½″	C	3.36″	4.96″ x 3.749″	2.203″ x 1.105″	.73″
420-R	4½″	D	3.45″	4.50″ x 2.97″	2.203″ x 1.311″	.75″
430-R	4½″	D	2.87″	4.50″ x 2.97″	2.203″ x 1.311″	.75″

*Same size for 340-G and 350-G. †Same size for 340-GL and 350-GL. ‡Same size for 340-GL/B and 350-GL/B. §Same size for 341-T and 351-T. #Same size for 347-T and 357-T. •Same size for 440 and 450. ▲Same size for 440-G and 450-G. ■Same size for 440-GL and 450-GL. ♦Same size for 440-GL/B and 450-GL/B.

3.5″ PANEL METERS

DC MICROAMMETERS (PIVOT AND JEWEL)

Range	Resis., Ohms	320-G Number	320-GL Number	320-GL/B Number	320-R Number	321-T Number	327-T Number	Net Each, Lots of 1-24	25-49	50 Up
0–50	2300	152-0072	152-2135	152-2148	152-0578	152-1642	152-1730	$47.90	$38.32	$35.93
0–100	825	152-0074	152-2136	152-2149	152-0580	152-1643	152-1731	43.10	34.48	32.33
0–200	360	152-0076	152-2137	152-2150	152-0582	152-1644	152-1732	37.80	30.24	28.35
0–500	156	152-0079	152-2138	152-2151	152-0585	152-1645	152-1733	35.70	28.56	26.78

DC MICROAMMETERS (SUSPENSION TYPE)

0–5	15000	52-3071	152-2054	152-2088	152-0591	152-1650	152-1738	$90.40	$72.32	$67.80
0–10	7500	152-0233	152-2055	152-2089	152-0592	152-1651	152-1739	77.50	62.00	58.13
0–20	2500	152-0235	152-2056	152-2090	152-0594	152-1652	152-1740	67.10	53.68	50.33
0–50	825	152-0238	152-2057	152-2091	152-0597	152-1653	152-1741	53.30	42.64	39.98
0–100	360	152-0254	152-2058	152-2092	152-0599	152-1654	152-1742	47.90	38.32	35.93
0–200	156	152-0256	152-2059	152-2093	152-0601	152-1655	152-1743	44.30	35.44	33.23
0–500	40	152-0259	152-2060	152-2094	152-0604	152-1656	152-1744	42.70	34.16	32.03
0–1000*	12.5	152-1290	152-2061	152-2222	.....	152-1657	152-1745	40.80	32.64	30.60
50–0–50	360	152-0357	152-2182	152-2357	.....	152-1658	152-1746	47.90	38.32	35.93
100–0–100	156	152-0358	152-2183	152-2358	.....	152-1659	152-1747	44.30	35.44	33.23
500–0–500	12.5	152-0359	152-2184	152-2359	.....	152-1660	152-1748	40.80	32.64	30.60
40–0–40	1700	52-3744	52-6178	52-6642	.....	.....	.....	83.50	66.80	62.63

*Reads 0–1 mA.

DC MILLIAMMETERS

0–1	55	152-0081	152-2047	152-2196	152-0557	152-1594	152-1682	$34.20	$27.36	$25.65
0–5	8.5	152-0086	152-2050	152-2199	152-0562	152-1597	152-1685	34.20	27.36	25.65
0–10	3.1	152-0088	152-2051	152-2200	152-0563	152-1598	152-1686	34.20	27.36	25.65
0–25	2.0	152-0091	152-2053	152-2202	.....	152-1600	152-1688	35.40	28.32	26.55
0–50	1.0	152-0093	152-2121	152-2283	152-0568	152-1601	152-1689	35.40	28.32	26.55
0–100	.50	152-0095	152-2123	152-2285	152-0570	152-1603	152-1691	35.40	28.32	26.55
0–200	.25	152-0097	152-2125	152-2287	152-0572	152-1605	152-1693	35.40	28.32	26.55
0–500	.10	152-0100	152-2129	152-2291	152-0575	152-1609	152-1697	35.40	28.32	26.55

DC AMMETERS*

0–1	.....	152-0102	152-2230	152-2262	152-0533	152-1612	152-1700	$35.70	$28.56	$26.78
0–5	.....	152-0105	152-2232	152-2264	152-0538	152-1614	152-1702	35.70	28.56	26.78
0–10	.....	152-0106	152-2233	152-2265	152-0539	152-1615	152-1703	35.70	28.56	26.78
0–30	.....	152-0110	152-2236	152-2268	.....	152-1618	152-1706	36.10	28.88	27.08
0–50	.....	.....	152-2237	152-2269	152-0544	152-1619	152-1707	36.10	28.88	27.08

*For ranges above 50 amps, see DC Ammeter Shunts.

DC VOLTMETERS (1000 OHMS/VOLT)

0–5	.....	152-0122	152-2134	152-2360	152-0500	152-1625	152-1713	$37.00	$29.60	$37.75
0–10	.....	152-0124	152-2077	152-2361	152-0501	152-1626	152-1714	37.00	29.60	37.75
0–25	.....	152-0127	152-2079	152-2362	152-0504	152-1628	152-1716	37.00	29.60	37.75
0–30	.....	152-0128	152-2080	152-2363	.....	152-1629	152-1717	37.00	29.60	37.75
0–50	.....	152-0129	152-2223	152-2185	152-0506	152-1630	152-1718	37.00	29.60	37.75
0–100	.....	152-0131	152-2224	152-2186	.....	152-1631	152-1719	37.00	29.60	37.75
0–150	.....	152-0132	152-2225	152-2187	152-0509	152-1632	152-1720	37.00	29.60	37.75
0–200	.....	152-0133	152-2226	152-2188	.....	152-1633	152-1721	37.00	29.60	37.75
0–250	.....	152-0134	152-2227	152-2189	.....	152-1634	152-1722	37.00	29.60	37.75
0–300	.....	152-0135	152-2228	152-2190	152-0512	152-1635	152-1723	37.00	29.60	37.75
0–500	.....	152-0136	152-2229	152-2191	152-0513	152-1636	152-1724	38.60	30.88	42.30
0–1000*	.....	152-0138	152-2254	52-6656	.....	152-1638	152-1726	57.00	45.60	42.75
0–5000*	.....	152-0142	152-2257	52-6655	.....	152-1641	152-1729	70.40	56.32	52.80

*2000 Ohms/Volt; external multiplier box furnished.

CONTACT US FOR AVAILABILITY FOR ADDITIONAL RATINGS

PRICES LISTED ARE FOR GUIDANCE ONLY

3.5" PANEL METERS (CONTINUED)

DC MILLIVOLTMETERS (PIVOT AND JEWEL)

Range	Resis., Ohms	320-G Number	320-GL Number	320-GL/B Number	320-R Number	321-T Number	327-T Number	Net Each, Lots of 1-24	25-49	50 Up
0–50	6.7	152-0112	152-2258	152-2331	152-0522	152-1620	152-1708	$35.20	$28.16	$26.40
0–100	13.5	152-0113	152-2259	152-2332	.....	152-1621	152-1709	35.20	28.16	26.40
0–150	20.2	152-0114	152-2260	152-2333	.....	152-1622	152-1710	35.20	28.16	26.40

DC MILLIVOLTMETERS (SUSPENSION TYPE)

0–5	10	152-1412	152-2424	.....	.....	152-1646	152-1734	$69.20	$55.36	$51.90
0–10	23	152-1413	152-2425	.....	.....	152-1647	152-1735	62.60	50.08	46.95
0–15	35	152-1414	152-2426	.....	.....	152-1648	152-1736	62.60	50.08	46.95
0–25	48	152-1415	152-2427	.....	.....	152-1649	152-1737	54.00	43.20	40.50

AC MILLIAMMETERS

Range	Resis., Ohms	330-G Number	330-GL Number	330-GL/B Number	330-R Number	331-S Number	337-S Number	Net Each, Lots of 1-24	25-49	50 Up
0–10	4000	153-0107	153-0614	153-0628	153-0345	153-0486	153-0515	$35.20	$28.16	$26.40
0–50	120	153-0112	153-0617	.....	.....	153-0489	153-0518	35.20	28.16	26.40
0–100	40	153-0128	153-0618	153-0632	153-0272	153-0490	153-0519	35.20	28.16	26.40
0–250	5.9	153-0131	153-0620	.....	.....	153-0492	153-0521	35.20	28.16	26.40
0–500	1.55	153-0133	153-0621	153-0635	153-0277	153-0493	153-0522	35.20	28.16	26.40

AC AMMETERS

0–1	.38	153-0008	153-0605	153-0636	153-0265	153-0465	153-0494	$35.20	$28.16	$26.40
0–2	.092	153-0010	153-0606	153-0637	.....	153-0466	153-0495	35.20	28.16	26.40
0–3	.039	153-0012	153-0607	153-0638	.....	153-0467	153-0496	35.20	28.16	26.40
0–5	.014	153-0013	153-0608	153-0639	153-0270	153-0468	153-0497	35.20	28.16	26.40
0–10	.004	153-0058	153-0609	.....	153-0240	153-0469	153-0498	35.20	28.16	26.40
0–15	.003	153-0059	153-0610	.....	153-0241	153-0470	153-0499	35.20	28.16	26.40
0–25	.002	153-0061	153-0611	.....	153-0243	153-0471	153-0500	35.20	28.16	26.40
0–30	.001	153-0062	153-0612	.....	153-0244	153-0472	153-0501	35.20	28.16	26.40
0–50	.00035	153-0063	153-0613	.....	153-0245	153-0473	153-0502	35.20	28.16	26.40

AC VOLTMETERS

0–10	10	153-0051	153-0583	.....	.....	153-0477	153-0506	$35.20	$28.16	$26.40
0–50	50	153-0056	153-0586	.....	.....	153-0480	153-0509	35.20	28.16	26.40
0–100	91	153-0027	153-0528	.....	.....	153-0481	153-0510	35.20	28.16	26.40
0–150	125	153-0028	153-0529	153-0534	153-0292	152-0482	153-0511	37.90	30.32	28.43
0–250	144	153-0030	153-0531	153-0536	.....	153-0483	153-0512	38.60	30.88	28.95
0–300	144	153-0031	153-0532	153-0537	153-0295	153-0484	153-0513	38.60	30.88	28.95
0–500*	125	153-0213	153-0680	153-0681	.....	153-0485	153-0514	61.90	49.50	46.43
90–130	45	153-0212	153-0627	53-1539	153-0346	.....	.....	64.70	51.76	48.53

*External multiplier box furnished.

AC VOLTMETERS (RECTIFIER TYPE)

Range	Ohms/ Volt	350-G Number	350-GL Number	350-GL/B Number	350-R Number	351-T Number	357-T Number	Net Each, Lots of 1-24	25-49	50 Up
0–5	1000	152-1283	152-2141	.....	.....	152-1675	152-1763	$53.30	$42.64	$39.98
0–10	1000	152-1271	152-2142	.....	.....	152-1676	152-1764	53.30	42.64	39.98
0–50	1000	152-1276	152-2144	.....	.....	152-1678	152-1766	53.30	42.64	39.98
0–150	1000	152-1158	152-2146	.....	.....	152-1680	152-1768	53.30	42.64	39.98
0–300	1000	152-1161	152-2147	.....	.....	152-1681	152-1769	53.30	42.64	39.98

*0-100 V range.

DECIBEL METERS

dB	.....	152-1110	152-2411	152-2365	.....	152-1667	152-1755	$55.40	$44.32	$41.55
dB Illum.	.....	.....	.....	.....	.....	152-1668	152-1756	61.50	49.20	46.13

VOLUME UNIT METERS

A Scale	.....	52-3016	152-2417	.....	.....	152-1669	152-1757	$62.40	$49.92	$46.80
A Scale Illum.	.....	.....	.....	.....	.....	152-1670	152-1758	68.70	54.96	51.53
B Scale	.....	152-1112	152-2352	.....	.....	152-1671	152-1759	62.40	49.92	46.80
B Scale Illum.	.....	.....	.....	.....	.....	152-1672	152-1760	68.70	54.96	51.53

RF THERMOAMMETERS

Range	Resis., Ohms	340-G Number	340-GL Number	340-GL/B Number	340-R Number	341-T Number	347-T Number	Net Each, Lots of 1-24	25-49	50 Up
0–1	.35	152-0351	152-2295	.....	.....	152-1662	152-1750	$41.80	$33.44	$31.35
0–1.5	.21	152-0352	152-2296	.....	.....	152-1663	152-1751	41.80	33.44	31.35
0–5	.06	152-0354	152-2298	.....	.....	152-1665	152-1753	41.80	33.44	31.35
0–10	.03	152-0355	152-2299	.....	.....	152-1666	152-1754	41.80	33.44	31.35

4.5" PANEL METERS

DC MICROAMMETERS (PIVOT AND JEWEL)

Range	Resis., Ohms	420 Number	420-G Number	420-GL Number	420-GL/B Number	420-R Number	Net Each, Lots of 1-24	25-49	50 Up
0–50	2300	152-1822	152-0001	152-2084	152-2315	152-0462	$50.10	$40.08	$37.58
0–100	825	152-1823	152-0003	152-2085	152-2316	152-0464	46.70	37.36	35.03
0–200	360	152-1824	152-0005	152-2086	152-2317	152-0466	40.70	32.56	30.53
0–500	156	152-1825	152-0008	152-2087	152-2318	152-0469	39.30	31.44	29.48

DC MICROAMMETERS (SUSPENSION TYPE)

0–5	15000	152-1826	52-3072	152-2039	152-2214	152-0475	$92.20	$73.76	$69.15
0–10	7500	152-1827	152-0240	152-2040	152-2215	152-0476	80.00	64.00	60.00
0–20	2500	152-1828	152-0242	152-2041	152-2216	152-0478	69.00	55.20	51.75
0–50	825	152-1829	152-0245	152-2042	152-2217	152-0481	55.40	44.32	41.55
0–100	360	152-1830	152-0261	152-2043	152-2218	152-0483	50.20	40.16	37.65
0–200	156	152-1831	152-0263	152-2044	152-2219	152-0485	47.90	38.32	35.93
0–500	40	152-1832	152-0266	152-2045	152-2220	152-0488	46.70	37.36	35.03
0–1000†	12.5	152-1833	152-1344	152-2046	152-2383	.....	44.10	35.28	33.08
50–0–50	360	152-1834	152-1239	152-2250	152-2280	.....	50.20	40.16	37.65
100–0–100	156	152-1835	152-1240	152-2251	152-2281	.....	47.90	38.32	35.93
500–0–500	12.5	152-1836	152-1241	152-2252	152-2282	.....	44.10	35.28	33.08
40–0–40	1700	.....	52-3748	52-6111	52-6643	.....	86.00	68.80	64.50

†Reads 0–1 mA.

CONTACT US FOR AVAILABILITY OF ADDITIONAL RATINGS

CURRENT PRICES WILL APPLY ON ALL LINES

TRIPLETT Panel Meters

4.5" PANEL METERS (CONTINUED)

DC MILLIAMMETERS

Range	Resis., Ohms	420 Number	420-G Number	420-GL Number	420-GL/B Number	420-R Number	Net Each, Lots of 1-24	25-49	50 Up
0–1	55	152–1770	152–0010	152–2032	152–2152	152–0441	$37.80	$30.24	$28.35
0–5	8.5	152–1773	152–0015	152–2035	152–2155	152–0446	37.80	30.24	28.35
0–10	3.1	152–1774	152–0017	152–2036	152–2156	152–0447	37.80	30.24	28.35
0–25	2.0	152–1776	152–0020	152–2038	152–2158	.....	39.00	31.20	29.25
0–50	1.0	152–1777	152–0022	152–2110	152–2159	152–0452	39.00	31.20	29.25
0–100	.5	152–1779	152–0024	152–2112	152–2161	152–0454	39.00	31.20	29.25
0–200	.25	152–1781	152–0026	152–2114	152–2163	152–0456	39.00	31.20	29.25
0–500	.1	152–1785	152–0029	152–2118	152–2167	152–0459	39.00	31.20	29.25

DC AMMETERS

0–1	.....	152–1788	152–0031	152–2242	152–2170	152–0417	$39.00	$31.20	$29.25
0–5	.....	152–1790	152–0034	152–2244	152–2172	152–0422	39.00	31.20	29.25
0–10	.....	152–1791	152–0035	152–2245	152–2173	152–0423	39.00	31.20	29.25
0–30	.....	152–1794	152–0039	152–2248	152–2176	.....	39.60	31.68	29.70
0–50	.....	152–1795	.....	152–2249	152–2177	152–0428	39.60	31.68	29.70

DC MILLIVOLTMETERS (PIVOT AND JEWEL)

0–50	6.7	152–1800	152–0041	152–2076	152–2354	152–0406	$37.80	$30.24	$28.35
0–100	13.5	152–1801	152–0042	152–2240	152–2355	.....	37.80	30.24	28.35
0–150	20.2	152–1802	152–0043	152–2241	152–2356	.....	37.80	30.24	28.35

DC MILLIVOLTMETERS (SUSPENSION TYPE)

0–5	10	152–1796	152–1416	152–2192	.....	.....	$73.10	$58.48	$54.83
0–10	23	152–1797	152–1417	152–2193	.....	.....	66.80	53.44	50.10
0–15	35	152–1798	152–1418	152–2194	.....	.....	66.80	53.44	50.10
0–25	48	152–1799	152–1419	152–2195	.....	.....	57.30	45.84	42.98

DC VOLTMETERS (1000 OHMS/VOLT)

0–5	.....	152–1805	152–0051	152–2097	152–2370	152–0384	$39.60	$31.68	$29.70
0–10	.....	152–1806	152–0053	152–2098	152–2371	152–0385	39.60	31.68	29.70
0–25	.....	152–1808	152–0056	152–2100	152–2372	152–0388	39.60	31.68	29.70
0–30	.....	152–1809	152–0057	152–2101	152–2373	.....	39.60	31.68	29.70
0–50	.....	152–1810	152–0058	152–2102	152–2374	152–0390	39.60	31.68	29.70
0–100	.....	152–1811	152–0060	152–2103	152–2375	.....	39.60	31.68	29.70
0–150	.....	152–1812	152–0061	152–2104	152–2376	152–0393	39.60	31.68	29.70
0–200	.....	152–1813	152–0062	152–2105	152–2377	.....	39.60	31.68	29.70
0–250	.....	152–1814	152–0063	152–2106	152–2378	.....	39.60	31.68	29.70
0–300	.....	152–1815	152–0064	152–2107	52–6616	152–0396	39.60	31.68	29.70
0–500	.....	152–1816	152–0065	152–2108	152–2379	152–0397	41.70	33.36	31.28
0–1000*	.....	152–1818	152–0067	152–2434	152–2380	.....	61.50	49.20	46.13
0–5000*	.....	152–1821	152–0071	152–2437	152–2381	.....	74.60	59.68	55.95

*2000 Ohms/Volt; external multiplier box furnished.

AC MILLIAMMETERS

Range	Resis., Ohms	430 Number	430-G Number	430-GL Number	430-GL/B Number	430-R Number	Net Each, Lots of 1-24	25-49	50 Up
0–10	4000	153–0419	153–0114	153–0550	153–0674	153–0296	$36.80	$29.44	$27.60
0–50	120	153–0422	153–0119	153–0553	.....	.....	36.80	29.44	27.60
0–100	40	153–0423	153–0135	153–0554	153–0676	153–0205	36.80	29.44	27.60
0–250	5.9	153–0425	153–0138	153–0556	.....	.....	36.80	29.44	27.60
0–500	1.55	153–0426	153–0140	153–0557	153–0678	153–0210	36.80	29.44	27.60

AC AMMETERS*

0–1	.38	153–0427	153–0015	153–0587	153–0623	153–0215	$36.80	$29.44	$27.60
0–2	.092	153–0428	153–0017	153–0588	153–0624	153–0217	36.80	29.44	27.60
0–3	.039	153–0429	153–0019	153–0589	153–0625	153–0219	36.80	29.44	27.60
0–5	.014	153–0430	153–0020	153–0590	153–0626	153–0220	36.80	29.44	27.60
0–10	.004	153–0523	153–0044	153–0591	.....	153–0199	36.80	29.44	27.60
0–15	.003	153–0524	153–0045	153–0592	.....	153–0200	36.80	29.44	27.60
0–25	.002	153–0525	153–0047	153–0593	.....	153–0202	36.80	29.44	27.60
0–30	.001	153–0526	153–0048	153–0594	.....	153–0203	36.80	29.44	27.60
0–50	.00035	153–0527	153–0049	153–0595	.....	153–0204	36.80	29.44	27.60

*For standard ranges above 50 amps; see AC Ammeter Current Transformers.

AC VOLTMETERS

0–10	10	153–0409	153–0037	153–0541	.....	.....	$36.80	$29.44	$27.60
0–50	50	153–0412	153–0042	153–0544	.....	.....	36.80	29.44	27.60
0–100	91	153–0413	153–0032	153–0545	.....	.....	36.80	29.44	27.60
0–150	125	153–0414	153–0033	153–0546	153–0576	153–0195	40.10	32.08	30.08
0–250	144	153–0415	153–0035	153–0547	153–0577	.....	40.70	32.56	30.53
0–300	144	153–0416	153–0036	153–0548	153–0578	153–0198	40.70	32.56	30.53
0–500†	125	153–0417	153–0166	153–0549	153–0579	.....	63.90	51.12	47.93
90–130	45	153–0418	153–0165	53–1756	153–0622	153–0347	66.80	53.44	50.10

†External multiplier box furnished.

AC VOLTMETERS (RECTIFIER TYPE)

Range	Ohms/ Volt	450 Number	450-G Number	450-GL Number	450-GL/B Number	450-R Number	Net Each, Lots of 1-24	25-49	50 Up
0–5	1000	152–1845	152–1133	152–2272	.....	.....	$55.40	$44.32	$41.55
0–10	1000	152–1846	152–1113	152–2273	.....	.....	55.40	44.32	41.55
0–50	1000	152–1848	152–1118	152–2275	.....	.....	55.40	44.32	41.55
0–150	1000	152–1850	152–1121	152–2277	.....	.....	55.40	44.32	41.55
0–300	1000	152–1851	152–1124	152–2278	.....	.....	55.40	44.32	41.55

DECIBEL METERS

dB	.....	152–1852	152–1284	52–6634	152–2391	.....	$57.70	$46.16	$43.28
dB Illum.	.....	152–1853	.....	.....	.....	.....	63.00	50.40	47.25

VOLUME UNIT METERS

A Scale	.....	152–1854	152–1205	152–2382	.....	.....	$66.00	$52.80	$49.50
A Scale Illum.	.....	152–1855	.....	.....	.....	.....	71.60	57.28	53.70
B Scale	.....	152–1856	152–1111	52–6635	.....	.....	66.00	52.80	49.50
B Scale Illum.	.....	152–1857	.....	.....	.....	.....	71.60	57.28	53.70

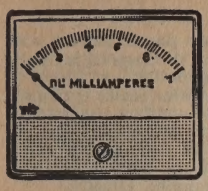
RF THERMOAMMETERS

Range	Resis., Ohms	440 Number	440-G Number	440-GL Number	440-GL/B Number	440-R Number	Net Each, Lots of 1-24	25-49	50 Up
0–1	.35	152–1838	52–3436	152–2334	.....	.....	$43.40	$34.72	$32.55
0–1.5	.21	152–1839	52–3195	152–2335	.....	.....	43.40	34.72	32.55
0–5	.06	152–1841	52–3423	152–2336	.....	.....	43.40	34.72	32.55
0–10	.03	152–1842	52–3340	152–2337	.....	.....	43.40	34.72	32.55

CONTACT US FOR AVAILABILITY OF ADDITIONAL RATINGS

PRICES LISTED ARE FOR GUIDANCE ONLY

TRIPLETT Panel Meters



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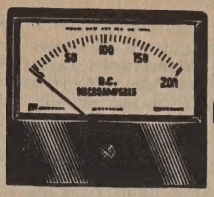

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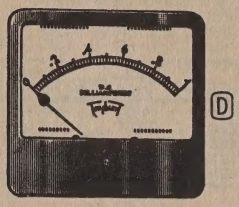
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5½" AND 6½" PANEL METERS

Similar to panel meters shown on previous pages, but for different size. Same specifications. Bezels and illumination kit available for 5½" G-Series.

To Order: Specify model, type range and Triplett number from the tables below. Example, 520-G, 0–5, DC Voltmeter, 1049908.

DIMENSIONS

Model	Nom. Size	Fig.	Scale Lgth.	Flange Size, In., W. x H.	Body Size, In. Dia. x Depth	Term. Extend
520-G	5½"	A	5.0"	5.611 x 4.484	2.75 x 1.39	.73"
530-G	5½"	A	4.25"	5.611 x 4.484	2.75 x 1.39	.73"
520-GL	5½"	B	5.0"	5.852 x 4.727	2.75 x 1.105	.73"
530-GL	5½"	B	4.25"	5.852 x 4.727	2.75 x 1.105	.73"
520-GL/B	5½"	C	5.0"	6.06 x 4.532	2.75 x 1.105	.73"
530-GL/B	5½"	C	4.25"	6.06 x 4.532	2.75 x 1.105	.73"
626	6½"	D	5.60"	6.00 x 5.375	3.125 x 1.031	.75"
636	6½"	D	5.10"	6.00 x 5.375	3.125 x 1.031	.75"

Triplett Number 13-240—Metal bezels for 5½" models. Size, 6.06" x 3.30". For panel cutout, 5.875" x 3.156". Net Each.. **$4.60**

Triplett Number 66-83—Illumination kit for 5½" G-series. Net Each..... **$5.90**

DC MICROAMMETERS (PIVOT AND JEWEL)

Range	Resis., Ohms	520-G Number	520-GL Number	520-GL/B Number	626 Number	Net Each, Lots of 1-24	25-49	50 Up
0–50	2300	152-1085	152-2178	152-2366	152-1873	$59.50	$47.60	$44.63
0–100	825	152-1087	152-2179	152-2367	152-1874	55.20	44.16	41.40
0–200	360	152-1089	152-2180	152-2368	152-1875	52.30	41.84	39.23
0–500	156	152-1092	152-2181	152-2369	152-1876	50.40	40.32	37.80

DC MICROAMMETERS (SUSPENSION TYPE)

0–10	7500	152-1096	152-2070	.....	152-1883	$93.60	$74.88	$70.20
0–20	2500	152-1098	152-2071	52-6644	152-1884	83.50	66.80	62.63
0–50	825	152-1101	152-2072	52-6254	152-1885	66.90	53.52	50.18
0–100	360	152-1103	152-2073	52-6645	152-1886	60.70	48.56	45.53
0–200	156	152-1104	152-2074	.....	152-1887	56.30	45.04	42.23
0–500	40	152-1105	152-2075	52-6646	152-1888	55.40	44.32	41.55

DC MILLIAMMETERS

0–1	55	152-1064	152-2062	152-2203	152-1865	$49.30	$39.44	$36.98
0–5	8.5	152-1069	152-2063	152-2204	152-1866	49.30	39.44	36.98
0–10	3.1	152-1070	152-2064	152-2205	152-1867	49.30	39.44	36.98
0–50	1.0	152-1075	152-2065	152-2206	152-1868	50.40	40.32	37.80
0–100	.50	152-1077	152-2066	152-2207	152-1869	50.40	40.32	37.80
0–200	.25	152-1079	152-2067	152-2208	152-1870	50.40	40.32	37.80
0–500	.10	152-1082	152-2069	52-6587	152-1872	50.40	40.32	37.80

DC MILLIVOLTMETERS (PIVOT AND JEWEL)

0–50	6.7	152-1029	152-2221	52-6602	152-1877	$49.30	$39.44	$36.98

DC VOLTMETERS (1000 OHMS/VOLT)

Range	Resis., Ohms	520-G Number	520-GL Number	520-GL/B Number	626 Number	Net Each, Lots of 1-24	25-49	50 Up
0–5	.....	152-1007	152-2307	52-6617	152-1858	$51.40	$41.12	$38.55
0–10	.....	152-1008	152-2308	52-6618	152-1859	51.40	41.12	38.55
0–25	.....	152-1011	152-2309	52-6619	152-1860	51.40	41.12	38.55
0–30	.....	152-1012	152-2310	52-6620	52-6624	51.40	41.12	38.55
0–50	.....	152-1013	152-2311	52-6621	152-1861	51.40	41.12	38.55
0–150	.....	152-1016	152-2312	52-6622	152-1862	51.40	41.12	38.55
0–500	.....	152-1020	152-2313	52-6623	152-1864	52.30	41.84	39.23

DC AMMETERS

0–1	.....	152-1040	152-2412	52-6595	152-1878	$49.30	$39.44	$36.98
0–5	.....	152-1045	152-2413	52-6596	152-1879	49.30	39.44	36.98
0–10	.....	152-1046	152-2414	52-6597	152-1880	49.30	39.44	36.98
0–30	.....	152-1050	152-2415	52-6598	152-2314	50.40	40.32	37.80
0–50	.....	.....	152-2416	52-6599	152-1882	50.40	40.32	37.80

AC MILLIAMMETERS

Range	Resis., Ohms	530-G Number	530-GL Number	530-GL/B Number	636 Number	Net Each, Lots of 1-24	25-49	50 Up
0–10	4000	153-0342	153-0656	153-0671	153-0438	$47.60	$38.08	$35.70
0–100	40	153-0258	153-0657	153-0672	153-0439	47.60	38.08	35.70
0–500	1.55	153-0263	153-0658	153-0673	153-0440	47.60	38.08	35.70

AC AMMETERS

0–1	.38	153-0246	153-0649	153-0664	153-0431	$47.60	$38.08	$35.70
0–5	.014	153-0251	153-0650	153-0665	153-0432	47.60	38.08	35.70
0–10	.004	153-0229	.....	.....	153-0433	47.60	38.08	35.70
0–15	.003	153-0230	.....	.....	153-0434	47.60	38.08	35.70
0–25	.002	153-0231	.....	.....	153-0435	47.60	38.08	35.70
0–30	.001	153-0232	.....	.....	153-0436	47.60	38.08	35.70
0–50	.00035	153-0233	.....	.....	153-0437	47.60	38.08	35.70

AC VOLTMETERS

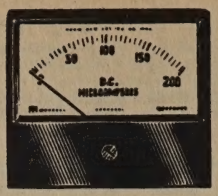
Range	Resis., Ohms	530-G Number	530-GL Number	530-GL/B Number	636 Number	Net Each, Lots of 1-24	25-49	50 Up
0–10	10	153-0343	153-0644	.....	153-0441	$47.50	$38.00	$35.63
0–50	50	153-0344	153-0645	.....	153-0442	47.50	38.00	35.63
0–150	125	153-0254	153-0646	153-0661	153-0443	47.50	38.00	35.63
0–300	144	153-0257	153-0647	153-0662	153-0444	47.50	38.00	35.63
0–500*	125	153-0341	153-0648	153-0663	153-0445	47.50	38.00	35.63

*External multiplier box furnished.

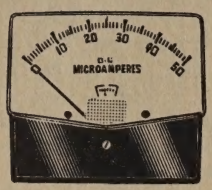
CONTACT US FOR AVAILABILITY OF ADDITIONAL RATINGS

TRIPLETT Panel Meters

(A)



(B)



(C)

7½" AND 8½" PANEL METERS

Similar to panel meters shown on previous pages, but for size. **7½" Models** are available with glass window, thermosetting plastic case and four stud mounting. Optional illumination is available on certain models; write for information. **GL Series** comes with glass window, flat back thermosetting plastic case and four stud mounting. **M Series** includes thermoplastic front and back. Thermosetting plastic accessory case is available for 8½" models; write for information. **To Order:** Specify model, range, type and Triplett number. Example, model 736, 0–1, AC Ammeter, 1108902.

DIMENSIONS

Model	Nom. Size	Fig.	Scale Lgth.	Flange Size, In., W. x H.	Body Size, In. Dia. x Depth	Term. Extend
726	7½"	A	6.11"	7.531 x 6.906	3.50 x 1.062	.75"
736	7½"	A	5.47"	7.531 x 6.906	3.50 x 1.125	.75"
820-GL	8½"	B	6.25"	7.75 x 6.50	2.781 x 1.105	.781"
830-GL	8½"	B	6.25"	7.75 x 6.50	2.781 x 1.105	.781"
820-M	8½"	C	7.00"	7.64 x 6.40	3.27 x 1.18	.781"

DC MICROAMMETERS (PIVOT AND JEWEL)

Range	Resis., Ohms	726 Number	Net Each, Lots of 1-24	25-49	50 Up	820-GL Number	820-M Number	Net Each, Lots of 1-24	25-49	50 Up
0–50	2300	152-1904	$68.50	$54.80	$51.38	152-1590	152-1935	$74.60	$59.68	$55.95
0–100	825	152-1905	63.90	51.12	47.93	152-1591	152-1936	71.60	57.28	53.70
0–200	360	152-1906	58.10	46.48	43.58	152-1592	152-1937	68.50	54.80	51.38
0–500	156	152-1907	56.80	45.44	42.60	152-1593	152-1938	66.00	52.80	49.50

DC MICROAMMETERS (SUSPENSION TYPE)

0–10	7500	152-1909	$98.00	$78.40	$73.50	152-2338	152-1944	$104.50	$83.60	$78.38
0–20	2500	152-1910	87.60	70.08	65.70	152-2339	152-1945	93.60	74.80	70.20
0–50	825	152-1911	73.40	58.72	55.05	152-2340	152-1946	80.00	64.00	60.00
0–100	360	152-1912	68.50	54.80	51.38	152-2341	152-1947	74.60	59.68	55.95
0–200	156	152-1913	65.40	52.32	49.05	152-2342	152-1948	72.80	58.24	54.60
0–500	40	152-1914	64.00	51.20	48.00	152-2343	152-1949	71.60	57.28	53.70

DC MILLIAMMETERS

0–1	55	152-1896	$55.60	$44.48	$41.70	152-2404	152-1927	$65.20	$52.16	$48.90
0–5	8.5	152-1897	55.60	44.48	41.70	152-2405	152-1928	65.20	52.16	48.90
0–10	3.1	152-1898	55.60	44.48	41.70	152-2406	152-1929	65.20	52.16	48.90
0–50	1.0	152-1899	56.90	45.52	42.68	152-2407	152-1930	66.00	52.80	49.50
0–100	.5	152-1900	56.90	45.52	42.68	152-2408	152-1931	66.00	52.80	49.50
0–200	.25	152-1901	56.90	45.52	42.68	152-2409	152-1932	66.00	52.80	49.50
0–500	.1	152-1903	56.90	45.52	42.68	152-2410	152-1934	66.00	52.80	49.50

DC AMMETERS

0–1	.....	152-1915	$56.90	$45.52	$42.68	152-2428	152-1940	$65.20	$52.16	$48.90
0–5	.....	152-1916	57.90	46.32	43.43	152-2429	152-1941	66.00	52.80	49.50
0–10	.....	152-1917	57.90	46.32	43.43	152-2430	152-1942	66.00	52.80	49.50
0–50	.....	152-1919	57.90	46.32	43.43	152-2432	.....	66.00	52.80	49.50

DC MILLIVOLTMETERS (PIVOT AND JEWEL)

Range	Resis., Ohms	726 Number	Net Each, Lots of 1-24	25-49	50 Up	820-GL Number	820-M Number	Net Each, Lots of 1-24	25-49	50 Up
0–50	.....	152-1908	$55.70	$44.56	$41.78	152-2351	152-1939	$65.20	$52.16	$48.90

DC VOLTMETERS (1000 OHMS/VOLT)

0–5	.....	152-1889	$57.90	$46.32	$43.43	152-2344	152-1920	$67.10	$53.68	$50.33
0–10	.....	152-1890	57.90	46.32	43.43	152-2345	152-1921	67.10	53.68	50.33
0–25	.....	152-1891	57.90	46.32	43.43	152-2346	152-1922	67.10	53.68	50.33
0–30	.....	52-6625	57.90	46.32	43.43	152-2347	52-6626	67.10	53.68	50.33
0–50	.....	152-1892	57.90	46.32	43.43	152-2348	152-1923	67.10	53.68	50.33
0–150	.....	152-1893	57.90	46.32	43.43	152-2349	152-1924	67.10	53.68	50.33
0–500	.....	152-1895	59.80	46.32	43.43	152-2350	152-1926	67.10	53.68	50.33

AC MILLIAMMETERS

Range	Resis., Ohms	736 Number	Net Each, Lots of 1-24	25-49	50 Up	830-GL Number	830-M Not Available	Net Each, Lots of 1-24	25-49	50 Up
0–10	4000	153-0453	$54.30	$43.44	$40.73	53-1757	.....	$63.00	$50.40	$47.25
0–100	40	153-0454	54.30	43.44	40.73	.....	.....	.....	.....	.....
0–500	1.55	153-0455	54.30	43.44	40.73	.....	.....	.....	.....	.....

AC AMMETERS

0–1	.38	153-0446	$54.30	$43.44	$40.73	153-0640	.....	$63.00	$50.40	$47.25
0–5	.014	153-0447	54.30	43.44	40.73	153-0641	.....	63.00	50.40	47.25

AC VOLTMETERS

0–10	10	153-0456	$54.30	$43.44	$40.73	.....	.....	.....	.....	.....
0–50	50	153-0457	54.30	43.44	40.73	.....	.....	.....	.....	.....
0–150	125	153-0458	57.40	45.92	43.05	153-0642	.....	$67.10	$53.60	$50.25
0–300	144	153-0459	59.10	47.28	44.33	.....	.....	.....	.....	.....
0–500*	125	153-0460	82.00	65.60	61.50	.....	.....	.....	.....	.....

*External multiplier box furnished.

CONTACT US FOR AVAILABILITY OF ADDITIONAL RATINGS

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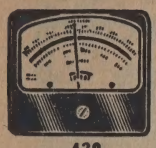
TRIPLETT

Pyrometers, Thermocouples and Ruggedized Panel Meters

3½" AND 4½" PYROMETERS



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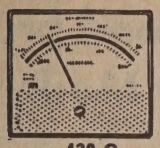


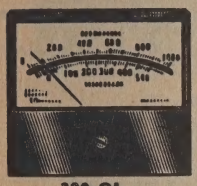
420-G

All styles incorporate cold junction and copper (resistance) compensation. Calibrated for use with Triplett, iron constantan (J) or chromel alumel (K) thermocouples. Thermocouples not included. **Standard DC Input Accuracy:** Specifications are ±2% of full scale. **Minimum Span:** 300° F for full scale deflection. Mirror scales are furnished as standard on all pyrometers. **To Order:** Specify model, range, type, Triplett number.

DIMENSIONS

Model	Nom. Size	Scale Lgth.	Flange Size, W. x H.	Body Size, Dia. x Depth
320-G	3½"	3.16"	3.5" x 2.99"	2.75" x 1.39"
320-GL	3½"	3.16"	3.743" x 3.233"	2.156" x 1.105"
320-GL/B	3½"	3.16"	3.86" x 2.911"	2.156" x 1.105"
420	4½"	4.04"	4.625" x 4.187"	2.75" x .843"
420-G	4½"	4.03"	4.55" x 4.068"	2.75" x 1.39"
420-GL	4½"	4.03"	4.718" x 4.218"	2.203" x 1.105"
420-GL/B	4½"	4.03"	4.96" x 3.749"	2.203" x 1.105"

3½" PYROMETERS



320-GL

Temperature Range °F	Temperature Range °C	Thermocouple Type	Ext. Resis., Ohms	320-G Number	320-GL Number	320-GL/B Number	Net Each, Lots of 1-24	25-49	50 Up
−100 to +300	−75 to +150	J	10	52-6412	52-6411	52-6307	$73.20	$58.56	$54.90
−150 to +250	−100 to +120	J	10	152-2384	152-2319	152-2392	73.20	58.56	54.90
0 to +300	−20 to +150	J	5	152-2385	152-2320	152-2393	73.20	58.56	54.90
0 to +500	−20 to +260	J	10	152-2386	152-2321	152-2394	73.20	58.56	54.90
0 to +750	−20 to +400	J	10	152-2387	152-2322	152-2395	73.20	58.56	54.90
0 to +1000	−20 to +540	J	10	152-2388	152-2323	152-2396	68.30	54.64	51.23
0 to +1500	−20 to +820	K	10	152-2389	152-2324	152-2397	68.30	54.64	51.23
0 to +2000	−20 to +1100	K	10	152-2390	152-2325	152-2398	68.30	54.64	51.23

4½" PYROMETERS

320-GL/B

Temperature Range °F	Temperature Range °C	Thermocouple Type	420 Number	420-G Number	420-GL Number	420-GL/B Number	Net Each, Lots of 1-24	25-49	50 Up
−100 to +300	−75 to +150	J	152-2422	52-6641	52-6636	52-6637	$75.30	$60.24	$56.48
−150 to +250	−100 to +120	J	152-1562	152-1565	152-2300	52-6638	75.30	60.24	56.48
0 to +300	−20 to +150	J	152-1564	152-1563	152-2301	152-2423	75.30	60.24	56.48
0 to +500	−20 to +260	J	152-1566	152-1567	152-2302	52-6373	75.30	60.24	56.48
0 to +750	−20 to +400	J	152-1568	152-1569	152-2303	52-6338	70.90	56.72	53.18
0 to +1000	−20 to +540	J	152-1570	152-1571	152-2304	52-6242	70.90	56.72	53.18
0 to +1500	−20 to +820	K	152-1572	152-1573	152-2305	52-6639	70.90	56.72	53.18
0 to +2000	−20 to +1100	K	152-1574	152-1575	152-2306	52-6640	70.90	56.72	53.18

*Ext. Resis., 5 ohms; all others, 10 ohms.

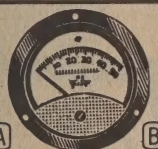
THERMOCOUPLES

Feature stainless steel overbraid (SS) or glass cloth (GC), in protected sheaths. Provide continuous operation to 900° F or a single reading to 1400° F. Resistance tolerance, ±1%. **To Order:** Specify Triplett number.

Triplett Number	Type	Approx. Length, In.	AWG	Overbraid Type	Resis., Ohms	Net Each, Lots of 1-24	25-49	50 Up
72-99	J	137	24	GC	10	$12.10	$ 9.68	$ 9.08
72-100	J	162	20	GC	5	16.30	13.04	12.23
72-101	J	137	24	SS	10	20.30	16.24	15.23
72-102	J	54	28	GC	10	9.20	7.36	6.90
72-103	K	205	20	GC	10	24.40	19.52	18.30
72-104	K	206	20	SS	10	36.60	29.28	27.45
72-105	K	50	26	GC	10	9.20	7.36	6.90
72-106	K	50	26	SS	10	14.50	11.60	10.88

RUGGEDIZED 1½", 2½" AND 3½" METERS

A



B

Model 127-HR (Fig. A): Rugged, modern construction with meter front designed for maximum readability. Meets government specifications. Scale: 1.5" lg. Flange, 1.75" sq. Body, 1.51" dia. x 1.5" deep.

Model 221-HR (Fig. B): 2½" meter meets MIL-M-10604-C specifications. Heavy diecast window bezel seals window to case with gasket and screws for easy servicing. Gasket-sealed studs provide additional protection. Scale Length: 1.76". Flange, 2.695" dia. Body, 2.21" dia. x 1.281" deep.

Model 321-HR (Fig. B): Same as 221-HR, but 3½" size. Scale Length: 2.38". Flange, 3.51" dia. Body, 2.8" dia. x 1.281" deep.

To Order: Specify both model and Triplett part number.

DC MICROAMMETERS (PIVOT AND JEWEL)

Range	Resis., Ohms	127-HR Number	Net Each, Lots of 1-24	25-49	50 Up	221-HR Number	Net Each, Lots of 1-24	25-49	50 Up	321-HR Number	Net Each, Lots of 1-24	25-49	50 Up
0–50	2500*	152-1393	$66.00	$52.80	$49.50	152-2006	$68.50	$54.80	$51.38	152-2028	$70.20	$56.16	$52.65
0–100	1170	152-1395	60.40	48.32	45.30	152-2007	65.40	52.32	49.05	152-2029	66.90	53.52	50.18
0–200	400	152-1397	54.30	43.44	40.73	152-2008	59.40	47.52	44.55	152-2030	61.90	49.52	46.43
0–500	210	52-6627	52.90	42.32	39.68	152-2009	57.60	46.08	43.20	152-2031	59.40	47.52	44.55

*4000 ohms for 127-HR.

DC MICROAMMETERS (SUSPENSION TYPE)

0–20	7500	152-1246	$85.00	$68.00	$63.75								
0–50	2300	152-1249	71.60	57.28	53.70								

DC MILLIAMMETERS

0–1	55	152-1373	$52.00	$41.60	$39.00	152-1988	$56.80	$45.44	$42.60	152-2010	$59.10	$47.28	$44.33
0–5	8.5	152-1378	52.00	41.60	39.00	152-1989	56.80	45.44	42.60	152-2011	59.10	47.28	44.33
0–10	3.1	152-1379	52.00	41.60	39.00	152-1990	56.80	45.44	42.60	152-2012	59.10	47.28	44.33
0–50	1.0	152-1420	52.90	42.32	39.68	152-1991	57.90	46.32	43.43	152-2013	60.10	48.08	45.08
0–100	.5	152-1421	52.90	42.32	39.68	152-1992	57.90	46.32	43.43	152-2014	60.10	48.08	45.08
0–200	.25	152-1422	52.90	42.32	39.68	152-1993	57.90	46.32	43.43	152-2015	60.10	48.08	45.08
0–500	.10	152-1424	52.90	42.32	39.68	152-1995	57.90	46.32	43.43	152-2017	60.10	48.08	45.08

DC AMMETERS

0–1	.....	152-1986	$52.00	$41.60	$39.00	152-1997	$56.80	$45.44	$42.60	152-2019	$59.10	$47.28	$44.33
0–5	.....	.....	.....	.....	.....	152-1998	59.50	47.60	44.63	152-2020	61.00	48.80	45.75
0–10	.....	.....	.....	.....	.....	152-1999	59.50	47.60	44.63	152-2021	61.00	48.80	45.75

DC MILLIVOLTMETERS (PIVOT AND JEWEL)

0–50	6.7	152-1985	$52.00	$41.60	$39.00	152-1996	$56.80	$45.44	$42.60	152-2018	$59.10	$47.28	$44.33

DC VOLTMETERS (1000 OHMS/VOLT)

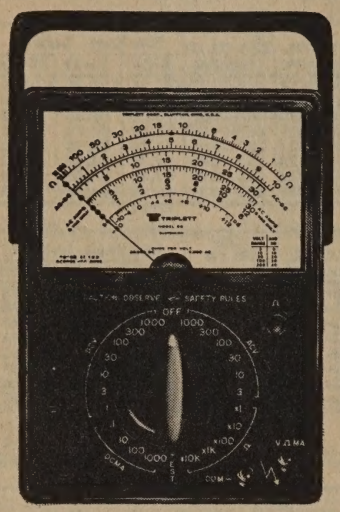
0–5	.....	152-1987	$54.30	$43.44	$40.73	152-2000	$59.50	$47.60	$44.63	152-2022	$61.00	$48.80	$45.75
0–10	.....	152-1380	54.30	43.44	40.73	152-2001	59.50	47.60	44.63	152-2023	61.00	48.80	45.75
0–25	.....	152-1381	54.30	43.44	40.73	152-2002	59.50	47.60	44.63	152-2024	61.00	48.80	45.75
0–30	.....	52-6682	54.30	43.44	40.73	52-6603	59.50	47.60	44.63	52-6317	61.00	48.80	45.75
0–50	.....	152-1382	54.30	43.44	40.73	152-2003	59.50	47.60	44.63	152-2025	61.00	48.80	45.75
0–150	.....	152-1383	54.30	43.44	40.73	152-2004	59.50	47.60	44.63	152-2026	61.00	48.80	45.75

CONTACT US FOR AVAILABILITY OF ADDITIONAL RATINGS

TRIPLETT Test Instruments

It's new. It's x'tra rugged. It's overload protected. It's safety designed. The Triplett Model 60.

MODEL 60 TYPE 2 V-O-M



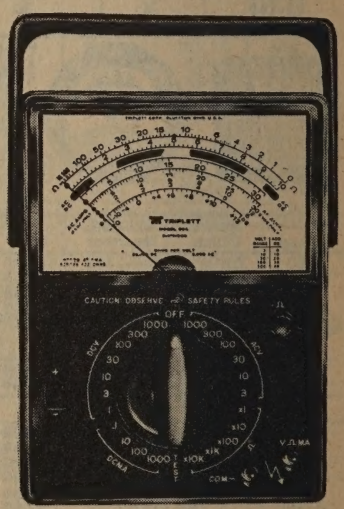
1. X'tra rugged—Will withstand an accidental drop up to a five foot height.
2. Overload protected—All ranges protected by a diode and unusual three-fuse arrangement including ⅛ amp 1 amp and 2 amp/1000 V fuses.
3. Safety designed for you—Designed to most rigid safety standards; completely insulated unit including newly designed safety leads.

RANGES

DC Volts: 0-.3-1-3-10-30-100-300-1000 (approx. 20,000 ohms per volt).
AC Volts: 0-3-10-30-100-300-1000 (approx. 5000 ohms per volt).
Ohms: 0-1K-10K-100K-1 meg-10 meg (12 ohms center scale on low range).
DC Milliamperes: 0-0.1-10-100-1000 (approx. 320 mV).
Decibels: −20 dB to +52 dB ("0" dB is equal to .775 ACV across 600 ohms).
Output Volts: (AC—Requires external capacitor): 0-3-10-30-100-300 (approx. 5000 ohms per volt).
AC Amperes: (Requires accessory Model 10 Adapter) 0-6-12-30-60-120-300.
Accuracy (Full scale): ±2% DC; ±3% AC.
Meter: Ruggedized 45 μA suspension movement module, polarity reversing switch.
Scale Length: Approx. 4½".
Overload Protection: Meter movement protected by a diode module, ⅛ amp/250 V, 1 amp/250 V and 2 amp/1000 V (20 KW) fuses.
Confidence Test: Switch position provides reassurance check of meter movement.
Case: Molded, orange, 5¼" w. x 7¼" h. x 3¼" d.
Batteries: Neda 9 V #1604, 1-1½ V D cell.
Triplett Model 60—Complete with 48" leads, insulated alligator clips, batteries, spare ⅛ A and 1 A fuses and instruction manual. Shpg. wt. 2½ lbs. Net Ea. **$140.00**

LABORATORY ACCURACY MODEL 60A V-O-M

1. X'tra rugged—Will withstand an accidental drop up to a five foot height.
2. Overload protected—All ranges protected by a diode and unusual three-fuse arrangement including ⅛ amp 1 amp and 2 amp/1000 V fuses.
3. Safety designed for you—Designed to most rigid safety standards; completely insulated unit including newly designed safety leads.



RANGES

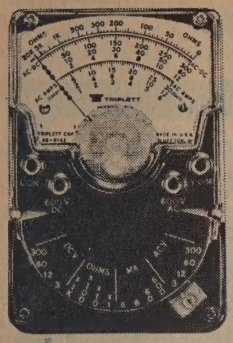
DC Volts: 0-.3-1-3-10-30-100-300-1000 (approx. 20,000 ohms per volt).
AC Volts: 0-3-10-30-100-300-1000 (approx. 5000 ohms per volt).
Ohms: 0-1K-10K-100K-1 meg-10 meg (12 ohms center scale on low range).
DC Milliamperes: 0-0.1-10-100-1000 (approx. 320 mV).
Decibels: −20 dB to +52 dB ("0" dB is equal to .775 ACV across 600 ohms).
Output Volts: (AC—Requires external capacitor): 0-3-10-30-100-300 (approx. 5000 ohms per volt).
AC Amperes: (Requires accessory Model 10 Adapter) 0-6-12-30-60-120-300.
Accuracy (Full scale): ±1½% DC; ±3% AC.
Scale Length: Approx. 4½".
Meter: Ruggedized suspension movement module, polarity reversing switch, mirror scale, ½% resistors.
Overload Protection: Meter movement protected by a diode module, ⅛ amp/250 V, 1 amp/250 V and 2 amp/1000 V (20 KW) fuses.
Confidence Test: Switch position provides reassurance check of meter movement.
Case: Molded, black, 5¼" w. x 7¼" h. x 3¼" d.
Batteries: Neda 9 V #1604, 1-1½ V D cell.
Triplett Model 60A—Complete with 48" leads, insulated alligator clips, batteries, spare ⅛ A and 1 A fuses and instruction manual. Shpg. wt. 2½ lbs. Net Ea. **$151.00**

ACCESSORIES FOR 60

Triplett No. 10-2739—Leather Carrying Case. Net Each..... **$33.40**
Triplett No. 79-357—30KVDC High Voltage Probe. Net Each..... **$37.50**
Triplett No. 79-362—30KVAC High Voltage Probe. Net Each..... **$37.50**
Triplett No. 91-628—30 amp DC Current Shunt. Net Each..... **$26.70**
Triplett No. 91-629—100 amp DC Current Shunt. Net Each..... **$33.00**
Triplett No. 79-433—6 KVDC High Voltage Probe Net Each..... **$19.90**
Triplett No. 79-432—6 KVAC High Voltage Probe Net Each..... **$19.90**
Triplett No. 60-211—Clamp-on AC Ammeter. (Requires 79-354 lead). Net Each..... **$34.70**
Triplett No. 79-417—Attachment Lead. Net Each..... **$6.80**
Triplett No. 60-218—Line Separator. Net Each..... **$13.70**
Triplett No. 79-373—Clip Leads for High Density Circuits. Net Each..... **$8.40**
Triplett No. 79-374—Replacement Safety Test Leads. Net Each..... **$7.40**

PRICES LISTED ARE FOR GUIDANCE ONLY

NEW DIODE-PROTECTED, HAND-SIZE V-O-M'S



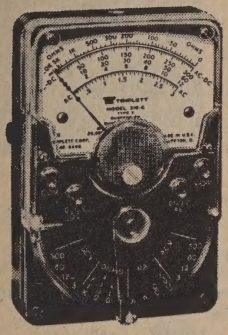
Model 310

MODEL 310 TYPE 4

1. Drop-resistant, hand-size VOM with high-impact thermoplastic case.
2. 20,000 ohms per volt DC and 5,000 ohms per volt AC; diode overload protection with fused R x 1 range.
3. Single range switch; direct reading AC amps range to facilitate AC ammeter usage.

RANGES

DC Volts: 0–3–12–60–300–600 (20,000 ohms per volt).
AC Volts: 0–3–12–60–300–600 (5,000 ohms per volt).
Ohms: 0–20K–200K–2 Meg–20 Meg (200 ohms center scale on low range).
DC Microamperes: 0–600 at 250 mV.
DC Milliamperes: 0–6–60–600 at 250 mV.
Accuracy: ±3% DC; ±4% AC (full scale).
Scale Length: 2⅛". Self-shielded.
Case: Molded, black, 2¾" w. x 1⅝" d. x 4¼" h.
Batteries: NEDA #910,220.
Triplett Model 310—Complete with 42" leads, batteries and instruction manual. Shpg. Wt., 2 lbs. Net Each.....**$70.00**

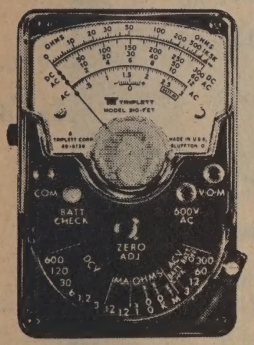


Model 310-C

MODEL 310-C TYPE 5

1. Hand-size V-O-M with diode overload-protected suspension movement.
2. 20,000 ohms per volt DC and 15,000 ohms per volt AC.
3. Single, enclosed range switch minimizes error; DC polarity-reversing switch.

Same as 310 above, except suspension meter and polarity reversing switch for DC ranges.
Triplett Model 310-C—Shpg. Wt., 2 lbs. Net Each.....**$95.00**



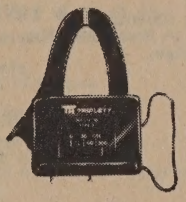
Model 310-FET

MODEL 310-FET TYPE II

1. Hand-size FET V-O-M with 10-megohm DC input resistance and diode overload-protected suspension movement.
2. Low voltage range of 300 mVDC; x1 megohm range.
3. Single range switch; DC polarity-reversing switch.

RANGES

DC Volts: 0–0.3–1.2–6–30–120–600. Input resistance, 10 megohms.
AC Volts: 0–3–12–60–300–600 (5,000 ohms per volt).
Ohms: 0–5K–500K–50 Meg–5,000 Meg (50-ohm center scale on low range).
DC Milliamperes: 0–0.12–1.2 at 300 mV.
Accuracy: ±3% DC; ±4% AC. Diode protected suspension meter.
Scale Length: 2⅛". Battery check on selector switch.
Case: Molded, black, 2¾" w. x 1⅛" d. x 4¼" h.
Batteries: NEDA 7 V, #1501M, 1½ V #910A.
Triplett Model 310-FET—Complete with 42" leads, alligator clips, batteries and instruction manual. Shpg. Wt., 2 lbs. Net Each.....**$127.00**



Model 10

ACCESSORIES FOR 310'S

Model 10 Clamp-on AC Ammeter—For 310 and 310-FET. Ranges, 0–6–12–30–60–120–300. Net Each.....**$34.70**

Model 10-C Clamp-on AC Ammeter—For 310-C. Ranges, 0–6–12–30–60–120–300. Net Each.....**$34.70**

Model 101 Line Separator—Divides two conductor cords direct or increases Model 10 sensitivity 10x and 20x. Net Each.....**$13.70**

Model 311 Lead—42" long lead to separate Model 10 from 310 unit for easy reading in awkward spots. Net Each.....**$6.80**

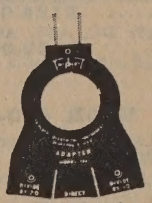
Model 369 Carrying Case—For Model 310's. Net Each...**$8.50**

Model 369-S Carrying Case—For Model 310's; front opens permitting use of tester in case. Net Each.....**$19.90**

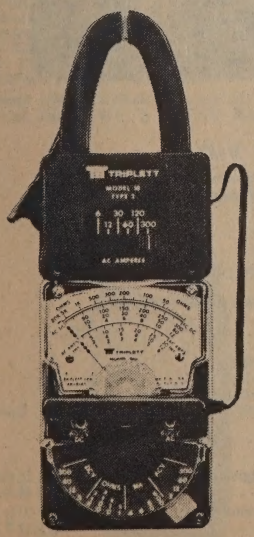
Model 379 Carrying Case—For Model 310 and Model 10 in combination, plus Model 101. Net Each.....**$16.20**

Model 79-153 Needle Tip Replacement Lead—For Model 310 series. Net Each.....**$6.80**

Model 79-296 Blunt Tip Replacement Lead—For Model 310 series. Net Each.....**$10.70**



Model 101



Model 100

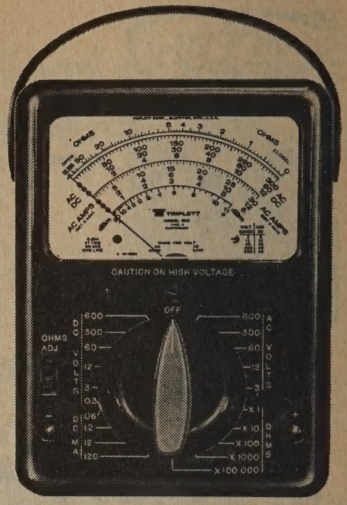
HAND-SIZE V-O-M CLAMP-ON AMMETERS

1. Complete maintenance kit with V-O-M and clamp-on ammeter.
2. Diode overload protected; 20,000 ohms per volt on DC.
3. AC clamp-on will read up to 300 amps AC.

Model 100—Complete set includes Model 310, Model 10, Model 101, No. 311 lead and Model 379 case. Shpg. Wt., 7 lbs. Net Each.....**$138.00**
Model 100-C—Complete set includes Model 310-C, Model 10-C, Model 101, No. 311 lead and Model 379 case. Shpg. Wt., 7 lbs. Net Each.....**$166.00**
Model 100-FET—Complete set includes Model 310-FET, Model 10, Model 101, No. 311 lead and Model 379 case. Shpg. Wt., 7 lbs. Net Each.....**$198.00**
Model 100-T—Complete set includes Model 310-T, Model 10, Model 101, No. 311 lead, temperature probe and Model 379 case. Shpg. Wt. 7 lbs. Net Each.....**$178.00**

TRIPLETT Test Instruments

MODEL 630 TYPE 4 V-O-M

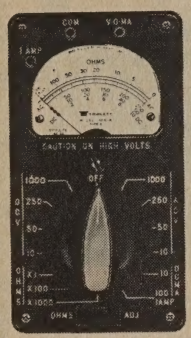


1. Overload protected by diode and two-fuse arrangement, including 1 amp and 2 amp/600 V fuses.
2. Safety designed, completely insulated unit using newly designed safety leads.
3. Single range switch minimizes error; 5 ohmmeter ranges with 4.4 ohm center scale.

RANGES

DC Volts: 0–0.3–3–12–60–300–600 (20,000 ohms per volt).
AC Volts: 0–3–12–60–300–600 (5,000 ohms per volt).
Ohms: 0–1K–10K–100K–1 Meg–100 Meg (4.4-ohm center scale on low range).
DC Microamperes: 0–60 at 300 mV.
DC Milliamperes: 0–1.2–12–120 at 250 mV.
Decibels: –20 to +57 ("0" dB at 1 mW on 600-ohm line).
Accuracy: ±2% DC; ±3% AC. Diode protected suspension meter.
Scale Length: 4⅜".
Case: Molded, black, 5½" w. x 3 1/32" d. x 7½" h.
Batteries: NEDA #210, 13F.

Triplett Model 630—Complete with 48" leads, alligator clips, batteries and instruction manual. Shpg. Wt., 5 lbs. Net Each.....**$118.00**



MODEL 666-R TYPE 2 V-O-M

1. Rugged 14-range V-O-M; single range switch minimizes error.
2. 3 ohmmeter ranges reading to 3 megohms.
3. AC and DC voltage ranges from 10 to 1000 volts.

RANGES

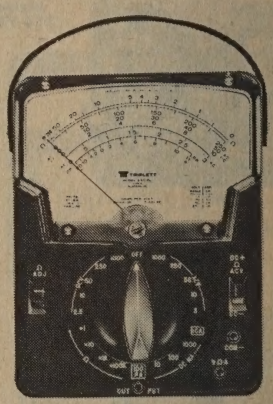
DC Volts: 0–10–50–250–1,000 (1,000 ohms per volt).
AC Volts: 0–10–50–250–1,000 (1,000 ohms per volt).

RANGES (CONT'D)

Ohms: 0–3K–300K–3 Meg (20-ohm center scale on low range).
DC Milliamperes: 0–10–100 at 250 mV.
DC Amperes: 0–1 at 250 mV.
Accuracy: ±3% DC; ±4% AC.
Scale Length: 3".
Case: Molded, black, 3 1/16" w. x 2 3/16" d. x 5⅞" h.
Batteries: NEDA 1½ V #15 A (2); 1½ V #14F (1).

Triplett Model 666-R—Complete with 48" leads, alligator clips, batteries and instruction manual. Shpg. Wt., 3 lbs. Net Each.....**$89.00**

MODEL 630-PL TYPE 5 V-O-M

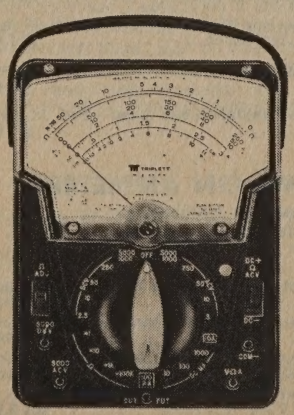


1. 28-range V-O-M with single range switch minimizes error; DC polarity-reversing switch.
2. 5" suspension meter with diode overload protection.
3. 4 ohmmeter ranges with 4.4 ohms center scale.

RANGES

DC Volts: 0–2.5–10–50–250–1,000 (20,000 ohms per volt); 0–0.25 at 100 μA.
AC Volts: 0–3–10–50–250–1,000 (5,000 ohms per volt). Freq. range 10 Hz to 500 kHz.
Ohms: 0–1K–10K–1 Meg–100 Meg (4.4-ohm center scale on low range).
DC Microamperes: 0–100 at 250 mV.
DC Milliamperes: 0–10–100–1,000 at 250 mV.
DC Amperes: 0–10 at 250 mV.
Decibels: –20 to +49 ("0" dB at 1 mW on 600-ohm line).
Output Volts (AC): 0–3–10–50–250 (5,000 ohms per volt).
Accuracy: ±2% DC; ±3% AC. Diode protected suspension meter.
Scale Length: 4½".
Case: Molded, black, 5½" w. x 3 1/32" d. x 7½" h.
Batteries: NEDA #210, 13F.

Triplett Model 630-PL—Complete with 48" leads, alligator clips, batteries and instruction manual. Shpg. Wt., 5 lbs. Net Each.....**$126.00**
Triplett Model 630-APL—Similar to 630-PL with accuracy of ±1½% DC, ±3% AC. Net Each.....**$139.00**



MODEL 630-PLK TYPE 7 V-O-M

1. Burnout-proof solid state overload protection; suspension movement.
2. Single range switch minimizes error; DC polarity-reversing switch.
3. 4 ohmmeter ranges with 4.4 ohms center scale.

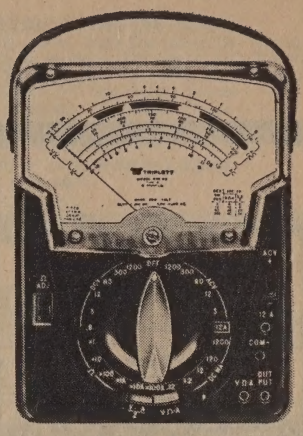
RANGES

DC Volts: 0–2.5–10–50–250–1,000 (20,000 ohms per volt); 0–0.25 at 100 μA.
AC Volts: 0–3–10–50–250–1,000 (5,000 ohms per volt).
Ohms: 0–1K–10K–1 Meg–100 Meg (4.4-ohm center scale on low range).
DC Microamperes: 0–100 at 250 mV.
DC Milliamperes: 0–10–100–1,000 at 250 mV.
DC Amperes: 0–10 at 250 mV.
Decibels: –20 to +49 ("0" dB at 1 mW on 600-ohm line).
Output Volts (AC): 0–3–10–50–250 (5,000 ohms per volt).
Accuracy: ±2% DC; ±3% AC. Diode protected suspension meter.
Scale Length: 4½". Transistorized electronic switching circuit protects tester against burn-out.
Case: Molded, black, 5½" w. x 3 1/32" d. x 7½" h.
Batteries: NEDA #210, 13F.

Triplett Model 630-PLK—Complete with 48" leads, alligator clips, batteries and instruction manual. Shpg. Wt., 5 lbs. Net Each.....**$184.00**
Triplett Model 630-APLK—Similar to 630-PLK with accuracy of ±1½% DC; ±3% AC. Net Each.....**$201.00**

PRICES LISTED ARE FOR GUIDANCE ONLY

MODEL 630-NA TYPE 4 V-O-M



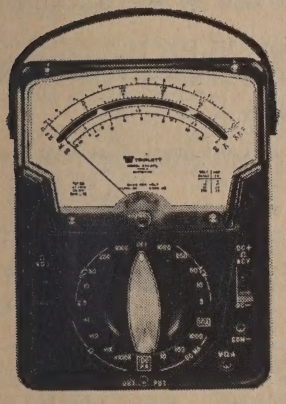
1. 58-range V-O-M with single range switch and DC polarity-reversing and range-doubling switches.
2. Accuracy 1½% DC and 3% AC; mirrored scale.
3. Diode overload-protected suspension movement; temperature compensation.

RANGES

DC Volts: 0–0.6–3–12–60–300–1,200 (10,000 ohms per volt). 0–0.3–1.5–6–30–150–600 (20,000 ohms per volt). 0–0.120 at 60 μA. 0–0.240 at 120 μA.
AC Volts: 0–3–12–60–300–1,200 (5,000 ohms per volt). 0–1.5–6–30–150–600 (10,000 ohms per volt).
Ohms: 0–1K–10K–100K–1 Meg–10 Megs–100 Megs (4.4 ohms center scale on low range).
DC Microamperes: 0–60–600 at 120 mV; 0–120 at 240 mV.
DC Milliamperes: 0–6–60–600 at 120 mV; 0–1.2–12–120–1,200 at 240 mV.
DC Amperes: 0–6 at 120 mV; 0–12 at 240 mV.
Decibels: −26 to +51 ("0" dBm at 1 mW on 600 ohm line).
Output Volts (AC): 0–3–12–60–300 (5,000 ohms per volt). 0–1.5–6–30–150 (10,000 ohms per volt).
Accuracy: ±1½% DC; ±3% AC. Diode protected suspension meter.
Scale Length: 4½".
Case: Molded, black, 5½" w. x 3 1/32" d. x 7½" h.
Batteries: NEDA #210, 13F.

Triplett Model 630-NA—Complete with 48" leads, alligator clips, batteries and instruction manual. Shpg. Wt., 5 lbs. Net Each.....**$173.00**

Triplett Model 630-NS—Similar to 630-NA with 200,000 ohms per VDC and 20,000 ohms per VAC. Net Each.....**$208.00**



MODEL 630-APL V-O-M

1. Accuracy 1½% DC and 3% AC; mirrored scale; diode overload-protected suspension movement.
2. 28 range V-O-M with single range switch minimizes error; DC polarity reversing switch.
3. 4 ohmmeter ranges with 4.4 ohms center scale.

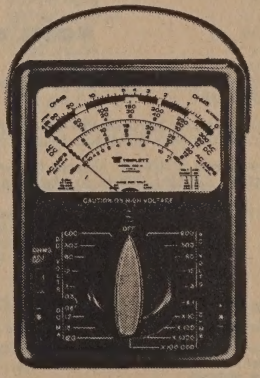
RANGES

DC Volts: 0–2.5–10–50–250–1,000 (20,000 ohms per volt); 0–0.25 at 100 μA.
AC Volts: 0–3–10–50–250–1,000 (5,000 ohms per volt).
Ohms: 0–1K–10K–1 Meg–100 Megs (4.4 ohms center scale on low range).
DC Microamperes: 0–100 at 250 mV.
DC Milliamperes: 0–10–100–1,000 at 250 mV.
DC Amperes: 0–10 at 250 mV.
Decibels: −20 to +49 ("0" dBm at 1 mW on 600 ohm line).
Output Volts (AC): 0–3–10–50–250 (5,000 ohms per volt).
Accuracy: ±1½% DC; ±3% AC. Diode protected suspension meter.
Scale Length: 4½".
Case: Molded, black, 5½" w. x 3 1/32" d. x 7½" h.
Batteries: NEDA #210, 13F.

Triplett Model 630-APL—Complete with 48" leads, alligator clips, batteries and instruction manual. Shpg. Wt., 5 lbs. Net Each.....**$139.00**

Triplett Model 630-APLK—Similar to 630-APL with burn-out proof solid state overload protection. Net Each.....**$201.00**

MODEL 630-A TYPE 4 V-O-M

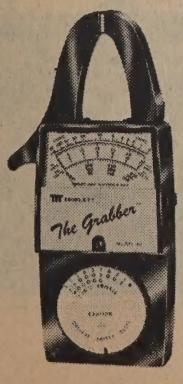


1. Diode overload-protected V-O-M with suspension movement; accuracy 1½% DC and 3% AC.
2. 4 ohmmeter ranges with 4.4 ohms center scale.
3. Simplified mirrored scale; only 4 arcs for all 27 ranges.

RANGES

DC Volts: 0–0.3–3–12–60–300–600 (20,000 ohms per volt).
AC Volts: 0–3–12–60–300–600 (5,000 ohms per volt).
Ohms: 0–1K–10K–100K–1 Meg–100 Megs (4.4 ohms center scale on low range).
DC Microamperes: 0–60 at 300 mV.
DC Milliamperes: 0–1.2–12–120 at 250 mV.
Decibels: −20 to +57 ("0" dB at 1 mW on 600 ohm line).
Accuracy: ±1½% DC; ±3% AC. Diode protected suspension meter.
Scale Length: 4⅜".
Case: Molded, black, 5½" w. x 3 1/32" d. x 7½" h.
Batteries: NEDA #210, 13F.

Triplett Model 630-A—Complete with 48" leads, alligator clips, batteries and instruction manual. Shpg. Wt., 5 lbs. Net Each.....**$128.00**



MODEL 30 CLAMP-ON AC VOLT/AMMETER

1. Drop-resistant, comfortable, hand-size AC volt/ammeter with single range switch and diode protected meter.
2. Designed to rigid safety standards—Completely insulated unit, including newly designed safety leads.
3. One-hand operation with pointer lock; optional ohmmeter adapter with 10 ohm center scale available.

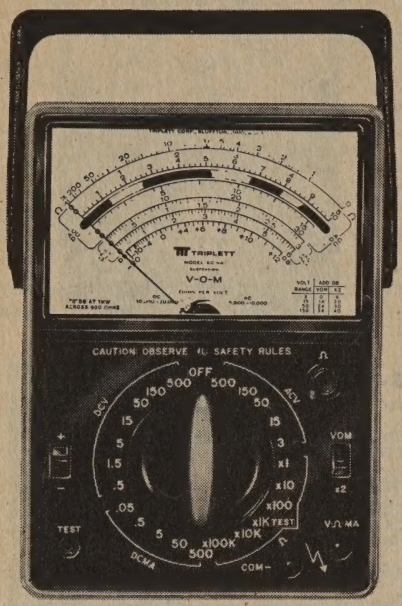
RANGES

AC Volts: 0–150–300–600 volts rms (5,000 ohms/volt).
AC Amps: 0–6–12–30–60–120–300 amps rms.
Accuracy: ±3% of full scale.
Meter: Self shielded, diode overload protected.
Case: Molded, black, high-impact thermoplastic; overall size, 3¾" w. x 7½" h. x 1½" d.
Pointer Lock: Locks readings for use in dark or hard-to-reach areas.
Jaw Opening: Accommodates wires up to 1" diameter.

Triplett Model 30—Complete with 48" test leads, alligator clips and instruction manual. Net Each.....**$79.00**

Triplett Model 32—Ohms probe for Model 30. Net Each.....**$14.70**

MODEL 60-NA TYPE 2 V-O-M



1. X'tra rugged—50 ranges with range doubling switch and ±1½% DC accuracy. Will withstand an accidental drop up to a five foot height.
2. Overload protected—All ranges protected by diode and unusual three-fuse arrangement including ⅛ amp, 1 amp and 2 amp/1000 V fuses.
3. Safety designed for you—Designed to most rigid safety standards; completely insulated unit including newly designed safety leads.

RANGES

DC Volts: 0–.15–.5–1.5–5–15–150–500 (approx. 20,000 ohms per volt).
X2: 0–.3–1–3–10–30–100–300–1000 (approx. 10,000 ohms per volt).

AC Volts: 0–1.5–15–50–150–500 (approx. 10,000 ohms per volt).
X2: 0–3–30–100–300–1000 (approx. 5,000 ohms per volt).

Ohms: 0–1K–10K–100K–1 meg–10 meg–100 meg (6 ohms center scale and 120 mW on low range).

DC Microamperes: 0–50–100–500.

DC Milliamperes: 0–1–5–10–50–100–1000.

Decibels: −26 to +52 ("0" dBm at 1 mW on 600 ohm line).

Output Volts (AC): 0–1.5–15–50–150 (10,000 ohms per volt); 0–3–30–100–300 (5,000 ohms per volt).

Accuracy: (Full scale): ±1½% DC and Ohms; ±3% AC.

X2 Multiplier Switch: X2 position doubles range indicated by the range switch.

Polarity Switch: Lead polarity reversed quickly.

Scale Length: Approx. 4½".

Meter: Ruggedized suspension movement module, mirror scale, ½% resistors.

Confidence Test: Reassurance test of meter movement.

Case: Gray plastic with non-slip finish, 5¼" w. x 7¼" h. x 3¼" d.

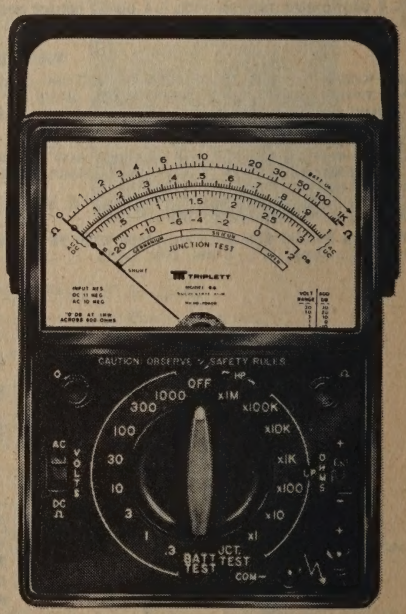
Batteries: One 30 V NEDA #210; one 1½ V "D" cell NEDA #13F.

Triplett Model 60-NA—Complete with 48" test leads, insulated alligator clips, batteries, spare fuses and instruction manual. Shipping Weight. 4 lbs.

Net Each.....**$191.00**

MODEL 64 FET MULTIMETER

1. X'tra rugged/overload protected (all ranges)/safety designed solid state volt-ohmmeter.
2. Low-power ohms—LP™—6 ranges with 90 mV power source for in-circuit measurements plus junction test circuit.
3. Exclusive Triplett Micro Power—TMP™—Permits continuous operation with carbon battery life in excess of a year.



RANGES

DC Volts: 0–.3–1–3–10–30–100–300–1000. Input Resistance, 11.12 megohms.

AC Volts: 0–.3–1–3–10–30–100–300–1000. Input Resistance, 10 megohms.

Ohms—Low Power: 0–1K–10K–100K–1 meg–10 meg–100 meg (90 mV maximum voltage, 9 mA maximum current, .08 mW maximum power, 10 ohms center scale on low range).

Ohms—Conventional: 0–1000 meg (.9 V maximum voltage, .1 μA maximum current, .08 μW maximum power, 10 meg center scale).

Junction Test: Shorted, germanium, silicon, open scale. (.9 V maximum voltage, .9 mA maximum current, .8 mW maximum power).

Decibels: −40 dB to +62 dB ("0" dB is equal to .776 VAC across 600 ohms).

Accuracy: ±3% of full scale.

Polarity Switch: Lead polarity reversed quickly.

Overload Protection: X'tra rugged to withstand an accidental drop up to a five-foot height with deviation from stated accuracy not exceeding ±4%. Overload protected by diodes and unusual two-fuse arrangement including 1 amp and 2 amp/1000 V fuses. Safety designed to most rigid safety standards to prevent explosive arcs in high energy circuits up to the 2 amp/1000 V (20 kW) fuse capacity.

Scale Length: Approx. 4½".

Meter: Ruggedized suspension movement.

Case: Green plastic, with non-slip finish, 5¼" w. x 7¼" h. x 3¼" d.

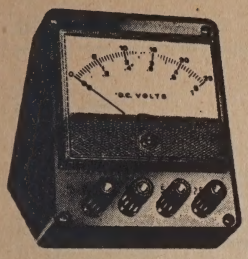
Batteries: Two 9 V NEDA #1604 (Life one year on continuous use); one 1½ V NEDA #13F (Life one month on continuous use on ohms range).

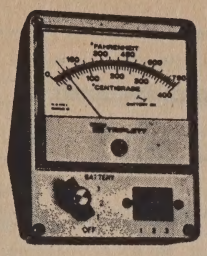
Triplett Model 64—Complete with 48" safety test leads, insulated alligator clips, batteries, spare fuse and instruction manual. Shipping Weight 4 lbs.

Net Each.....**$202.00**

PRICES LISTED ARE FOR GUIDANCE ONLY

TRIPLETT Test Instruments





G/P PORTABLE INSTRUMENTS

1. Wide clear view plastic meter, with Bar-Ring DC movements.
2. Overload protection on all models. (Diodes on DC, Fused AC.)
3. Unbreakable molded black plastic cases with aluminum panels.

- ±2% accuracy on DC and AC Iron Vane Types.
- ±3% accuracy on AC Rectifier Type and Ohms.
- ±3% or better accuracy on temperature.
- 3½" Model 320-G panel instrument.
- Five-way binding posts or three switched inputs.
- DC movements diode protected.
- AC movements fuse protected.
- Temperature unit electrically compensated.
- Case molded, black, 3⅜" w. x 4¼" d. x 4¼" h.

DC TYPE 320-G/P

Range	Net Each
0–1–5–25 V (1000 ohms/V)	$ 64.10
0–25–100–500 V (1000 ohms/V)	65.10
0–6–60–600 V (1000 ohms/V)	65.10
0–50 μA (2300 ohms resis.)	60.90
500–25–0–25–500 μA (6250 ohms resis.)	66.20
0–0.25–1–5 mA	60.90
0–25–100–500 mA	63.00
0–1–10–100 mA	63.00
0–1–5–25 A	64.10
0–50–100–250 mV*	63.00
0–3–15 A	63.00
0–10–50–250 μA (suspension)	120.80
40–0–40 μA (suspension) null meter (1700 ohms resis.)	83.00

*May be used with any of several standard switchboard shunts to extend range to higher currents.

AC IRON VANE TYPE 330-G/P

0–120–600 V (83 ohms/V) and 0–12 mA	$85.10
0–5–25 V (4 ohms/V) and 0–250 mA	64.10
0–30–120 V (17 ohms/V) and 0–60 mA	66.20
0–150 V (125 ohms/V)	50.40
0–1 A (3 ohms resis.)	48.30
0–5 A (.015 ohm resis.)	48.30
0–25 A (.002 ohm resis.)	48.30

AC RECTIFIER TYPE 350-G/P

Range	Net Each
0–6–60–600 V (1000 ohms/V)	$102.90

OHMMETERS TYPE 320-G/P

Includes battery and test leads.

0–1K–100K (10–1000 center scales) (1.5 V battery)	$69.30
0–1–100 meg (5K–500K ctr. scales) (30 V battery)	79.80

RF VOLTS TYPE 340-G/P AND WATTS TYPE 360-G/P

0–2.5 V (240 ohms/V)	$ 98.40
0–150 W (150 V, 2A max.)	102.90

TEMPERATURE TYPE 320-G/P

Suspension type; includes 5-ft. thermocouple probe, 1.5 volt C battery and instruction manual.

−150° F to +250° F; −100° C to +120° C	$112.40
−100° F to +300° F; −75° C to +150° C	112.40
0° F to +500° F; −20° C to +260° C	112.40
0° F to +750° F; −20° C to +400° C	112.40
0° F to +1000° F; −20° C to +540° C	112.40

ACCESSORIES

79-127 test leads for G/P series except temp. meters	$ 6.80
79-310 5-ft. thermocouple probe for temp. meters	16.30

ACCESSORIES

REPLACEMENT LEADS

No.	For Tester	Description	Net Each
79-153	Model 310 series	Needle nose test leads	$ 6.80
79-296	Model 310 series	Blunt nose test leads	10.70
79-267	Model 601	Test lead	27.40
79-415	630 Series, except Type 4	Model 10 attachment lead	6.80
79-416	310 Series	Model 10 attachment lead	6.80
79-417	60 Series & 630 Type 4	Model 10 attachment lead	6.80
79-261	Models 601 & 603	Black ground lead	5.00
79-363	Model 603	Test lead	27.40

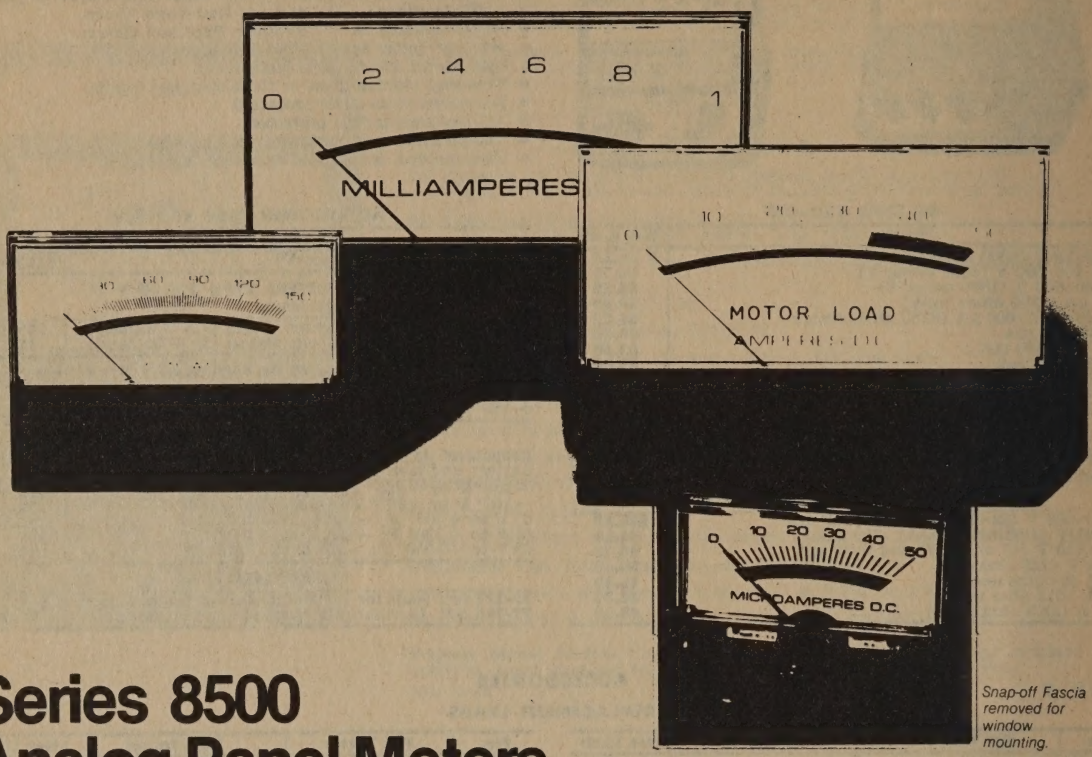
No.	For Tester	Description	Net Each
79-127	Model 630 series, 666-R, 990, 6028, G/P	Test leads	$ 6.80
79-290	Model 801	Probe only	19.20
79-291	Model 801	Shielded lead	11.30
79-392	Model 3300	Test leads	15.00
79-442	Model 3400	Test leads	5.40
79-482	3600, 3600-K	Test leads	6.50
79-481	7000	Coax input lead	8.00
79-475	7000	Accessory lead	3.00

BLACK MAN-MADE LEATHER CASES

Model	For Tester	Description	Net Each
369	310, 310-C, 310-FET	Top opening with trouser loop on back	$ 8.50
369-S	310, 310-C, 310-FET	Front opening; tester usable in case	19.90
369-T	310, 310-C, 310-FET	Neck-strap style; tester usable in case	19.20
369-V	310 Series	Black vinyl pouch case	4.10
10-2969	3400, 3600	Top opening carrying case	10.80
10-2960	3400, 3600	Vinyl carrying case (padded) British Tan	4.10
10-3002	3400-K, 3600-K	Top opening carrying case	26.80
10-2961	30	Black vinyl	7.50
10-2980	30 & 32 ohms probe	Holster type	9.60
10-2860	3300	Flap folds back	20.10
379	310-10-101	With storage for leads	16.20
639	630 Series	Top opening style	25.40
639-A	60 600 & 630 Series	Front opening; tester usable in case	33.40
639-N	630 Series	Front opening; tester usable in case	28.00
639-P	630 Series	Top opening style with foam padding	35.70
639-OS	630 & 600 Series, 6028	Front opening; tester usable in case	29.30
669	666-R	Top opening style	16.70
669-OS	666-R	Front opening; tester usable in case	18.30

SPACE DOES NOT PERMIT LISTING OF ALL RELATED COMPONENTS.

WRITE FOR INFORMATION ON UNLISTED ITEMS.



Snap-off Fascia removed for window mounting.

Series 8500 Analog Panel Meters

FEATURES:

- ☐ **Taut band suspension automatically welded to dual-cantilevered supports for distributed stress and superior tolerance to shock and vibration.**
- ☐ **Moving coil suspension fully caged in all directions for added safety.**
- ☐ **Precision parts snap and lock together without the use of solder or cements.**
- ☐ **Tough plastic pointer bounces back straight and true after overloads.**
- ☐ **Meets or exceeds ANSI C39.1 performance standards and C39.5 safety standards.**
- ☐ **Directly interchangeable in most large barrel panel cutouts.**

Reliability is more than a word at Weston; it's a total commitment. The new Series 8500 analog panel meters are reliable by design — a design that combines over 90 years of Weston experience with the latest in materials and manufacturing techniques.

The crisp styling of the 8500 is equally at home in surface or behind-the-panel window mountings. A snap-off fascia allows instant conversion from one style to the other. The 8500 is available in a wide range of electrical values and in standard 1½-inch through 5½-inch case sizes. It is directly interchangeable in most large barrel panel cutouts.

Two lower corner through holes, provided on all case sizes except 1½-inch, can utilize previously wasted panel space by allowing user access to behind-the-panel controls or annunciators. In a surface mount configuration, the snap-off fascia can conceal calibration or other information associated with the access holes. These holes can also be used, with appropriate hardware, to provide an alternate means of securing the meter to a panel.

SANGAMO WESTON Schlumberger **WESTON**®

SPECIFICATIONS

	MODEL				
	8511/2	8521/2/4	8531/2/4	8541/2/4	8551/2
Case size:	1½"	2½"	3½"	4½"	5½"
Scale length:	1.3"	2.1"	2.4"	3.4"	4.6"
Suspension:	Taut Band				

Ranges (all models):

DCμA	Resistance ±20%
50	1200Ω
100	650
200	208
500	45

DC mA	Resistance ±20%
1	15Ω
2	10
5	10
10	5
20	2.5
50	1
100	0.5
200	0.25
500	0.1

*Consult factory for special ranges

DC A	Voltage Drop ±20%
1	50 mV
2	50
5	50
10	50
15	50
20	50
25	50
40*	50
50*	—

AC V	Sensitivity ±20%
Rectifier	870Ω/V
150	870
300	

AC
Iron Vane (Pivot & Jewel Suspension)*
10 mA-5A, 25-500 Hz, 60 Hz calib.
50-500V, 25-125 Hz, 60 Hz calib.

VU (Audio) "B" scale	Sensitivity ±20%
200μA DC	208Ω
1 mA DC	15Ω
1.73 V AC (Rectifier)*	3900Ω

DC mV	Sensitivity ±20%
50	—

DC V	Sensitivity ±20%
1	1000Ω/V
2	1000
5	1000
10	1000
15	1000
25	1000
30	1000
50	1000
100	1000
150	1000
200	1000
300	1000
500	1000

Pointer:
Knife edge, plastic, black

Housing Materials/ UL Flammability Class

Case:
High-impact styrene/94 V-O
Optional polycarbonate/94 V-O

Cover:
NAS polystyrene/94 H-B
Optional polycarbonate/94 V-O

Options:
Mirrored scale
Custom dial artwork
Red or white pointer
Colored fascia, black standard (Consult Factory)
Special terminal resistance
Special response time (Consult Factory)
Suppressed zero
Rear zero corrector
Polycarbonate case and cover
Special mounting stud location (Consult Factory)
Input terminal studs standard, flying leads optional (Consult Factory)

Performance:

Parameter	Pertinent Paragraphs ANSI C39.1-1972	DC	AC (Rectifier)	AC (Iron Vane)
Accuracy	5.2	±2%	±3%	
Tracking	5.34	2%		
Repeatability	5.34	1% (>200 μA) 2% (<200 μA)	2%	3%
Balance	5.3	2%		3%
Overshoot, max.	5.33	20%, 1½" and 2½" 25%, 3½" and 4½" 30%, 5½"		40% typical
Response Time	5.36	2 sec, typical		
Effect of overload				
Momentary	5.8	2%	N.A.	2%
Sustained	5.11	1%	1.5%	1%
Short Time	5.10	N.A.	1%	N.A.
Temperature Operating	5.6.3	-20° to +50° C (-4° to +122° F)		
Storage	5.6	-20° to +65° C (-4° to +150° F)		
Shock, 50g	5.9	2%		3%
Vibration	5.13	2%		3% typical
Dielectric	5.5	2600 V rms (1500 V rms for 1½")		

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Schlumberger

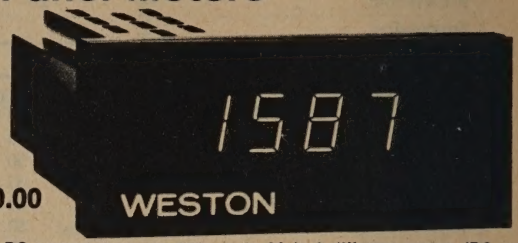
WESTON

DIGITAL PANEL METERS

2430 Series
Line Powered 3½ Digit Digital Panel Meters

FEATURES

- 3½ Digits • "True Bipolar" Integration • Automatic Zero Calibration
- Bright 0.55" Gas Discharge Display • 0°C to 65°C Operating Temperature
- Dual Slope Integration (U.S. Patent 3,051,939)



$130.00

THE OPTION METER

- Parallel latched BCD output (Model 2432)
- Ratiometric operation (standard)
- 3 output voltages to power auxiliary circuits
- 3 different reading rate capabilities
- + Polarity sign availability
- Clock frequency optimizing capability
- AC voltage measurements up to 1000 VAC in 5 different ranges
- AC current measurements up to 2A in 6 different ranges (AC current ranges can be extended to 1000 A via external transformer)
- DC current measurements up to 2A in 6 different ranges (DC current can be extended to 1000 A via external shunt)
- Resistance measurements up to 2000 ohms in 4 different ranges
- 4-20 mA current loop range with scaling and offsetting as per customer request
- 1-5 VDC range with scaling and offsetting as per customer request

INPUT CIRCUIT AND ACCURACY (SINGLE-ENDED INPUT)

Ranges	Accuracy @ 20°C-26°C	Resolution	Temperature Coefficient	Input Current @ 23°C	Input Impedance	Max. Input Voltage (Peak)
200 mV	0.05% rdg ±1 d typ.	100 μV	±0.01% FS/°C	50 pA typ.*	2000 MΩ	±50 V
2 V	0.05% rdg ±1 d	1 mV	±0.01% FS/°C	50 pA typ.*	2000 MΩ	±50 V
20V	0.05% rdg ±1 d	10 mV	±0.01% FS/°C	50 pA typ.*	5 MΩ	±500 V
200 V	0.05% rdg ±1 d	100 mV	±0.01% FS/°C	50 pA typ.*	5 MΩ	±500 V
				* 100 pA max.		

NMRR: 30 dB @ 60 Hz
CMRR: 100 dB @ 60 Hz Typ.
Max. CMV: 500 VRMS (1500 VRMS option)

Linearity: ±0.05% FS
Hysteresis: <0.3 counts
Temp. Coeff. of Zero: 3 μV/°C

Power Requirements
117 VAC, 220/240 VAC (±10%)
47 Hz to 440 Hz
2.5 Watts at 117 VAC — 60 Hz with fully lit display

Environment: 0°C to +65°C @ 60 Hz operation
Operating Temperature: −40°C to +85°C
Storage Temperature: 85% RH
Humidity

2430 SERIES CATALOG NUMBERS

Model No.	Range	117VAC	220VAC
2431 (WO/BCD)	200mV	0281148	0281144
	2V	0281149	0281145
	20V	0281150	0281146
	200V	0281151	0281147

Model No.	Range	117VAC	220VAC
2432 (W/BCD)	200mV	0281164	0281160
	2V	0281165	0281161
	20V	0281166	0281162
	200V	0281167	0281163

Mating Connector: Weston 9790-0267253 • Elco 00-6007-030-980-002 • Amphenol 225-21521-601(117)

2430 Series Option Boards

1. AC CONVERSION KIT, 9428-2330901 — Price $48

Converts the basic 199.9mV DC version to one of five AC ranges. The circuit responds to the average value of the waveform and the instrument is scaled to display the RMS equivalent value of a sine wave.

2. RESISTANCE MEASUREMENT KIT, 9428-2325901 — Price $20

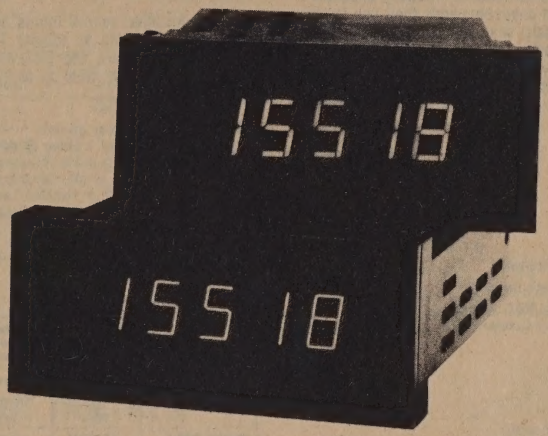
Converts the basic 1.999V DC version to an ohmmeter capable of measuring resistance in five ranges, from 19.99 ohms f.s. to 199.9K ohms f.s.

3. ZERO OFFSET KIT, 9428-2447901 — Price $35.00

Zero offset is necessary whenever the display is to be zero with a non-zero input signal, a typical requirement of transducers which provide 4 to 20mA (or 1 to 5V) to display zero to N counts. The circuit is designed to inject the appropriate number of ccunts into the instrument, independent of the particular range or parameter.

PRICES LISTED ARE FOR GUIDANCE ONLY

2470 Family, 4½ Digit, Line Powered Digital Panel Meters .55" LED or Gas Discharge Display



±1 Count stability at zero over the full operating temperature range

Input Circuit and Accuracy (single-ended input)

Ranges	Accuracy @ 23°C ±1°C	Accuracy @ 18°C −28°C	Temperature Coefficient	Input Current @ 23°C	Input Impedance	Max Input Voltage (Peak)
200 mV	±0.005% rdg±2d	±0.015% rdg±2d	±0.002% rdg±3 μV/°C	≤2 na	≥1000 MΩ	±60 V
*2 V	±0.005% rdg±2d	±0.01% rdg±2d	±0.001% rdg/°C	≤200 pa	≥1000 MΩ	±150 V
*20 V	±0.005% rdg±2d	±0.025% rdg±2d	±0.0035% rdg/°C	20 pa	1 MΩ	±500 V

* Accuracy at Zero: ±1 count 0°C to 50°C, Typically Zero up to 40°C.

NMRR: 50 db at 60 Hz (with single pole filter: 100 ms settling time)
Linearity: ±0.005% FS ±½d. Resolution: 1 part in 20,000.

CMM: 100 db at 60 Hz

Max. Common Mode Voltage: 500 VRMS (2471, 2473)
200 VRMS (2472, 2474)

OPTIONS

- **Current loop ranges**
  4 current loop ranges from 200 μA to 200 mA
- **10 mV F.S. with 1μV Resolution**
- **Isolated parallel BCD Output** (Model 2472, 2474)
- **Ratiometric operation** (standard)
- **Engineering units** (offset and full scale calibrated for pH, psi, °C, °F)
- **3 Output voltages available** (±12V +5V)
  Onboard voltage regulators provide 3 different output voltages to drive external circuits

2470 SERIES FAMILY CATALOG NUMBERS

Model No.	Range	115 VAC	230 VAC	List Price
2471	10 mV	0280593	0280592	$299
(WO/BCD)	100 mV	0280561	0280556	279
(LED)	1 V	0280562	0280557	249
	10 V	0280563	0280558	259
2472	10 mV	0280597	0280596	$329
(W/BCD)	100 mV	0280581	0280576	319
(LED)	1 V	0280582	0280577	299
	10 V	0280583	0280578	309
2473	100 mV	0282981	0282984	$279
(WO/BCD)	1 V	0282982	0282985	249
(Gas Plasma)	10 V	0282983	0282986	259
2474	100 mV	0282987	0282990	$319
(W/BCD)	1 V	0282988	0282991	299
(Gas Plasma)	10 V	0282989	0282992	309

DIGITAL PANEL METERS

SANGAMO WESTON
Schlumberger
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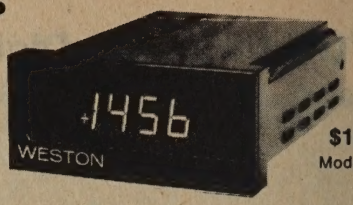
Model 2460 Series
UL Recognized Digital Panel Meters



$168.00
Model 2460

The Weston 2460 UL Recognized Series is a family of high performance 3½ digit panel instruments.

A custom LSI implementation of the Weston patented Dual Slope Integration* analog-to-digital conversion technique forms the basis of the series. Two-chip LSI format in lowest cost. Maximum performance is achieved through the use of ultra-stable bipolar technology in the linear analog chip, and power-efficient CMOS in the digital chip.

Each model in the 2460 Series offers premium features normally available only as expensive options, yet the low unit cost commends their use in all 3½ digit applications. Among the standard features, for example, are isolated input sections and a systems interface based on latched, parallel BCD outputs. The floating input is virtually immune to common mode and ground loop effects; measurement results, therefore, reflect the desired parameter more accurately than with non-isolated designs. The systems interface includes control inputs and status outputs along with the BCD, and all lines operate at popular TTL logic levels. Of special interest in systems applications, the EXTERNAL SYNC input permits synchronous A/D converisions at rates up to 25 measurements per second.

*U.S. Patent 3,051,939

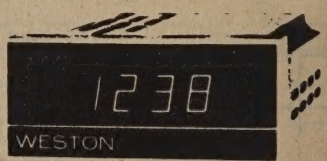
Resolution: 0.05% (1 in 2,000)
Accuracy: ±(0.05% Rdg. ±1 count)
Display: 0.6″ (15mm) LED; ±1999
Polarity: Automatim Bipolar with sign
Temperature Coefficient:
of Zero: 10 μV/°C max.
of FS: 100 ppm/°C max.
Series Mode Rejection: 30 dB min. (Standard Filter)
Common Mode Rejection: 80 dB min. (1 kΩ unbalance)
Signal Integration Time: 16.7 mSec. (117/234 VAC versions)
20 mSec (220/240 VAC versions)
Measurement Rate (approx.):
Internal: 2/Sec.
External: to 25/Sec.
Isolation Voltage:
Analog-Digital: 200 volts AC/DC
Analog-Power: 500 volts AC/DC (1500 optional)
Digital-Power: 500 volts AC/DC (1500 optional)
Systems Interface:
Data Format: 8421 BCD (parallel, latched)
Fanout: Per Model Specifications
Hold: via logical 0 or ground
Print (EOC): Logical 1 pulse @ data update
Ext. Sync. Logical 1 pulse initiates conversion
Polarity: Logical 1 = positive signal
Outrange: Logical 1 = overload signal
Power Requirements: 117/234 or 220/240 VAC, 50-400 Hz, 4½ W
Operating Ambient: 0.50°C, 10-85% R.H.
Storage Ambient: −55 to +85°C, 0-95% R.H.
Weight: 13 oz. (370 g) approx.
Dimensions: per drawing overleaf

	Range	Input Impedance	Max. Overload	Standard Cat No.	220 VAC
Model 2462 DC Voltmeter	100 mV	100 meg	60 V	0278387*	0278391*
	1 V	100 meg	60 V	0278388*	0278392*
	10 V	5 meg	600 V	0278389*	0278393*
Model 2464 DC Voltmeter	100 mV	15 meg	60 V	0278379*	0278395*
	1 V	150 meg	60 V	0278380*	0278396*
	10 V	5 meg	600 V	0278381*	0278397*

* Stock item

Model 1238
Digital Event Counter

$230.00

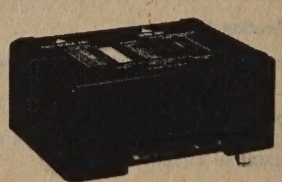


The Weston Model 1238 is a 2,000 count digital event counter in the accepted Weston digital panel meter physical format. The bright gas-plasma display features 0.55″ seven-segment numerals which can be viewed from a distance of 40 feet. TTL medium-scale integration micrologic is used throughout for high reliability, and high-speed response to input and control signals — even 1 micro-second pulses are adequate for precise counts and positive control circuit activation.

The Model 1238 is directly compatible with TTL-and DTL-logic signals. Control input may also be operated directly from mechanical switch contacts. Optional TTL-level BCD outputs (1-2-4-8/ parallel) permit the use of a wide assortment of control, computation, and print-out devices with the Model 1238.

Range: 1,999 counts. **Input sensitivity:** TTL/DTL pulse, 1 microsecond min. **Power input: 1238-9276081** — 117 v. 50/60 Hz, 3 watts. **1238-0276082** — 234 V 50/60 Hz, 3 watts. **Control inputs** (activate by "0" or ground): **Reset** — Clears display to zero. **Count** — Enables signal control gate. **Hold** — Disables signal control gate. **Output range indication:** Blanked display except thousands "1". **Outputs (optional):** TTL parallel BCD, 2 unit loads min. **Operating temperature:** 0-50°C. **Storage temperature:** −40° to +70°C. **Weight:** 13 ounces (370 g). **Mating connector:** Weston 9790-0267253, ELCO 00-6007-030-980-002 or equal (optional, sold separately).

Model 9744
rms Transducer



Low cost, all solid state single range device providing DC output signal proportional to rms of input signal. Five voltage ranges. Input impedance of 1 megohm on all voltage ranges makes it suitable for signal or power circuit applications. 0 — 1 VDC output is suitable for use with digital or analog indicating instruments and a wide range of control instrumentation. Les sthan 0.5% error on frequency range 40 — 10 kHz; less than 0.35% on power frequencies (50 — 400 Hz); no more than 1.5% on frequencies in the 30-20,000 Hz range is experienced on any kind of waveform applied. Generous 4:1 crest factor (peak/rms) assures accurate measurements on large signal peaks. **Size:** 4″W x 2.88″D x 1.94″H overall. Weight, less than 9 oz.

Weston Model 9744 rms Transducer —$241.50

Weston Model	Full Scale Range
9744-0274785	0—100 mV
9744-0274786	0—1 V
9744-0274787	0—10 V

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SANGAMO WESTON
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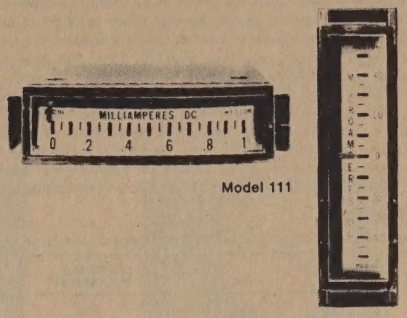
WESTON

EDGEWISE PANEL METERS

Model 111
Self-Shielded Panel Meters

Edgewise instrument using a flat Cormag mechanism for inherent shielding; permits mounting on magnetic or non-magnetic panels without adjustment. Can be stacked side-by-side without interaction. Shock absorption jewel arrangement assures long life. Mounts vertically or horizontally (specify) using mounting clips behind panel; no screws show on panel front; thru-holes provided for stacking. Red lance pointer. Scale: 1.25″ long. Accuracy: 2% FS DC; 3% FS, AC rectifier type. Size: 1.810″ w. x .500″ h. x 2.440″ d. behind panel; fits 1.650″ x .500″ panel cutout. List prices starting at $30.50



Model 111

DC INSTRUMENTS

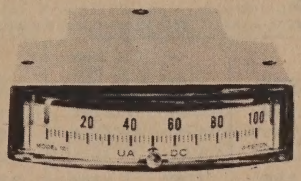
Weston No. 111-				
Horiz.	Vertical	Range	Scale Div.	Approx. Resis.
5621050	5622050	0—50 μA	25	1880 ohms
5621100	5622100	0—100 μA	20	760 ohms
5621200	5622200	0—200 μA	20	580 ohms
5621500	—	0—500 μA	25	113 ohms
5621750	5622750	50—0—50 μA	20	760 ohms
4621001	4622001	0—1 mA	20	38 ohms
4621010	—	0—10 mA	20	2.2 ohms
4621025	—	0—25 mA	25	2 ohms
1621010	1622010	0—10 V	20	5000 Ω/V
1621050	—	0—50 V	25	5000 Ω/V
—	1622150	0—150 V	30	5000 Ω/V

AC INSTRUMENTS

Weston No. 122-				
Horiz.	Vertical	Range	Scale Div.	Approx. Resis.
1631300	—	0—300 V	30	2000 Ω/V

Model 121
Edgewise Panel Meters

Model 121 is a 2½″ flat edgewise meter utilizing a true flat Cormag mechanism design for shielding purposes. An incline scale is standard; eliminates parallax normally associated with edgewise meters. Red pointer increases readability. Front mounted zero corrector. Accuracy: 2% of FS value for DC; 3% of FS value for AC rectifier type. Scale Length: 1.9″; antiparallax incline scale. Pointer: Red lance type. Movement: Self shielded thin line Cormag mechanism. Shock mounted jewel arrangement. Mounting: Either horizontally or vertically. Mounting clips fasten to meter behind panel; no screws show on front of panel. For stacking, thru-holes are provided so stack can be bolted together. Dielectric: 1500 V rms. Size: 2.880″ w. x 1.010″ h. x 3.921″ d. overall; panel cut out, 2⁵⁄₁₆″ w. x ¹¹⁄₁₆″ h.
List prices starting at $35.75



Model 121

DC INSTRUMENTS

Weston No. 121-				
Horiz.	Vertical	Range	Scale Div.	Approx. Resis.
1621010	—	0—10 V	50	5000 Ω/V
4621001	4622001	0—1 mA	50	37 ohms
5621050	5622050	0—50 μA	50	1490 ohms
5621100	5622100	0—100 μA	50	600 ohms
5621200	—	0—200 μA	40	460 ohms
5621500	—	0—500 μA	50	113 ohms
5621750	—	50—0—50 μA	50	600 ohms

Models 131 and 231
Edgewise Panel Meters

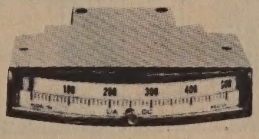
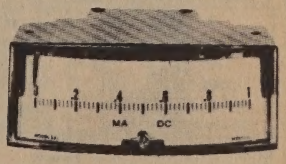
FEATURES

- Completely flat . . . can be stacked side-by-side to save panel space
- Inline pointer and scale . . . parallax eliminated
- New shelf-shielded mechanism
- Illumination (self-contained) also available

Model 131 is basically a 3½-inch flat edgewise meter offering many benefits not generally offered in this type of meter. To eliminate parallax normally associated with edgewise meters, an inline scale is standard; a red pointer increases readability. For those requiring lighting, self-contained illumination is available as an optional feature; bulbs are removable while meters are mounted in panel — even when stacked, side-by-side. Incorporates Cormag® mechanism design for shielding purposes. The magnet is inside the moving coil and the resulting inherent shielding allows mounting on magnetic or non-magnetic paels without need for adjustment, as well as the ability to stack meters side-by-side without any interaction. Mechanism also has a shock absorption jewel arrangement to assure long life. **Accuracy:** 2% of FS value for DC; 3% of FS value for AC rectifier type. **Scale Length:** 2.75″; antiparallax inline scale. **Pointer:** Red lance type. **Movement:** Self shielded thin line Cormag mechanism. Shock mounted jewel arrangement. **Mounting:** Meter can be mounted either horizontally or vertically. Mounting clips fasten to meter behind panel — no screws show on front of panel. For stacking, thru holes are provided so stack can be bolted together.

Dielectric: 2600 V rms. **Illumination:** Self-contained on request. **Size:** 3.47″W x 1.010″H x 3.921″D overall; panel cut out 2⁵⁄₁₆″W x ¹¹⁄₁₆″H.

Model 231 is identical to above, but with wide face for improved readability.

DC INSTRUMENTS

Scale Divisions: 50

Weston Numbers			
Horiz.	Vertical	Range	Resis. Approx.
131-1621010	—	0—10 V	5000 Ω/V
131-1621050	—	0—50 V	5000 Ω/V
131-4621001	131-4622001	0—1 mA	28 ohms
131-5621050	—	0—50 μA	1680 ohms
131-5621100	131-5622100	0—100 μA	680 ohms
131-5621750	131-5622750	50—0—50 μA	680 ohms

EDGEWISE ACCESSORIES

Catalog No.	Description
7110-1111000	Bracket & Screw Mounting Hardware for 1½″ Model 111, 112
7110-2111001	Clamp & Screw Mounting Hardware for 2½″ & 3″ Model 121, 131 & 231

MOUNTING BEZELS

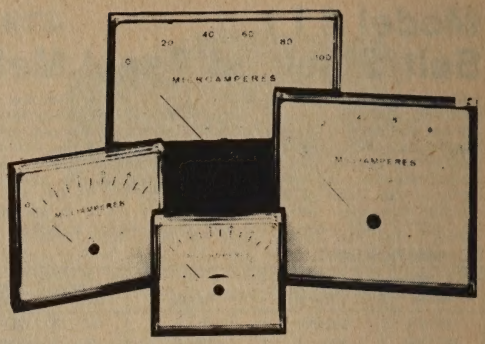
Catalog No.	Description
1909-0256258	Bezel for Models 111 & 112
1909-0256259	Double Bezel for Models 111 & 112

Panel Instruments

SANGAMO WESTON
Schlumberger
WESTON

Series 2000 Panel Meters

Attractive panel meters are styled to complement the appearance of equipment, rather than dominate it. Flattened scale arc gives excellent readability. Convenient snap-in covers permit easy scale replacement; use of a simple tool for replacement guards against finger snap-off of covers. Cormag® mechanism uses specially treated Alnico V magnet for full shielding from magnetic effects and long term stability. Offers the best combination of high torque with a minimum response time and minimum power consumption. Meets ANSI C39.1 standard. Features excellent dust sealing, plus the option of superior moisture-resistant sealing where required in critical environmental conditions. Easily adaptable to external illumination. Pivot and jewel types have spring back jewels. Half bezel is available for rear-of-panel mounting. Zero corrector is accessible from front of panel through bezel; no need to cut separate panel hole. List prices starting at **$37.75**



SPECIFICATIONS

All models have knife-edge pointer and plain scale; mirror scale available.

Model	Size	Function	Accuracy Full-Scale†	Scale Length
2021	2½″	DC	2%	2.13″
2022	2½″	AC Rect.	3% (60 Hz)	2.13″
2031	3½″	DC	2%	2.7″
2032	3½″	AC Rect.	3% (60 Hz)	2.7″
2041	4½″	DC	2%	3.7″
2042	4½″	AC Rect.	3% (60 Hz)	3.7″
2051	5½″	DC	2%	4.5″
2052	5½″	AC Rect.	3% (60 Hz)	4.5″

† Except 1% types listed below.

DIMENSIONS

Depth behind panel, 1.140″ (1.725″ including terminal stud).

Model	Width	Height	Panel Hole Dia.	Mounting Centers‡ W.	Mounting Centers‡ H.
2021	2.800″	2.400″	2.200″	1.880″	1.880″
2022	2.800″	2.400″	2.200″	1.880″	1.880″
2031	3.500″	2.980″	2.820″	2.250″	2.250″
2032	3.500″	2.980″	2.820″	2.250″	2.250″
2041	4.530″	4.050″	2.820″	4.000″	3.562″
2042	4.530″	4.050″	2.820″	4.000″	3.562″
2051	5.630″	4.490″	2.820″	5.250″	3.000″
2052	5.630″	4.490″	2.820″	5.250″	3.000″

‡ Four mounting studs, .500″ long.

TAUT-BAND METERS

Range	Resis., Ohms	Weston No.*	Model 2021	Model 2031	Model 2041	Model 2051
DC Microammeters (2% Accuracy)						
50	950	5842050		#		#
100	845	5842100				#
200	275	5842200				#
500	60	5842500		#		#
50—0—50	845	8888004			#	#
100—0—100	275	8888005		#	#	#
DC Microammeters (1% Accuracy)						
100	845	5812100	#	#		
200	275	5812200	#	#	#	#
DC Milliammeters (2% Accuracy)						
1	16.5	4842001				
DC Milliammeters (1% Accuracy)						
1	16.5	4842001	#	#		
DC Voltmeters (1% Accuracy)						
50	1000	1812050	#	#	#	#

NON-STOCK ITEMS

Series 2000 panel meters are available in a variety of ranges in addition to those listed above, as non-stock items. Pivot and jewel meters are available to read DC microamps, AC microamps and AC milliamps. Taut-band meters are available to read DC amps, DC milliamps, AC and DC volts, AC milliamps and AC microamps. Write for complete information and prices.

PIVOT AND JEWEL METERS

Range	Resis., Ohms	Weston No.*	Model 2021	Model 2031	Model 2041	Model 2051
DC Microammeters						
50	2500	5841050				#
100	2300	5841100				#
200	850	5841200	#	#		
50—0—50	2300	8888001		#	#	
DC Milliammeters						
1	85	4841001				
5	9	4841005	#	#		#
10	2.2	4841010			#	#
50	2.0	4841050	#		#	#
100	1.0	4841100			#	#
200	0.5	4841200		#	#	#
300	0.33	4841300		#		#
500	0.2	4841500	#	#		#
DC Ammeters						
1	50 mV	2841001			#	
5	50 mV	2841005				
10	50 mV	2841010	#	#	#	
25	50 mV	2841025				#
50	50 mV	2841050	#			#
100†	—	8841100			#	#
DC Voltmeters						
5	1000	1841005		#	#	#
10	1000	1841010			#	#
25	1000	1841025	#		#	#
50	1000	1841050			#	#
150	1000	1841150			#	#
200	1000	1841200		#	#	#
300	1000	1841300			#	#

AC Voltmeters (Rectifier Type)

Range	Resis., Ohms	Weston No.*	Model 2022	Model 2032	Model 2042	Model 2052
150	1000	1841150	#	#	#	#

* Complete Weston No. consists of Model number (2021, 2032, etc.) followed by suffix indicated in table; e.g., 2021-4841001. # Non-stock item.

† 50 mV for use with external shunts.

vu METERS

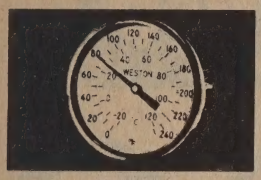
Type A scale stresses the level in the "vu" units for monitoring wire lines.

Scale Type	Weston No.*	Model 2022	Model 2032	Model 2042
Type 30 A	3841001			

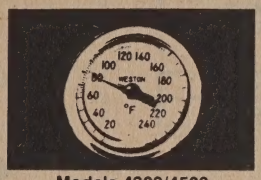
PRICES LISTED ARE FOR GUIDANCE ONLY

Industrial Thermometers with Threaded Hubs

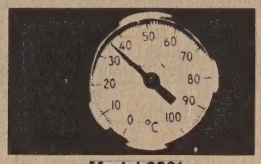
● All stainless steel construction ● Breakage resistant glass windows ● Removable bezel ● Vibration resistant ● Permanent metal scale plate ● All stainless steel wels for maximum corrosion resistance ● Convenient side located dial adjuster on 3″ and 5″ models ● Stem diameter .25″ ● Standard stem lengths 2.5, 4, 6, 9, 12, 18, and 24 inches. Additional lengths available on special order.



4309/4509



Models 4303/4503



Model 2281

MODEL 4504
Universal Angle 5″ diameter head
● Rated accuracy ±1% of total scale range at any angle ● Scale length 10″ ● Approximate weight 1.75 lbs. ● Standard temperature ranges — −40/120F, 0/200F, 25/125F, 20/240F, 50/300F, 50/400F, 50/500F, 150/750F, 200/1000F, −10/110C, 0/50C, 0/150C, 0/300C.

MODELS 4509, 4309
Dual Scale 5″ and 3″ diameter head back connected
● Rated accuracy ±1% of total scale range ● Scale length 5″ diameter 8″, 3″ diameter 5″ ● Approximate weight .5 lbs. ● Standard temperature ranges — −100/100F (−70/40C), −40/120F (−40/50C), 0/250F (−20/120C), 25/125F (0/50C), 50/300F (10/150C), 50/500F (10/260C), 150/750F (60/400C).

MODELS 4503, 4303
Standard In-Line Scale 5″ and 3″ diameter head back connected
● Rated accuracy ±% of total scale range ● Scale length 5″ diameter 10″, 3″ diameter 8″. ● Approximate weight .5 lbs. Standard temperature ranges same as model 4504.

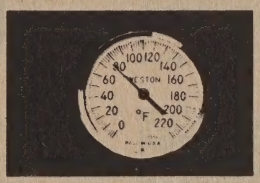
MODELS 4513, 4313
Standard In-Line Scale 5″ and 3″ diameter head bottom connected
● Rated accuracy ±1% of total scale range — (Same as 4503 above).

MODEL 2281
Utility Model 2″ diameter head
● Rated accuracy ±1% of toal scale range ● Scale length 4.5″ ● Approximate weight 2 oz. ● Standard temperature ranges −40/120F, 0/240F, 25/125F, 50/300F, 50/500F, 150/750F, 200/1000F, 0/100C.

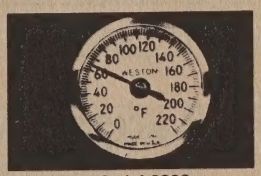
Laboratory Thermometers

● All stainless steel construction ● Breakage resistant glass or plastic windows ● Rated accuracy ±1% of total scale range ● Stem diameter .156″ ● External adjustment feature on all models except 2284 ● Pocket carrying cases are available on special order.

Model 4130



Model 2261



Model 2292

MODELS 4130, 4135
Universal Testing, Photographic 3″ diameter head
● Large dial ● Dual scale. Approximate weight 1 oz. Standard temperature ranges −40/160F (−40/70C), 0/220F (−10/100C), 25/125F (0/50C), 50/300F (10/150C), 50/500F (10/260C) available with 8″ stem length. Photographic model 4135 has mirrored dial and 25/125F (0/50C) scale.

MODEL 4200
Utility 2″ diameter head
● Standard temperature ranges −100/100F, −40/160F, 0/180F, 0/220F, 25/125F, 50/250F, 50/300F, 50/400F, 50/500F, −100/40C, −50/100C, −10/110C, 0/50C, 0/100C, 0/150C, 0/250C ● Standard stem length 8″, approximate weight 1 oz.

MODEL 2284
Precision "Mirrorband" 2″ diameter head
● Rated accuracy ±1% of total scale range with knife edge pointer and mirror scale for precise temperature measurement. Standard temperature ranges −20/100F, 0/220F, 25/125F, 50/250F, 50/500F, −10/110C, 0/250C available in 8″ stem length. Approximate weight 1 oz.

MODELS 2261, 2265, AND 2220
Laboratory, Photographic, Roast Meat 1.7″ diameter head
● Standard temperature ranges same as model 4200 ● Standard stem lengths 5, 6, and 8″ ● Photographic model 2265 has 25/125F scale with mirror dial ● Roast meat model 2220 has 0/220F scale and silicone gasket to withstand oven temperature and has a 5″ pointed stem.

MODEL 2292
Pocket 1″ diameter head
● Plastic window standard ● Standard temperature ranges −40/160F,0/220F, 25/125F, 50/500F, 0/150C, 0/250C. Available in 5″ length with pocket carrying case and clip.

SANGAMO WESTON
Schlumberger
WESTON

PANEL INSTRUMENTS

Series 1500/2500
Ruggedized Panel Meters

1½″ (MR13)

DC MILLIAMPERES

Range	Resistance	Cat. No.
0-1	100 Ω	2511-4901001

DC MICROAMPERES

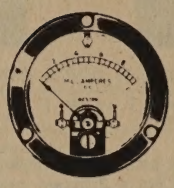
Range	Resistance	Cat. No.
0-100	1175 Ω	2511-5901002

Model 2511

2½″ (MR26)

DC VOLTS

Range	Sensitivity	Cat. No.
0-10	1000 Ω/v	2521-1101001
0-50	1000 Ω/v	2521-1101002


Model 1521

Model 2521

DC AMPERES

Range	Cat. No.
0-10	2521-2101002

DC MILLIAMPERES

Range	Resistance	Cat. No.
0-1	95 Ω	2521-4101001

AC VOLTS

Range	Frequency	Cat. No.
0-150	40 Hz	2524-1101002
0-150	400 Hz	2524-1101003

AC AMPERES

Range	Frequency	Cat. No.
0-5	60 Hz	2524-2101002

DC MICROAMPERES

Range	Resistance	Cat. No.
0-20	1520*	1521-5102002

* Recommended Horizontal position only 86° scale

3½″ (MR36)

DC VOLTS

Range	Sensitivity	Cat. No.
0-50	1000 Ω/v	2531-1101001

Model 1531

Model 2531

AC AMPERES

Range	Frequency	Cat. No.
0-5	60 Hz	1534-2101006
0-5	60 Hz	2534-2101002

DC MICROAMPERES

Range	Resistance	Cat. No.
0-50	1175 Ω	1531-5102001
0-100	1090 Ω	1531-5102005
50-0-50	985 Ω	2531-5102004

AC VOLTS

Range	Frequency	Cat. No.
0-150	60 Hz	2534-1101002
0-300	60 Hz	2534-1101004

DC MILLIAMPERES

Range	Resistance	Cat. No.
0-1	95 Ω	2531-4101001

3½″ (MR36) Long Scale

DC MILLIAMPERES

Range	Resistance	Cat. No.
0-1	285 Ω	1539-4101001

4½″ (MR46)

Model 1541 available on special order

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SANGAMO WESTON
Schlumberger

WESTON

PANEL INSTRUMENTS

AC IRON VANE METERS

Range	Weston No.	Model 2024	Model 2034	Model 2044
AC Ammeters (2% Accuracy)				
1	2841001			#
5	2841005			
10	2841010	#		#
20	2841020			
25	2841025	#	#	#
30	2841030			#
50	2841050		#	#
100*	2841100	#	#	#
AC Voltmeters (2% Accuracy)				
10	1841010	#		
15	1841015	#	#	
50	1841050	#		
150	1841150			
300	1841300	#		
500	1841500	#	#	
AC Milliammeters (2% Accuracy)				
50	4841050			
100	4841100			
500	4841500			

* Supplied with 5 amp range for use with Model 605 Current Transformer (not supplied).
\# Non-stock item.

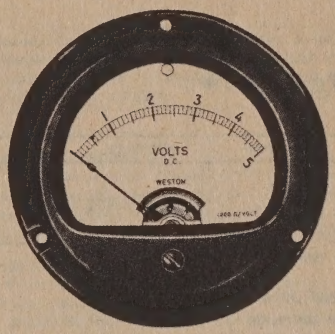
Motor Load Percent Indicator (2% Accuracy)

Range	Weston No.	Model 2024	Model 2034	Model 2044
5 (0-150%)	2841888			

Series 2000 Accessories

Description	Weston No.	Used With Model
Black Half Bezel	2009-0271495	2021, 2022 & 2024
Black Half Bezel	2009-0271922	2031, 2032 & 2034
Black Half Bezel	2009-0271923	2041, 2042 & 2044
Black Half Bezel	2009-0271924	2051
Illumination Kit	2009-0271930	2031, 2032 & 2034
Illumination Kit	2009-0271931	2041, 2042 & 2044
Illumination Kit	2009-0271932	2051

Series 201/301 Round Panel Instruments



Pacesetter 2½″ and 3½″ panel instruments for longer, better performance. **Features:** Spring-back jewels with locking nuts for fine adjustments; Alnico 5 magnets; Cormag® mechanism fully shielded from electrostatic effects; Bakelite§ cases, sealed against dust. Diecast parts in critical structural members assure complete interchangeability and permanent alignment. Designed for minimum power consumption, minimum response time. Cormag mechanism permits mounting on magnetic or non-magnetic panels without special adjustments. Affords excellent shielding from external magnetic fields and eliminates the possibility of intereffect of instruments in close proximity. Prices starting at $48.00

§ Bakelite Corp. Trademark

Models 201/301 DC Meters

Mechanism is DC Cormag self-shielded units and are suitable for use on most standard applications.

Model 201: Rated accuracy, 2% of full-scale value. Scale, 1.57″ (40mm), core-magnet moving coil mechanism. **Size:** 2.68″ dia. (overall) x .31″ front of panel x 1.87″ back of panel. Mtg. hole, 2.20″ dia. **Model 301:** Rated accuracy, 2% of full-scale value. Scale, 2.46″ (60mm), core-magnet moving coil mechanism. **Size:** 3.50″ dia. (overall) x .36″ front of panel x 1.81″ back of panel. Mtg. hole, 2.75″ dia.

DC VOLTMETERS (1000 OHMS/VOLT)

Range	Model 201 (2½″) Weston No. 201-	Model 301 (3½″) Weston No. 301-
3	—	1301104
15	1301104	1301107
30	1301105	1301108
50	1301106	1301102
300	—	1301103

DC AMMETERS

Self-contained shunts up through 50 amps; higher ranges require external shunting. MIL-S-61 shunts available on request.

3	—	—
5	2301104	2301104
10	2301105	2301106
30	2301108	—

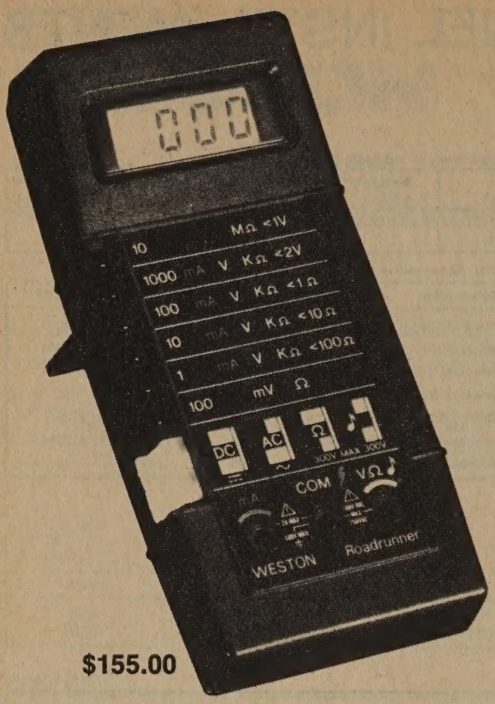
‡ External shunt type, 100 A scale; price does not include 50 mV shunt.

DC MICROAMMETERS

Range	Model 201 (2½″) Weston No. 201-	Model 301 (3½″) Weston No. 301-
20	—	5301107
50	—	5301104
100	5301102	5301101
200	—	5301105
500	5301104	5301106
10—0—10	—	5301110
50—0—50	5301106	—
100—0—100	—	5301102
500—0—500	—	5301103

MODEL 302 RECTIFIER TYPE AC INSTRUMENTS

For most standard applications accuracy within 3% FS on waveforms approximating the sine wave at ordinary room temperatures.



$155.00

THE ROAD RUNNER ADMM FROM WESTON

AUDIO RESPONSE™ PLUS DIGITAL DISPLAY

THE INDUSTRY'S FIRST AUDIO RESPONSE™ DIGITAL DISPLAY FIELD SERVICE MULTIMETER

GENERAL

Display: 3½ digits reflective LCD 0.5" high
Polarity: Automatic
Reading Rate: 2.5 readings per sec.

	Temperature	Humidity
Operating Environment	0°C - 35°C	80%
	35°C - 50°C	70%
Storage Environment	−20°C - +60°C	

Temperature Coefficient: (0°C - 18°C, 28°C - 50°C) 0.1 x applicable accuracy/°C
Power: Single 9V battery NEDA 1604
Battery Life: Up to 200 hours with alkaline battery — "Lo Bat" displayed during the last 10% of useful battery life
Physical Characteristics: Weight: 1 lb. (0.45Kg.)
Dimensions: 7.5 in. x 3.4 in. x 1.9 in.: (190mm x 86mm x 49mm)

SPECIFICATIONS (From 18°C to 28°C)

DC VOLTAGE

RANGE	RESOLUTION	ACCURACY
100mV 1V 10V 100V 1000V	100uV 1mV 10mV 100mV 1V	0.5% reading ±1 digit

Overrange: 100% on all ranges except 1000V
Input Impedance: 10MΩ
Overload Protection: 1000V DC/750VAC
N.M.R.R.: 35dB min., line operation
C.M.R.R.: 80dB min., line operation

AC VOLTAGE (Average Sensing, RMS Calibrated)

RANGE	RESOLUTION	ACCURACY		
		50Hz-60Hz	45Hz-400Hz	45Hz-1KHz
100mV	100uV	0.75% rdg ±3d		1% rdg ±3d
1V	1mV	0.75% rdg ±3d	1% rdg ±3d	
10V	10mV	0.75% rdg ±3d		1% rdg ±3d
100V	100mV	0.75% rdg ±3d		1% rdg ±3d
750V	1V	0.75% rdg ±3d	1% rdg ±3d	

Overrange 100% on all ranges except 750V
Input Impedance: 10MΩ shunted by <100pF
Overload Protection: 1000V DC/750VAC on all ranges except 100 mV range (300VAC for 15 sec)

RESISTANCE

RANGE	RESOLUTION	ACCURACY	FULL SCALE VOLTAGE	MAX. TEXT CURRENT
100Ω	0.1Ω	0.5% reading ±3 digits	<150mV	750μA
1KΩ	1Ω		<80mV	55μA
10KΩ	10Ω	0.5% reading ±1 digit	<190mV	25μA
100KΩ	100Ω		<210mV	3μA
1000KΩ	1KΩ		<210mV	0.3μA
10MΩ	10KΩ	2.5% reading ±1 digit	<210mV	0.03μA

Overrange: 100% on all ranges
Overload Protection: 300VAC/DC
Open Circuit Voltage: 0.3V (except 100Ω range 2.2V)

DC CURRENT

RANGE	RESOLUTION	ACCURACY	BURDEN VOLTAGE
1mA	1μA	1% reading ±1 digit	0.5V DC max.
10mA	10μA		0.5V DC max.
100mA	100μA		0.5V DC max.
1000mA	1mA		1V DC max.

Overrange: 100% on all ranges
Overload Protection: 2A, 250V, fused, diode clamped

AC CURRENT (Average Sensing, RMS Calibrated)

RANGE	RESOLUTION	ACCURACY		
		45Hz-100Hz	45Hz-400Hz	45Hz-1KHz
1mA	1μA	1.5% reading ±3 digits		
10mA	10μA		1.5% reading ±3 digits	
100mA	100μA			1.5% reading ±3 digits
1000mA	1mA			

Overrange: 100% on all ranges
Overload Protection: 2A, 250V, fused, diode clamped
Burden Voltage: 0.5VAC max. except 1000mA range, 1VAC max.

AUDIO RESPONSE FUNCTION

RANGE	ACCURACY
<1V	±0.01V Typ
<2V	±0.05V Typ
<1Ω	±0.2Ω Typ
<10Ω	±1Ω Typ
<100Ω	±10Ω Typ

Max. Test Current: 1mA Typ.
Open Circuit Voltage: 2.8V Typ. (source impedance 2.8kΩ typ.)
Overload Protection: 300VAC/DC
Max. Continuous Operating Voltage: 20VAC/DC
Hysteresis: 3mV max. on voltage ranges
3Ω max. on resistance ranges
Audio Indication: 2500Hz/3000Hz square wave with an approximate 2.5Hz/3Hz beat signal

ORDERING INFORMATION

Model 6100 - 0282 409 (U.S.A. & Canada)
Model 6100 - 0282 410 (Export)

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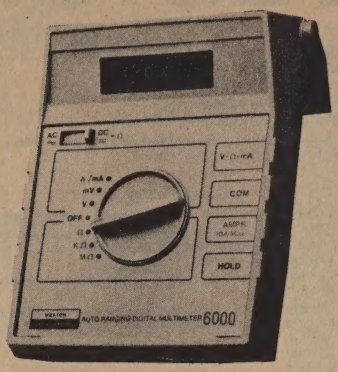
DIGITAL TEST INSTRUMENTS

SANGAMO WESTON
Schlumberger
WESTON

Autoranging Model 6000 Digital Multimeter



FEATURES

- Automatic range change — eliminates manual switching
- Measurement Hold
- "Drop-Proofed" durability
- Guaranteed accuracy
- Operating environment 85% RH up to 50°C for all functions
- Display backlighting for easy readability in dark locations (optional)
- Full 10 amp AC/DC measurement capability
- Manual range hold for fixed range operation (optional)
- Light meter attachment for reading light levels in foot candles directly (optional)
- Full overload protection on all ranges
- Large, high contrast LCD display for easy reading from moonlight to sunlight
- Calibration adjustment, fuse and batteries available from outside case
- Automatic overrange indicator to prevent erroneous readings
- Compact; only 7" x 5.75" x 2.25"
- Up to 350 hours of battery operation — no expensive, time-consuming recharging required
- Auto-zeroing for accuracy

1 Model 6000 autoranging Digital Multimeter. Complete with test leads, batteries and instruction manual. **$236.00**

2 Model 6000 autoranging Multimeter with back light. Complete with test leads, batteries and instruction manual. **$279.00**

3 Model 6000 autoraging Digital Multimeter with range hold. Complete with test leads, batteries and instruction manual. **$260.00**

4 Model 6000 Autoranging Digital Multimeter with back light and range hold. Complete with test leads, batteries and instruction manual. **$286.00**

RANGES

DC Volts: 0 to 1000 maximum, at an accuracy of ±0.35% ±2 digits
AC Volts: 0 to 1000 maximum, at an accuracy of ±0.5% ±5 digits.
DC Current: 0 to 10 amperes, at an accuracy of ±0.75% ±3 digits.
AC Current: 0 to 10 amperes, at an accuracy of ±1.5% ±5 digits.
Resistance: 0 to 20 megohms, at an accuracy of ±0.5% ±1 digit.
Low Battery Warning: Reading blinks during final 10 hours of operation.
Over-range Indication: "1" and "888" alternate in a blinking display.
Size: 7"W x 5.75"H x 2.25"D. **Weight:** 22 ozs. with batteries.

OPTIONAL ACCESSORIES AVAILABLE

HOLD PROBE
The hold probe allows permanent hold of any reading. A two-position slide switch allows normal or hold operating modes. The hold probe is an excellent accessory for "hard to reach measurements" and high voltage testing where the eyes of the operator have to remain on the measurement.
Cat. No. 9740-0279407

LIGHT METER ATTACHMENT
The light meter attachment provides direct reading of illumination in foot candles, using the Weston VISCOR® filter to provide wave length sensitivity matched to the human eye. Standard range is 0-125 foot candles with output of 0-12.5 mVDC. Accuracy is ±7.5% of full scale. Cat. No. 856-0280851.

CARRYING CASE
Leather grained expanded vinyl pouch-style case. Convenient strap and durable construction provides additional protection for meter in field service applications. Cat. No. 9740-0277854

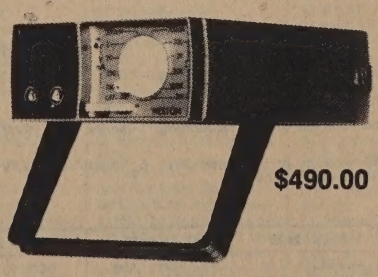
VHF RF VOLTAGE PROBE
The VHF RF probe allows measurements from 0.25 V to 30 V (RMS) with frequencies ranging from 50 KHz to 520 MHz with an accuracy of ±5% at 1 MHz. The input impedance is 10 MΩ and is used with DC ranges of the 6000.
Cat. No. 9740-0279627

AC CLAMP-ON PROBE
The AC clamp-on probe extends the AC current readings of the 6000 up to 200 A in 3 selectable ranges (0-2 A, 20 A, 200 A) and displays the information on the millivolt range of the 6000 with an accuracy of 2% on the 200 A range (3% on 20 A range and 4% on 2 A range). Cat. No. 9740-0275768

RF VOLTAGE PROBE
The RF voltage probe is a passive diode probe for measurements from 1 V to 30 V with frequencies ranging from 10 KHz to 50 MHz with an accuracy of 5%. Scales for RMS reading of a sinewave signal, the probe has an input impedance of 10 MΩ and is used with DC ranges of the 6000.
Cat. No. 9970-0271961

HIGH VOLTAGE PROBE
For measurements up to 50,000 VDC with an accuracy of 2%. The probe is equipped with two standard banana plugs and a ground/lead alligator clip for chassis connection. Cat. No. 9740-0279395

Model 4440 Portable Digital Multimeter



$490.00

RANGES

DC Volts: 0—199.9 mV; 0-1.999—19.99—199.9—999 volts.
AC Volts: 0—199.9 mV; 0-1.999—19.99—199.9—999 volts.
DC Current: 0—199.9 μA.
AC Current: 0—199.9 μA.
Resistance: 0—199.9—1.999 K—19.99 K—199.9 K—1.999 M ohms.
Display: 1999 non-blinking; 0.19" character size.
Conversion Rate: Approx. 4 per second.
Common Mode Rejection: 80 dB.
Normal Mode Rejection: 35 dB.
Temperatures: 15°C to 35°C (10°C to 50°C with derated accuracy).
Power Required: Rechargeable or standard "C" batteries or 115 VAC, 50—400 Hz.
Size: 5.45"W x 7.25"D x 2.25"H. Weight, less than 2½ lbs.

Weston Model 4440 Digital Multimeter — Comes with four Nicad "C" cells and battery charger. High impact molded plastic case.

INSTRUMENT SECTION

SANGAMO WESTON
Schlumberger

WESTON Precision Test Instruments

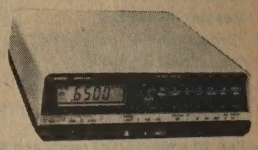
MODEL 6400/6500 "SMART" DIGITAL MULTIMETER

- Microprocessor controlled
- Self-prompting diagnostic ability
- Display "talks" to operator
- Digital filter suppresses jitter and noise
- NULL function stores measurement and presents differences between that and subsequent measurements

MODEL 6500 ONLY

- Scale/Offset function pre-conditions measurements before display
- Percent Deviation function computes the difference between a measurement and a constant and expresses it as a percentage of the constant
- Max/Min function stores both a maximum and a minimum value of a measurement
- HI/LO Limit function stores high and low limit values and announces when the measurement exceeds these limits

MODEL 6400



MODEL 6500

RANGES

DC Volts: 0 to 1000 volts in 5 ranges, at an accuracy of 0.03% + 2 digits

AC Volts (average responding): 0 to 800 volts in 5 ranges, at a worst case accuracy of 0.5% + 10 digits

AC Volts (true rms): 0 to 800 volts in 5 ranges, at a worst case accuracy of 0.8% + 15 digits

DC Current: 0 to 2000 mA in 5 ranges, at a worst case accuracy of 0.2% + 2 digits

AC Current (average responding): 0 to 2000 mA in 5 ranges at a worst case accuracy of 0.5% + 10 digits

AC Current (true rms): 0 to 2000 mA in 5 ranges, at a worst case accuracy of 0.8% + 15 digits

Resistance: 0 to 20 megohms in 6 ranges, at a worst case accuracy of 0.25% + 4 digits

OPTIONAL ACCESSORIES

Weston Number	Description	Net Each
9740-279407	Hold probe	$60.00
9970-271961	RF Voltage Probe	37.25
9470-279627	VHF RF Voltage probe	95.00
9740-279395	High Voltage probe	52.00
9740-275768	AC clamp-on probe	92.00
9428-3023901	Temperature probe	119.00
9428-2876902	Carrying case	55.00
9428-2876901	Carrying pack	50.00
9428-3821901	Rack mount	75.00

AVAILABLE MODELS

All Models with test leads and instruction manual.

Model 6402 Average Responding DMM. List Price $385.00

Model 6402/101 Average Responding DMM with Rechargeable Batteries. List Price $445.00

Model 6402/102 Average Responding DMM with BCD Output. List Price $535.00

Model 6402/103 Average Responding DMM with IEEE Interface. List Price $685.00

Model 6404 RMS Responding DMM. List Price $410.00

Model 6404/101 RMS Responding DMM with Rechargeable Batteries. List Price $470.00

Model 6404/102 RMS Responding DMM with BCD Output. List Price .. $560.00

Model 6404/103 RMS Responding DMM with IEEE Interface. List Price $710.00

Model 6502 Computing, Average Responding DMM. List Price $665.00

Model 6502/101 Computing, Average Responding DMM with Rechargeable Batteries. List Price $725.00

Model 6502/102 Computing, Average Responding DMM with BCD Output. List Price $815.00

Model 6502/103 Computing, Average Responding DMM with IEEE Interface. List Price $965.00

Model 6504 Computing, RMS Responding DMM. List Price $690.00

Model 6504/101 Computing, RMS Responding DMM with Rechargeable Batteries. List Price $750.00

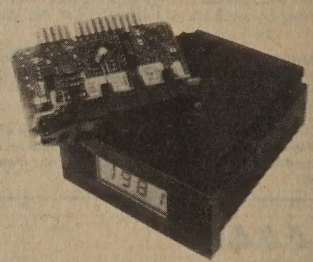
Model 6504/102 Computing, RMS Responding DMM with BCD Output. List Price $840.00

Model 6504/103 Computing, RMS Responding DMM with IEEE Interface. List Price $990.00

2490 SERIES DIGITAL PANEL METERS

FEATURES

- 0.05% accuracy on all ranges
- Four basic DCV ranges
- Single-ended or differential operation
- True ratiometric operation
- Auto zero and auto polarity
- True bipolar integration
- 3 1/2 digit, 0.5" LCD display
- Full compliance with IEC 348 and ANSI C39.5
- BCD output, tri-state buffered, word compatible
- 0° to 60° C. operation
- Choice of power supply: 9-15 VDC, ±5 VDC, 115 VAC, 230 VAC



AVAILABLE FUNCTIONS

DC Voltage: 4 ranges from 199.9 mV to 199.9 V.

DC Current: 6 ranges from 19.99 μA to 1.999 A.

AC Voltage: Either average or rms responding, 5 ranges from 199.9 mV to 500 VAC.

AC Current: Either average or rms responding, 6 ranges from 19.99 μA to 1.999 A; optional ranges to 2000 A.

Process Monitor: 4-20 mA or 1-5 Volts; parameters established to customer's requirements. Built-in offset and scaling are optional.

Resistance: 5 ranges from 20 ohms to 200K ohms.

Frequency: 3 ranges from 20 Hz to 20 kHz.

Watts and Power Factor: Use external transducer.

BCD Output: Available with all functions in either AC or DC powered configurations.

	Model 2495		Model 2496		Model 2497		Model 2498		Model 2498		Model 2499		Model 2499	
Ranges	Non-BCD 9-15 VDC	List Price	Non-BCD ±5 VDC	List Price	BCD ±5 VDC	List Price	Non-BCD 115 VAC	List Price	Non-BCD 230 VAC	List Price	BCD 115 VAC	List Price	BCD 230 VAC	List Price
200 mVDC	2823487	$70.00	283079	$100.00	283087	$165.00	283426	$100.00	283427	$100.00	283461	$165.00	283462	$165.00
2 VDC	2823488	70.00	283081	100.00	283089	165.00	283430	100.00	283431	100.00	283465	165.00	283466	165.00
20 VDC	Optional	80.00	283083	110.00	283091	175.00	283435	110.00	283435	110.00	283469	175.00	283470	175.00
200 VDC	Optional	80.00	283085	110.00	283093	175.00	283438	110.00	283439	110.00	283439	175.00	283474	175.00

Mating Connector: Weston 9790-0267253 Elco 00-6007-030-980-002 Amphenol 225-21521-601(117)

PRICES LISTED ARE FOR GUIDANCE ONLY

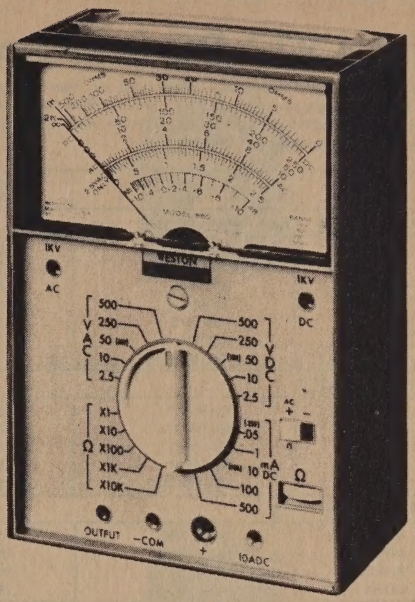
PRECISION TEST INSTRUMENTS

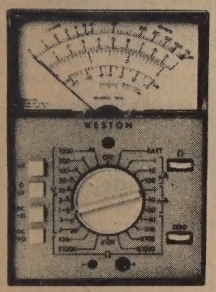
SANGAMO WESTON
Schlumberger

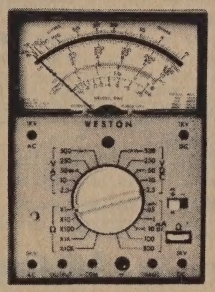
WESTON

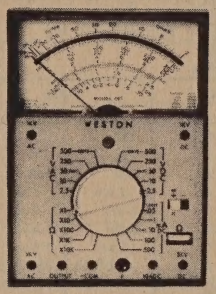
GENERAL FEATURES

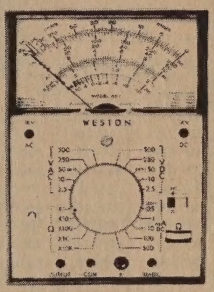
- Completely drop-proofed
- Custom ruggedized self-shielded taut-band mechanism
- Diode-protected meter movement
- Temperature compensated
- Unique pluggable circuit board assemblies
- Special calibrated scales for dB measurement
- Circuit recalibration without case disassembly
- Quality components used throughout
- External fuse replacement
- All controls flush with edge of case
- Single range switch
- Self-storing handle
- Input terminals spaced for use with double banana jacks











SPECIFICATIONS

	MODEL 660	MODEL 661	MODEL 662	MODEL 663	MODEL 666
Accuracy	2% DC (1.5% on 50 μA range) 3% AC	1% 2% AC	2% DC (1.5% on 50 μA range) 3% AC With Overload Relay	1% DC 2% AC With Overload Relay	2% DC Volts, 3% AC Volts 3% DC current, 4% AC current
Sensitivity	20,000 ohms/volts DC 5,000 ohms/volt AC	20,000 ohms/volts DC 5,000 ohms/volt AC	20,000 ohms/volts DC 5,000 ohms/volt AC	20,000 ohms/volt DC 5,000 ohms/volt AC	10 megohm DC, 10 megohm (100 pfd) AC, current circuit 100 millivolt drop)
Dimensions	7″H x 5″W x 2¼″D	7″H x 5″W x 2¼″D	7″H x 5″W x 2¼″D	7″H x 5″W x 2¼″D	7″H x 5″W x 2¼″D
Weight	Less than 2 lbs. (Batteries included)	Less than 2 lbs. (Batteries included)	Less than 2 lbs. (Batteries included)	Less than 2 lbs. (Batteries included)	Less than 2 lbs. (Batteries included)
Ranges	DC Millivolts 0-250 DC Volts 0-2.5/0-10/0-50/ 0-250/0-500/0-1000/ AC Volts 0-2.5/0-10/0-50/ 0-250/0-500/0-1000/ VAC Output 0-2.5/0-10/0-50/ 0-250 DC Microamps 0-50 DC Milliamps 0-1/0-10/0-100/ 0-500 DC Amps 0-10 Ohms RX1 (0-2K) 20Ω center/ RX1 (0-20K) 2000Ω center/ RX1000 (0-2 Meg) 20KΩ center/ RX10K (0-20 Meg) 200KΩ center dB Scales (1 mW on 600 ohm line) −10 to +10/+2 to +22/+16 to +36/+30 to +50/+36 to +56	DC Millivolts 0-250 DC Volts 0-2.5/0-10/0-50/ 0-250/0-500/0-1000/ AC Volts 0-2.5/0-10/0-50/ 0-250/0-500/0-1000/ VAC Output 0-2.5/0-10/0-50/ 0-250 DC Microamps 0-50 DC Milliamps 0-1/0-10/0-100/ 0-500 DC Amps 0-10 Ohms RX1 (0-2K) 20Ω center/ RX1 (0-20K) 2000Ω center/ RX1000 (0-2 Meg) 20KΩ center/ RX10K (0-20 Meg) 200KΩ center dB Scales (1 mW on 600 ohm line) −10 to +10/+2 to +22/+16 to +36/+30 to +50/+36 to +56	DC Millivolts 0-250 DC Volts 0-2.5/0-10/0-50/ 0-250/0-500/0-1000/ AC Volts 0-2.5/0-10/0-50/ 0-250/0-500/0-1000/ VAC Output 0-2.5/0-10/0-50/ 0-250 DC Microamps 0-50 DC Milliamps 0-1/0-10/0-100/ 0-500 DC Amps 0-10 Ohms RX1 (0-2K) 20Ω center/ RX1 (0-20K) 2000Ω center/ RX1000 (0-2 Meg) 20KΩ center/ RX10K (0-20 Meg) 200KΩ center dB Scales (1 mW on 600 ohm line) −10 to +10/+2 to +22/+16 to +36/+30 to +50/+36 to +56	DC Millivolts 0-250 DC Volts 0-2.5/0-10/0-50/ 0-250/0-500/0-1000/ AC Volts 0-2.5/0-10/0-50/ 0-250/0-500/0-1000/ VAC Output 0-2.5/0-10/0-50/ 0-250 DC Microamps 0-50 DC Milliamps 0-1/0-10/0-100/ 0-500 DC Amps 0-10 Ohms RX1 (0-2K) 20Ω center/ RX100 (0-200K) 2000Ω center/ RX1000 (0-2 Meg) 20KΩ center/ RX10K (0-20 Meg))200KΩ center dB Scales (1 mW on 600 ohm line) −10 to +10/+2 to +22/+16 to +36/+30 to +50/+36 to +56	DC Millivolts 0-100/0-300 DC Volts 0-1/ 0-3/ 0-10/0-30/ 0-100/0-300/0-1000 AC Millivolts 0-100/0-300 AC Volts 0-1/0-3/0-10/0-30 0-100/0-300/0-1000 DC Microamps 0-1/0-10/0-100 DC Milliamps 0-1/0-10/0-30/ AC Microamps 0-1/0-10/0-100 AC Milliamps 0-1/0-10/0-30 Ohms (7 normal and 7 low power ranges (RX1/RX10/ RX1 Meg db Scales −40 to −18/ −30 to −8/ −20 to +2/ −10 to +12/ 0 to +22/ +10 to +32/ +20 to +42/+30 to +52/ +40 to +62
PRICE	$149.00	$164.00	$219.00	$241.00	$298.00

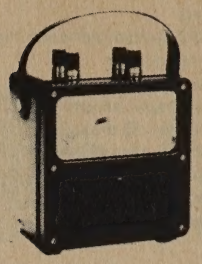
CURRENT PRICES WILL APPLY ON ALL LINES

SANGAMO WESTON
Schlumberger
WESTON

PRECISION TEST INSTRUMENTS

Model 931 DC Instrument

Compact, light weight and accurate within ½ of 1%. Hand calibrated mirror scales and knife-edge pointers eliminate parallax errors. Scale length 4.04". Self-shielded permanent magnet moving coil. Size, 5¼" x 5" x 3¼". Approx. Weight, 2 lbs. Prices starting at $341.00



Weston No. 931-	Range	Scale Division
DC VOLTMETER 1000 OHMS/VOLT		
1911003	50	100
1911004	3	150
1915003	30/7.5/3	150
1915002	75/30/7.5	150
1915001	150/15/3	150
1915005	300/150/3	150
1915006	750/300/150	150
5000 OHMS/VOLT		
1916002	75/30/7.5	150
1916003	30/7.5/3	150
1916004	150/15/3	150
1916006	30/150/3	150
1916001	750/300/150	150
DC MILLIAMMETERS		
4914005	3/0.3/0.03	150
4914003	150/15/1.5	150
4914002	1500/150/15	150
4914001	3000/300/30	150
DC MICROAMMETERS		
5912002	30	150
5912001	200	100

DC AND SINGLE PHASE 25-125 Hz

Weston No. 432-	Volts		Amps		Watts	
	Nor.	Max.	Nor.	Max.	High	Low
9911001	150/75	200/100	1	1.5	150	75
9011005	150/75	200/100	5	7.5	750	375
0911002	300/150	400/200	1	1.5	300	150
9911006	300/150	400/200	5	7.5	1.5 kw	.75 kw
9911008	300/150	400/200	10	15	3 kw	1.5 kw
9911010†	300/150	400/200	20	30	6 kw	3 kw
9911011	300/150	400/200	50	75	15 kw	7.5 kw
9912005	150/75	200/100	10/5	15/7.5	1500/750	750/375
9912003	200/100	260/130	5/2.5	7.5/3.75	1000/500	500/250
9912004	300/150	400/200	5/2.5	7.5/3.75	1500/750	750/375
9912007	300/150	400/200	10/5	15/7.5	3/1.5 kw	1.5/.75 kw

DC AMMETERS (SELF-CONTAINED TO 50 AMPS)

Scale Division: 100 (150 for ranges of 1.5, 3 A and their multiples).

Weston No. 931-	Range, Amps	Weston No. 931-	Range, Amps
2912007	5/0.5/0.05	2912012	25/10/2.5
2912008	5/2.5/0.5	2912013	50/5/0.5
2912006	10/1/0.1	2912002	50/10/2
2912009	10/5/1	2912001	50/20/5
2912003	15/3/1.5	2912004	50/25/10

MODEL 432 DC AND SINGLE-PHASE AC WATTMETERS

Electrodynamometer accurate within ½ of 1%. Power consumption: Potential circuit at 115 volts, 60 Hz, 1.2 watts, 1.2 volt-amperes; current circuit at 5 amperes, 60 Hz, 0.65 watt, 0.68 volt-ampere. Scale 4.04" l. Scale Division: 75, unless otherwise noted. Size, 5¼" x 5" x 3¼. Weight, 3¼ lbs., approx. Prices starting at $647.25

DC AND SINGLE PHASE 25-1000 Hz

Weston No. 432-	Volts		Amps		Watts	
	Nor.	Max.	Nor.	Max.	High	Low
9912013	300/150	400/200	5/2.5	7.5/3.75	1500/750	750/375
9911015	300/150	400/200	5	7.5	1.5 kw	.75 kw

Scale Div.: * 100; † 60

FOR LOW POWER FACTOR 25-125 Hz

9912009	—	300/150	—	5/25	300/150	150/75
9912010	—	—	—	10/5	600/300	300/150

Model 433 AC Instruments

Movable iron type, horizontal operation, shielded from external magnetic fields. Well compensated for temperature changes. **Power Consumption:** 150 V range at 115 volts, 60 Hz, 2.5 watts, 2.5 VA. **Rated Accuracy:** .75%. **Frequency Coverage:** Alternating current at frequencies from 25 to 1000 Hz available. **Self-Contained Ranges:** Single, double and triple up to 750 volts. **Range Extension:** Higher ranges obtained with multipliers or by using Model 311 Potential Transformer in connection with a 150 volt range. **Size:** 3¼" x 5" x 5¼". Weight, 2½ lbs., approx. Prices starting at $306.00

AC VOLTMETERS 25-125 Hz

Weston No. 433-	Range	Approximate Resis., Ohms	Scale Div.
1911008	250	18,200	125
1913001	20/10	116/58	100
1913002	30/15	336/168	150
1913004	60/30	850/425	150
1913007	150/75	5300/2680	150
1913009	300/150	22,000/11,000	150
1915001	450/300/150	33,000/22,000/11,000	150
1916002†	600/300/150	44,000/22,000/11,000	150
1916003†	750/300/150	55,000/22,000/11,000	150

25-1000 Hz

1913008	150/75	—	150
1913010	300/150	—	150
1916001	600/300/150	—	150

† Has extension on case for additional resistance.

AC MILLIAMMETERS

Double ranges cover 25—1000 Hz. Double range instruments have range selector switch. Frequency span to 2500 Hz within ¼% accuracy possible.

25-500 Hz

Weston No. 433-	Range	Approximate Resis., Ohms	Scale Div.
4913005	150/75	30/120	150
4913002	300/150	6.4/26	150
4913006	500/250	1.6/6.6	100

25-1000 Hz

4913001	100/50	—	100
4913003	500/250	—	100

PRICES LISTED ARE FOR GUIDANCE ONLY

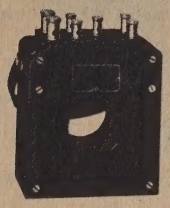
SANGAMO WESTON
Schlumberger
WESTON

PRECISION CURRENT TRANSFORMERS

Model 327 Current Transformers

Units employ special nickel-alloy cores, making them ideal for laboratory as well as industrial usage. Type 2 differs from Type 1 in that it provides maximum precision. **Size:** 9.93″ x 8.38″ x 3″. Inserted primary opening, 2.85″ dia. Weight (approx.), 12.5 lbs.

Typical accuracy: Type 1, 0.2% Type 2, 0.5%.



$1162.00

Ranges in Amperes	Type	Weston No.
1200/600/400/300/200/100/50/20/10 Pri. to 5 Sec.	1	327-9901001
1200/600/400/300/200/100/50/20/10 Pri. to 5 Sec.	2	327-9902001

Model 461 Current Transformers

Used with AC instruments. Four self-contained primary ranges are brought out to binding posts. A secondary short circuiting switch is provided. Black molded case. **Core Opening:** 2.12 dia. **Size:** 7.97″ x 6.63″ x 2.75″.

Weight: Type 1, 8 lbs. Type 2, 8.4 lbs.

Type 1: Primarily used for ammeter applications.

Type 2: Primarily used for wattmeter applications.

Type 5: Similar to Type 2 except for additional ranges.

$685.00

Ranges in Amperes	Typical Accuracy	Type	Weston No.
800/400/200/100/50/20/10 Pri. to 5 Sec.	.8%	1	461-9901001
800/400/200/100/50/20/10 Pri. to 5 Sec.	.3%	2	461-9902001
1000/500/250/100/50/25/10 Pri. to 5 Sec.	.7%	1	461-9901002
1000/500/250/100/50/25/10 Pri. to 5 Sec.	.3%	2	461-9902002
500/250/100/50/25/10/5/2.5/1/0.5 Pri. to 5 Sec.	.2%	5	461-9902003

Models 901 and 904 Instruments

Scale, 5½″. Size, 7½″ x 7¼″ x 3⅝″.

Model 901 DC Instruments: Self-shielded, permanent magnet, moving coil operation. Rated accuracy, 0.25% FS. Weight, 3¾ lbs. approx. **$684.25**

Model 904 AC Instruments: Movable iron type. Accuracy, 0.5% FS. Weight, 4¾ lbs. approx. **$607.50**

MODEL 901 DC INSTRUMENTS

Weston No. 901-	Meter	Range	Scale Divisions
2904001	DC Amps	50 mV/20/5/2 amps	100
1905001	DC Volts†	750/300/150/75/30/15/3	150
4905001	DC Milliam.	1K/500/200/100/50/20/10	100
4905002	DC Milliam.	100/50/20/10/5/2/1	100

† 5000 ohms/volt.

MODEL 904 AC INSTRUMENTS

Weston No. 904-	Meter	Range	Scale Divisions
2905001	AC Amps	200/100/50/20/10/5/2	100
2905002	AC Amps	50/20/10/5/2/1	100
2901001	AC Amps	5 amps	100
1906001	AC Volts	750/300/150/75/30/15/7.5/3	150
1903001	AC Volts	300/150	150
1904003	AC Volts	600/300/150*	150
1904005	AC Volts	750/300/150*	150
4902003	AC Milliam.	300/150	150

* Non-locking key on high range, which is for intermittent duty only.

PRECISION TEST INSTRUMENTS

SANGAMO WESTON
Schlumberger
WESTON

AC AMMETERS

Power Consumption: 5 amps range at 5 amps, 60 Hz, 0.50 watt 0.52 VA. Single, double and triple ranges cover frequencies 25—500 Hz. Higher frequency coverage available. Triple range instruments have internal current transformer.

All have two binding posts, double and triple range instruments have range selector switch. For ranges above 50 amps, Model 461 Current Transformer, Type 1 with 5 amps instrument is recommended.

25-500 Hz

Weston No. 433-	Range	Approximate Resis., Ohms	Scale Div.
2911001	1	0.48	100
2911002	5	0.020	100
2913004	2/1	0.12/0.48	100
2913001	5/2.5	0.02/0.08	100
2913005	10/5	0.0083/0.028	100
2916002	3/1.5/0.75	0.18/0.43/0.59	150
2916001	5/2.5/1	0.13/0.26/0.37	100
2916005	10/5/1	0.030/0.070/0.37	100
2916006	10/5/2.5	0.030/0.060/0.075	100
2916007	15/7.5/1.5	0.023/0.044/0.19	150
2917001	20/5/2	0.040/0.19/0.30	100
2918001	30/7.5/3	0.0090/0.036/0.040	150
2919001	50/20/5	0.0084/0.0011/0.020	100
2919002	50/20/10	0.0073/0.0080/0.010	100

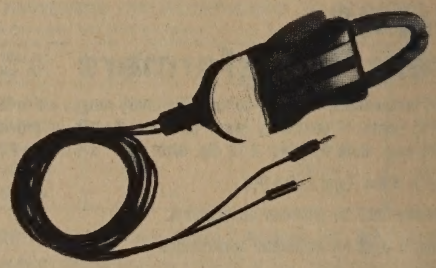
25-1000 Hz

2916003	5/2.5/1	—	100

Clamp-On AC Current Probe

The Model 9740-0275768 is a rugged, lightweight probe designed for one-hand use. For use with voltmeters having a 200 mV AV range at 1 megohm or higher impedance. Output is linear with respect to input and the probe is rated from 60 — 400 Hz. Output leads end in banana plugs. Accuracy is ±4% FS on 2 A range, ±3% FS on 20 A range and ±2% FS on 200 A range.

Weston Model 9740-0275768 Clamp-On Probe — $110.00

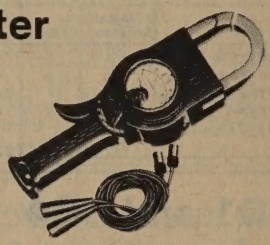


Model 633 AC Clamp Volt-Ammeter

The ideal maintenance tool for on-the-job testing. Rapidly measures AC voltage and current without breaking the circuit. Combines in one instrument three AC voltage ranges and five AC current ranges, completely covering voltages and current most frequently encountered. Dependable magnetic circuit; rugged Bakelite* case; non-shatterable glass; easily read double scale; pear-shaped pointer; adjustable pointer stop; six-position range and selector switch; safety-type trigger. 1000/250/100/10 amperes full scale; 700/350/175 volts full scale. Flexible leads supplied. Well damped movement. Complete instrument insulated for 750-volt use. For conductors up to 2″ in diameter.

Weston Model 633 — Type VA-1. **$391.25**

Clamps Ammeter Type A — Similar to above except not provided with voltage features or regularly equipped with adjustable pointer stop.



Type A-1 — 500/250/100/50/25/10 amps.
Type A-2 — 1000/500/250/100/25/10 amps.
Type A-3 — 2000/1000/500/250/100/50 amps.

* Registered Bakelite Corp. trademark.

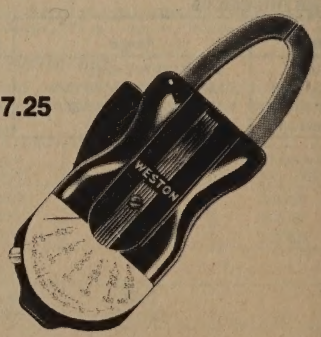
Model 749 AC Pocket Clamp Volt-Ammeter

Designed particularly for the electrician, serviceman, engineer and motor repair shop. Contains six current ranges and three voltage ranges quickly readable from any angle on one, large-size scale. Supplied complete with carrying case, voltage test leads with insulated battery clips and three accessory probes. Accurate within ±3%. **Size:** 7½″ x 3″ x 1¼″. Approx. Wt. 14 oz. Accommodates conductors up to 1″ round or 1¾″ x ⅜″ rectanglar. Large, smooth-action trigger; positive action range selector switch; shatterproof wrap-around plastic window; only one scale for all ranges; bright red pointer for easy eading (scale length, 2.36″). Uses new shock-mounted core magnet mechanism. Fully insulated for 750-volt service. Sturdy carrying case with convenient lead compartment. Precision-ground face provides positive jaw contact. Lightweight, compact, handfitting design, easily slipped into pocket. Satin-finish black Bakelite* case.

Weston Model 749 — Ranges 300/150/60/30/15/6 amps AC; 600/300/150 VAC. Complete wth carrying case, leads, and three accessory probes.

Weston Model 9886 Plug-In Adapter — Provides a single or 10-loop conductor for current measurements. Rated 250 volts AC, measures current to 25 amperes on "Direct Reading"; up to 10 amperes for "Amperes Divided by 10" connection.

$117.25

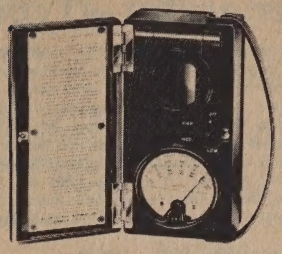


PRICES LISTED ARE FOR GUIDANCE ONLY

ILLUMINATION TEST INSTRUMENTS

SANGAMO WESTON
Schlumberger
WESTON

Model 614
Illumination Meter

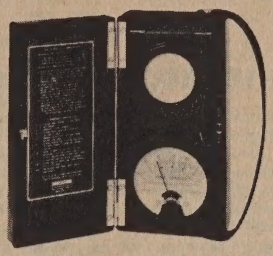


Ideal for general commercial lighting surveys where wide ranges of light values exist. Fully self-contained, no outside power or batteries required. **Scale Length:** 2.37". **Size:** 7⅝" x 3⅜" x 2¼". Weight, 1 lb., 13 oz.

Weston No. 614-9960001 — Viscor filtered 0 — 60/120/600 foot-candles; for visual correction for color. **$721.50**

Weston No. 614-9960002 — Viscor and cosine correction filtered 0 — 100/250/500 foot-candles; for visual correction for color and direction. **$741.25**

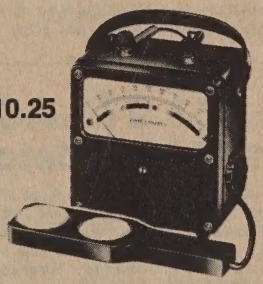
Model 615
Broad Range Light Meter



General purpose standard for business, industry and government agencies where monitoring over wide ranges of illumination is necessary. The Photronic cell is corrected by visual and cosine filters, and the built-in battery-operated amplifier allows seven ranges of light measurement. The Photronic cell is hermetically sealed for long life and is hinged for convenience in making directional measurements. The selector switch has a provision for battery test and an interlock to insure the switch is off when the case is closed. **Ranges:** 0 — 1.2, 3, 12, 30, 120, 300, 120 foot candles. Viscor and Cosine correction supplied. More than one year of operation from one 9 volt battery. **Size:** 7" x 3½" x 2½". **Weight:** 2 lbs. **$838.50**

Model 756
Illumination Meter

$1910.25



A portable instrument for light measurements requiring a high degree of accuracy over a very broad range of light values. Ideal for research and routine work as a master instrument for checking other light measuring instruments and devices.

Model 756 including the separable light target is supplied in a sturdy leather carrying case with a compartment for the light target.

Model 756-9911002 0-20/100/500 foot candles (with Viscor and Cosine correction filters).

Model 756-9911004 0-6/12/60/120/600 foot candles (with Viscor filter).

Approximate Size: 3.5 (89mm) x 5.25 (133mm) x 6.12 (155mm).

Weight: 45.8 oz. (1.3 Kg).

Accuracy: ±5%.

Model 703
Illumination Meter

$232.75

A light measuring instrument for checking lighting in offices, etc. Indicate instantly the true foot candle rating of lighting when equipped with Viscor® color filters since they have the same color-response as the human eye. These units are pocket-size and anyone may use them. Place them on a table, desk, chair, etc., or hold them in your hand in whatever position desired. Indicates instantly whether or not the light is adequate for a particular seeing task. They are invaluable aids for the promotion of better sight through the use of better light. Ideal tools in the sale of home light equipment and fixtures such as lamps and reflectors. Range may be extended by a factor of 10 through the use of the special multiplier disc over the sensitive cell. Scale length, 1.43". **Size:** 4⅝" x 2⅝" x 1⅝". Weight, 10 oz.

Weston Model 703 Type 3A Illumination Meter — Measures 0-75 foot candles. Less filters. 703-9960010.

Weston Model 703 Type 7 Illumination Meter — Illumination Meter described, with a range of 0-100 foot candles, including the Viscor and cosine correction filters for accurate readings. 703-9960007.

Weston Model 703 Type 8 Illumination Meter — Measures 0-30 foot candles and comes with Viscor filter. 703-9960009.

Weston Model 703 Type 51 Illumination Meter — Measures 0-150 foot candles. With ultraviolet-transparent quartz filter, black background scale with fluorescent characters and pointer. 703-9960051.

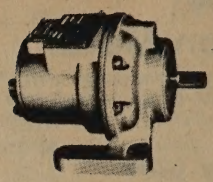
Weston Model 9924 Muliplier Disc — For use with Type 3A and Type 6A Illumination Meters. Merely snaps in place and reduces light reaching cell to 1/10. 9924-PN92108.

Weston Model 9959 (No. 74472) Carrying Case — Carrying case of fine leather for use with above meters.

TACHOMETERS

SANGAMO WESTON
Schlumberger
WESTON

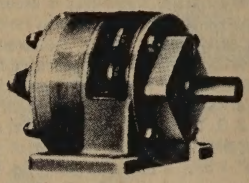
Model 750
DC Generator—Type A



Commutator segments are made from specially hardened, non-corrosive alloy for exceptional long life. Self-lubricating brushes are carried in a self-aligning holder. No lubrication required, under normal operation, for 15,000 hours running time or appoximately thee years. Rigid die-cast dustproof aluminum mounting base and housing. Has ⅜" dia. shaft extension for direct coupling drive, pulley or spur gear and two binding posts. Recommended for general light duty applications. **Max. Speed:** 5,000 rpm. **Torque:** Starting, 1.0 oz.-in.; Running 1.0 oz.-in. at 1,000 rpm. **Voltage Output:** 6 V, ±1% at 1,000 rpm. **Current Drain:** 50 mA, max. **Internal Resistance:** 20 ohms. **Size:** 3"W x 4.66"D x 2.87"H. **Weight:** 1.7 lbs. **Mounting:** Base. **Shaft:** ⅜"D x .71"L.

Weston Model 750-9901000 Type A — $450.00

Model 758
AC Generator—Type AB



Temperature compensated output is proportional to the speed. No lubrication required under normal operation for 15,000 hours running time or about three years. Max. speed is 5,000 rpm, but may be used up to 10,000 rpm under special conditions. Rigid cast bronze base mounting. Light weight dustproof aluminum alloy housing. Has ½" dia. shaft extension for spur gear, chain and sprocket, pulley or direct coupling drive, and two binding posts. Recommended for general light duty applications. **Torque:** Starting, 2.5 oz.-in.; running, 2.5 oz.-in. at 1,000 rpm. **Weight:** 2.89 lbs.

Weston Model 758-9901000 Type AB — $302.00

BINDING POST COVER BOXES

Weston Model 9933-0143156 — For Model 750 Type A Generator. Has ½" N.P.T. opening suitable for flexible conduit connection.

Weston Model 9933-0143157 — For Model 758 Type AB Generator. Has ½" N.P.T. opening suitable for flexible conduit connection.

Models 271 273 AC/DC
Tachometer Indicators

DC or Rectifier type AC voltmeters calibrated in terms of various units such as rpm, minutes baking time, miles/hr., gallons/min., Hz, etc. No specially calibrated connecting leads are required for connection of normal length. One, two or up to 25 indicators may be operated from the same generator with all giving direct indication simultaneously. Supplied with single range zero left indication. Available in zero right, suppressed zero or with multiple ranges. DC indicators also available in zero center indication. All indicators are equipped with zero correctors and are temperature compensated. Dust and moisture resistant. Enclosed in steel cases except Models 961, 961-RD and 961-FD. Suffix **"DC"** indicates DC type; **"RD"**, AC; **"FD"**, frequency responsive. **Accuracy:** 1% FS, 271-DC, 273-DC, 271-RD, 273-RD, 961-DC; 2½%, 961-RD.

SWITCHBOARD (FAN SHAPED) INDICATORS

Available in three models: 269, 271 and 273. DC, AC or frequency responsive. Enclosed in drawn steel cases with long easily read scales and are similar in construction, varying only in size and scale length.

TACHOMETER INDICATOR MODELS

Case	Scale Lg.	Wt. Lbs.	DC Voltage Model	DC Voltage Price	AC Voltage Model	AC Voltage Price	AC Frequency Model	AC Frequency Price
Surf.	5.8"	3.8	271	Prices	271-RD	Prices	271-FD	Prices
Surf.	7.3"	5.0	273	on	273-RD	on	273-FD	on
Flush	3.17"	1.0	961	Re-quest	961-RD	Re-quest	961-FD	Re-quest

Model 961 or 961 RD
4" Panel Indicators

Models 961 (DC), 961-RD (AC) and 961-FD (Frequency Responsive). Flush type rectangular Bakelite* cases especially suitable for small panels. When ordering, specify panel material and thickness.

* Registered Bakelite Corp. trademark

QUANTITY DISCOUNT SCHEDULE

Quantity	Tachometer Generators and Accessories	Tachometer Indicators Only
1—9	List Price	
10—24	10% off	
25—49	15% off	Prices and Discounts
50—99	20% off	on Request

PRICES LISTED ARE FOR GUIDANCE ONLY

PRODUCTS INDEX

Page

A

ADAPTERS
Coaxial 237
Connector 237, 279, 303, 304, 306, 537, 538
Test 303, 304, 306, 588, 592, 598, 599, 643, 690, 691, 705
Adhesives 131
Alarms 335, 546, 650
Alkaline Batteries 405
Ammeters 609-614, 616-620, 625-627, 645-651, 661, 662, 677-686, 696, 703, 709, 715, 716, 718, 719, 724-726
Annunciator Lamps 469
Antenna Wire 509
Appliance Tester 691
Audio Connectors 240
Autoformers 401

B

Banana Jacks & Plugs ... 301, 302
Barrier Strips 283, 284
Batteries 405-407, 600
BATTERY
Chargers 406, 600
Eliminators 600, 608
Packs 406, 600
Bench Press 270, 536
Benches, Work 420
Binding Posts 302, 307
BLOCKS
Barrier 283, 284
Fuse 475, 476, 480
Rectifier 476
Terminal 283, 284
Tie-Point 524
Blowers 412, 421-423
BNC Connectors 235
BOARDS
Bread ... 138, 386, 524, 540
IC 527-533, 551
Logic 425, 427, 428
Microcomputer 94, 133, 155, 532, 533, 552
Patch 553
Photosensitized 555
Prototype 138, 386, 524, 540
Punched 553
Terminal 283, 284
Books 31, 138, 463
BOXES
Metal 411, 419
Outlet 310-313, 412
Brackets 411-413
Braiding, Copper ... 501, 520
Breadboards 138, 386, 524, 540

Page

Breakers, Circuit 480, 483, 484
Bridges 77, 127, 128
Bubble Memory 51, 165, 166
Bulbs 447, 448, 467, 468, 472
Bumpers 413
Bushings 549
Butt Splices 523
Buzzers 335

C

CABINETS
Desk Tops 408
Drawers 534
Handles 413
Hardware 413, 414
Instrument 411, 415, 416
Keyboard 415
Metal 416-419, 554
Meter 418
Panels, Rack 296, 411
Rack 408-412, 418
Slides 412
Cable—See Wire
CABLE
Assemblies 503, 519, 536, 537
Adapters 303, 304, 306
Cable Plugs, Sockets 240-245, 248, 251-265, 280-282, 300
Clamps 243, 252
Markers 522
Ties 522
Calculator Batteries 405
CAPACITORS
AC 210, 221
Buffers 196
Ceramic 193-196, 205, 206, 208, 214, 218-221
Computer 215, 216
Disc 194, 221
Duals 196
Electrolytic 199, 200, 223-231
Film 198, 199, 201, 210, 211, 217, 222
Glass 207-209
High Voltage 195, 196, 221
Kits 195
Low Voltage 194
Metalized ... 197, 198, 210
Mica 197, 198
Mylar 198
NPO 193, 196, 205, 214, 218-221
Polyester 199, 201, 222
Polypropylene ... 210, 211
Polystyrene 217
Printed Circuit 222, 224
SCR Commutating 211

Page

Spark Gap 196
Subminiature 199, 202-204, 221
Tantalum 202-204, 212, 213, 231-233
Temperature Compensating 193, 195, 196, 205, 214, 218-221
Testers 583, 594, 621
Transmitting 195
Varactors 91
CARD
Extenders 138, 155, 527, 531, 551
Extractors 131, 550
Guides 131, 296, 550, 554
Handles 550
Logic 425, 427, 428, 545
Racks 54, 57, 295, 296, 534, 550, 552, 554
CARTRIDGES
Lamp 454, 455, 469
Soldering Iron 561
Tape 134
Case, Carrying 588, 592, 599, 608, 643, 695, 709
Cases, Instrument 411, 415, 416
Cases, Tool 563
Caster, Rack 413
Cements 131
Chargers, Battery ... 406, 600
Chart Recorders 671-674, 694
Chassis 411, 414
Chemicals 540, 555-557
Chokes, Filter 401
Circuit Breakers 480, 483, 484
Clamp-On Meters 571, 690, 691, 705, 707, 726
Clamps, Cable 243, 522
CLEANERS
Chemical 557
Tape Head 134
CLIPS
Cable 243, 522
DIP 524
Fuse 476, 481
LED 458
Test 307, 524, 550
Coaxial Cable 497, 504, 506, 509, 510, 519, 521
Coil Forms 542
Coils 542
CONNECTORS
(Also see Clips, Sockets and Plugs)
Adapters 237, 279, 303, 304, 306, 537, 538
Audio 240
Banana 301, 302

Page

Barrier 283, 284
Binding Posts 302, 307
BNC 235
Cable 240-245, 248, 251-265, 280-282, 300
Coaxial 234-239, 297-300
DIP 252
"D" 261, 262, 277-279
Edge 248, 249, 259, 275, 276, 288-292, 295, 457, 526, 545
Flat Cable 251-263, 525, 539
Headers 256-258, 525, 538
IDC 251-263
Integrated Circuit 524
Intra- 539
Jacks 234-236, 297-302, 543, 550
Lamp 455
Male 260
Microphone 240
MIL 234-237, 241-245
Miniature ... 246, 299, 543
MS/AN 241-245
Outlet Strips 310-313, 412
Plugs 240-245, 248, 280-282, 300-302, 543
Power 307
Printed Circuit 248, 292, 293, 297, 550
Rack and Panel 246-248, 294
Readout 457
RF 234-239, 297-300
Ribbon 246, 263, 264, 286
Solderless 251-263, 286, 287, 308, 309, 523
Subminiature 248, 297-299
Test 550
Tip 301, 302
Transition 251, 254, 255, 265
Transmission Line 265
Triaxial 234
UHF 235
Waterproof 249
Contacts 540
Controllers 53, 139, 156, 157, 400, 614, 628, 650-653, 675
CONTROLS
Carbon 188
Cermet 173-177, 180, 183, 187
MIL 177, 188
Motor 99, 425-428
Multiturn 173-178, 182, 186
Plastic 174, 183, 187

SEE PAGE 735 FOR INDEX OF MANUFACTURERS

PRODUCTS INDEX

Page

Potentiometers . . 173-183, 186-188
Power 36
Printed Circuit . . . 173-177, 179
Temperature 412
Trimmers 173-177, 179
Wirewound 173-178, 180, 182, 186, 188
Copper Braiding . . . 501, 520
CORDS
Extension 498, 516
Lacing 502
Patch 304, 525
Power 520
Counters 607, 633-635, 668, 694, 714
Couplers, Photo 20, 24, 92, 108, 347, 465
Crimping Tools 237, 270, 271, 523, 536, 564
Crystals 93
Crystal Sockets 540
Cutters 564

D

Darlington Transistors . . . 23, 24, 34, 88, 92, 103-106, 109
Decibel Meters 679, 681, 684, 699, 700
Desk Tops, Rack 408
Desoldering Tools 559, 560, 562, 566, 567
DIAL
Lights . . 360, 368, 369, 445, 446, 451, 456, 458, 470-472
Multiturn 181, 187
Plates 353, 366
DIGITAL
Controller 53
Counters 694
Dials 181, 187
Displays 20, 21, 449, 450, 457, 461-464
IC's 5-16, 49-51, 55, 56, 58-69, 94, 97, 99-101, 117-119, 121
Meters 572-576, 648, 649, 661-664, 666-670, 677, 712-714, 722
Probes 583, 624
Readouts 21, 449, 450, 457, 461-464
Test Instruments 571, 582, 589-591, 593-597, 601-607, 621, 629, 630, 632, 687, 688, 692, 720-722
Diodes—See Semiconductors
DIP
Boards 527-533, 551
Clips 524
Connectors 252
Plugs 252
Relays . . 316, 318, 323, 348
Switches 378
Trimmers 179
Disc Capacitors 194, 221
Disconnects 523
Displays 20, 21, 449, 450, 457, 461-464
Distortion Meter 641
Doors, Cabinet 408, 409, 417
Drawers, Rack 534

E

Edge Connectors 248, 249, 259, 275, 276, 288-292, 295, 457, 526, 545
Edgewise Meters 613, 616, 618-620, 647, 676, 685, 696, 715
Elapsed Time Meters . . . 615, 635
Electrolytic Capacitors . . 199, 200, 223-231
Eliminators, Battery 600, 608
Etched Circuits, Kits 555
Event Counters 633-635, 668, 714
Extender Cards 138, 155, 527, 531, 551
Extension Cords 498, 516
Extractors, Card 131, 550

F

Fans 421-423
Fast Recovery Diodes 77
Feet, Rubber 413
Fiber Optics 24, 463, 466, 526
Field Effect Transistors . . . 48, 90, 103, 106, 122-124
Filters, Line 162, 312, 313, 391-393
Fire Alarm Cable 517
Fixed Resistors 184, 185, 189-192
FLAT
Cable 265-269, 519
Cable Connectors 251-263, 525, 539
Flux 556, 557
Forms, Coil 542
Frequency Meters 597, 607, 617, 686, 691
FUSE
Blocks 475, 476, 480
Clips 476, 481
Holders . . 473-477, 480-482
Fuses 473-476, 478-480

Page

G

Galvanometers . . . 679, 680, 683
Gearmotors . . 429, 430, 432, 434, 436, 438, 440, 442-444
Gelled Electrolyte Batteries 406
GENERATORS
Color Bar 584, 640
Function 584, 622, 642
Pulse 577, 583, 622
Sweep 584, 642
Tachometer 728
Video 640
Germanium Diodes 31
Glass Capacitors 207-209
Glue 131
Grease, Heat Sink 131
Ground Monitor 333
Guides, Card 131, 296, 550, 554
Guns, Heat 500, 560

H

Handles . . . 413, 558, 560, 561
Hand Tools 564
HARDWARE
Cabinet 413, 414
Panel 541
Semiconductor . . . 129-131
Switch . . . 353, 357, 363-366
Headers . . . 256-258, 525, 538
Heat Guns 500, 560
Heat Shrink Tubing . . 499, 500
Heat Sink Compound 131
Heat Sinks 129, 130
High Voltage Probes 588, 592, 599, 608, 695
High Voltage Transistors 87, 88, 102-105
HOLDERS
Fuse 473-477, 480-482
Iron 559, 560, 565
Lamp 445, 446, 452, 453, 455
Hook-On Probes 307, 524, 550
Hybrid Relays . . 319, 343, 347
Hysteresis Synchronous Motors 440-444

I

Illumination Meter 727
Indicator Lamps 360, 368, 369, 445, 446, 451, 456, 458, 470-472
Induction Motors 441-444
Instrument Cabinets 411, 415, 416
Insulating Tubing . . . 499-502
Insulators . 129, 130, 549, 550
INTEGRATED CIRCUIT
Cards 527-533, 551
Carriers 535
Connectors 524
Extractors . . . 536, 545, 560
Pads 131, 349
Patchboards 553
Sockets . 535, 536, 539, 545
Integrated Circuits—See Semiconductors
Irons, Soldering 559-561, 565, 566
Isolation Transformers . 404, 558
Isolators, Photocoupled . . 20, 24, 92, 108, 347, 465

J

JACKS
Banana 301, 302
Bulkhead 234-236, 297-300
Miniature 543
Power 307
Printed Circuit 550
Test 550
Tip 301, 302
Jumpers 272-274, 303, 525, 536, 537

K

Keyboards 367, 376, 379, 380, 384
Keyboard Cabinets 415
Keylock Switches 359
KITS
Capacitor 195
Card Cage 554
Printed Circuit 555
Prototyping 386
Semiconductor Mounting 131
Test Instruments 571
Tool 559, 560, 563, 564
Tubing, Wire 500, 513, 525, 545

L

Lacing 502
Lamp Cord 498, 516
LAMPS
Annunciator 469
Argon, Neon 448, 454, 468
Cartridges . . . 454, 455, 469
Filters 445
Flashlight, Panel 447, 448, 467, 468, 472
Holders 445, 446, 452, 453, 455

SEE PAGE 735 FOR INDEX OF MANUFACTURERS

PRODUCTS INDEX

Page

Indicators.....360, 368, 369, 445, 446, 451, 456, 458, 470-472
Lenses.....452, 469, 470
Sockets.....445, 469, 470
Solid State.....455, 456, 458-460, 462
Latching Relays....335-337, 349
Lead-In Bushings.....549
Leakage Testers.....694
LED Displays.....449, 450
Lever Switches 364, 370, 371
Light Emitting Diodes....21, 451, 458, 462
Lightmeters—See Meters
Lithium Batteries.....407
Lockwashers.....353, 357, 363, 365
Logic Cards.....425, 427, 428, 545
Logic Probes.....583, 624
Low Profile Sockets.....535

M

Magnet Wire.....518
Manuals.....31, 138, 463
Markers, Wire.....522
Marker Strips.....285
Mercury Batteries.....405
Mercury Wetted Relays.314, 338
Metal Boxes.....411, 419
Metal Film Resistors.....189
Metal Oxide Varistors...35, 348
METERS
(Also See Test Instruments)
Accessories.....709
Ammeters.....609-614, 616-620, 625-627, 645-651, 661, 662, 677-686, 696-703, 709, 715, 716, 718, 719, 724-726
Cabinets.....418
Controllers.....614, 628, 650, 675
Counters.....633-635, 668, 694, 714
Data Printer.....665
Decibel.....679, 681, 684, 699, 700
Digital.....572-576, 648, 649, 661-664, 666-670, 677, 712-714, 722
Edgewise.....613, 616, 618-620, 647, 676, 685, 696, 715
Elapsed Time.....615, 635
Events...633-635, 668, 714
Flowmeter.....663
Frequency.....617, 686
Galvanometers.....679, 680, 683
Long Scale.....686
Meter Relays.....614, 627, 650, 651, 661-664, 675
Motor Load Alarm....650
Multipliers.....679
Null.....626, 709
Ohmmeters.....709
Panel.....572-576, 609-620, 625-628, 633-635, 644-653, 655-670, 675-686, 696-703, 710-719, 722, 728
Percent Load.....650
Portable.....681, 709, 723, 725
Power Factor.....618
Process Control Instruments.....627, 649, 661-665, 668
Protectors.....614
Pyrometers.....645, 646, 661, 664, 669, 670, 703
Rate Indicator.....576
RF Ammeter.....680, 683, 697, 699
Segmental.....686
Shunts.....598, 608, 686
Solid State.....627
Strain Meter.....661, 663
Switchboard.....617-620
Synchroscopes.....618
Tachometers....633-635, 661, 663, 728
Temperature.....576, 651-653, 709
Timers.....633
Transducers.....714
Transformers.....588, 608, 618, 654, 686, 725
Varmeters.....618
Voltmeters.....609, 612-614, 616-619, 625-627, 645-651, 661, 662, 666, 667, 677-686, 696-703, 709, 715, 716, 718, 719, 724, 725
VU.....626, 644, 647, 679, 681, 684, 696, 699, 700, 716
Wattmeters.....618, 679, 681, 684, 696, 724
Mica Capacitors....197, 198
Microcomputers.....52, 53, 56, 57, 94, 133, 138
MICROCOMPUTER
Analyzers...583, 587, 624
Backplanes.....54
Boards.....94, 133, 155, 532, 533, 552
Cables.....57, 135, 138, 141, 155, 156, 503, 519
Cages.....54, 57, 138, 155, 295, 296
Cartridges.....134
CPU's.....49-51, 55-57, 94, 120, 138
Crystals.....93
Data Entry Devices..... 146-148, 158, 163-166, 168-170, 367, 372-376, 379, 380, 384
Development Systems 143, 152-155
Disk Drives...57, 132, 134, 141, 150, 151, 155, 158, 171
Diskettes.....134, 141
Expansion Boards.....53, 57, 134
Floppy Disk Systems..150, 151, 158
Industrial Control Systems 139, 156, 157
Input Modules.....54, 94
I/O Modules.....53-55, 57, 94, 134, 137, 139, 140, 154, 156, 157, 350
Isolation Transformers... 162
Keyboards.....135
Literature.....138
Logic Monitors.....623
Logic Probes.....583, 624
Magnetic Bubble Memory....51, 165, 166
Memory Back-Up Batteries.....407
Memory IC's..12, 13, 49, 56, 59, 60, 94-96, 117, 119, 120
Memory Modules.....53, 57, 94, 134, 137, 152-154
Microprocessor IC's 49-51, 55, 58-60, 94
Modules.....53-55, 57
Peripherals.....134, 135, 138, 153
Power Line Filters....162, 312, 313, 391-393
Power Line Regulators.... 159-162
Power Supplies.....54, 57, 155, 387-390, 394, 395
Printers.....135, 138, 149, 155, 158, 167, 665
PROM Programmer..138, 143
Single-Board Microcomputers....52, 53, 57, 94, 133, 138
Software.....57, 136, 138, 142, 144, 152, 154, 155
System Analyzer.....587
Systems....133, 136-138, 141, 145, 152, 153, 155
Systems Work Stations... 420
Tape Recorder.....134
Terminals.....135, 146-148, 158, 163-170
Test Equipment..155, 587
Upgrade Packages...141, 144, 155
Voltage Regulators..... 159-162
Work Stations.....420
MICROPHONE
Cables..489, 505, 506, 510
Connectors.....240
Microwave Transistors...48
MIL
Connectors.....234-237, 241-245
Controls.....177, 188
Diodes.....48
Relays.....336, 349
Resistors.....189, 190
Integrated Circuits..56, 65
Switches.....358, 378
Wire.....485, 486, 496, 497, 514, 515, 520
Modules..53-55, 57, 388, 554
Monitors.....333
Motor Controls.....425-428
Motors.....424, 429-444
Motor Starting Relays...334, 335
Multimeters.....571, 582, 589-591, 593, 595, 596, 601-605, 629-631, 687-692, 694, 704-708, 720-723
Multipliers, Meter.....679

N

Networks, Resistor.....172
Ni-Cad Batteries....405, 600
Null Indicators.....626, 709
Nut Drivers.....564
Nuts.....353, 357, 363, 365

O

Ohmmeters.....709
Operational Amplifiers..17, 70, 71, 98, 99, 111-113, 116, 124
Optics, Fiber.....24, 463, 466, 526
Optoelectronic Devices..20, 21, 24, 92, 107-110, 449-451, 456-466
Oscilloscopes.....577-581, 636-639, 693
Outlet Strips...310-313, 412

SEE PAGE 735 FOR INDEX OF MANUFACTURERS

PRODUCTS INDEX

Page

P

Packs, Battery.....406, 600
Paddle Switches...360, 382
Pads, Transistor....131, 349
PANEL
Lights..360, 368, 369, 445, 446, 451, 456, 458, 470-472
Meters 572-576, 609-620, 625-628, 633-635, 644-653, 655-670, 675-686, 696-703, 710-719, 722, 728
Panels, Rack.....296, 411
PATCH
Boards.....553
Cords.....304, 525
Percent Load Meter.....650
Permanent Magnet Motors. 429-439
Phase Shifting Transformers 618
Photocouplers.....20, 24, 92, 108, 347, 465
Photoelectric
Semiconductors...20, 21, 24, 92, 107, 109, 110, 466
Photosensitized Boards..555
Pilot Lights 360, 368, 369, 445, 446, 451, 456, 458, 470-472
Planetary Gearmotors..429, 430, 432, 434, 436, 438, 440, 442-444
Plates, Dial.....353, 366
Pliers.....560
PLUGS
(Also See Connectors)
Banana.....301, 302
Bulkhead.....297, 298
Cable.....240-245, 248, 280-282, 300
Component Adapters.545
DIP.....252
LSI Adapter.....537
Miniature.....543
Power.....307
Programming.....536
Tip.....301, 302
Point-of-Sale Cable.....503
Posts, Binding.....302, 307
Potentiometers....173-183, 186-188
Power Cable.....520
Power Control Modules...36
Power Line Conditioners 312, 313
Power Line Regulators..... 159-162, 400
Power Supplies....386-390, 394, 395, 586
Precision Resistors..189-192
Press, Bench.....270-536

Page

PRINTED CIRCUIT
Artwork.....555
Capacitors.....222, 224
Connectors 248, 292, 293, 297, 550
Controls.....173-177, 179
Enclosures.....54, 57, 295, 296, 534, 550, 552, 554
Etching Kits.....555
Guides.131, 296, 550, 554
Jacks.....550
Kits.....555
Relays.....314-316, 322-325, 327-329, 333, 337
Sensitized Board.....555
Switches.....378, 382
Supports.....548
Test Jacks.....550
Transformers.....397
Probes.....305, 307, 524, 550, 588, 592, 598, 599, 608, 632, 643, 695
PROM's.....13, 60, 119
Protectors, Voltage.....90, 162, 317, 348
Prototyping Equipment.138, 386, 524, 525, 540
Publications....31, 138, 463
PULSE
Generators.577, 583, 622
Transformers.....397
Punched Boards.....553
Pyrometers.....645, 646, 661, 664, 669, 670, 703

Q

Quartz Crystals.....93

R

Rack Casters.....413
Rack Panels.....296, 411
Racks, Card.....54, 57, 295, 296, 534, 550, 552, 554
Racks, Relay...408-412, 418
RAM's.....12, 13, 49-51, 56, 59, 60, 94-96, 119, 120
Ratchet Relays.....335
Readouts.....20, 21, 449, 450, 457, 461-464
Readout Sockets.....535
Rechargeable Batteries.405, 406
Recorders, Chart..... 671-674, 694
Rectifier Blocks.....476
RECTIFIERS
(Also See Semiconductors)
Bridge.....77, 127, 128
Silicon.....18, 29, 30, 69, 76, 77, 127, 128
Reed Relays....315, 316, 337

Page

Reference Diodes.....74
Regulators.....19, 74, 75, 159-162, 400
RELAY
Covers.....345
Mounts.....345, 350
Racks.....408-412, 418
Retainers.....345
Sockets.....324, 325, 345
Springs.....345
RELAYS
Antenna.....335
Bistable.....335, 338
Buzzer.....335
Contactors.....334
Crystal Can.....336
Current Sensitive.....333
DIP Package.....316, 318, 323, 348
Dry Reed....315, 316, 337
General Purpose.322-325, 327-333, 344, 346
Heavy Duty.....332
High Voltage.....350
Hermetically Sealed.325, 331-333, 336-338, 349
Hybrid.....319, 343, 347
Impulse.....335
Indicating.....322, 328, 330-332
In-Line.....324
Latching.....335-337, 349
Logic Compatible....318, 319, 343, 347, 348
Mercury.....314, 338
Meter.....614, 627, 650, 651, 661-664, 675
MIL.....336, 349
Miniature...324, 325, 329
Monitor, Ground.....333
Motor-Starting...334, 335
Photoisolated.....319, 343, 347, 348, 350
Plug-In.....322-324, 327, 329, 331, 332, 335, 336
Power.....334
Printed Circuit...314-316, 322-325, 327-329, 333, 337
Push-to-Test.....322, 330
Ratchet.....335
Reed.....315, 316, 337
RF.....335
Sensitive.....323, 327, 328, 336, 338, 346, 349
Sequencing.....335
SIP Package.....318
Solenoids...320, 321, 326
Solid State.....319, 323, 339-344, 347, 348
Subminiature.....323, 325, 335, 349
Telephone.....329, 336

Page

Time Delay.....323, 324, 339-342
Voltage Sensitive....344
RESISTORS
Adjustable.....185
Composition.....192
Fixed...184, 185, 189-192
Metal Film.....189
MIL.....189, 190
Networks.....172
Precision.....189-192
Wirewound.....184, 185, 191, 192
Retractile Cable....510, 513
Ribbon Connectors.....246, 263, 264, 286
Rocker Switches.....360, 370, 371, 378, 382
Rotary Switches.....356, 359, 362-366, 385
Rubber Bumpers, Feet..413

S

Schottky Diodes.....44-48
SCR Trigger Transformers... 397
SEMICONDUCTORS
Diodes and Rectifiers
Arrays.....17, 18
Avalanche.....128
Back.....31
Bridges....77, 127, 128
Chips.....44
Current Regulator...74, 126
Diacs.....78
Duals.....90
Fast Recovery.....77
General Purpose.18, 76
Germanium.....31
High Current.....29, 30
High Voltage....80, 127
FET's.....126
Light Activated.....92, 109, 466
Light Emitting.....21, 24, 92, 107, 110
MIL.....48
PIN.....44, 47, 466
Reference.....74
Schottky.....44-48, 69
Signal.....31
Silicon.....18, 19, 25, 29-31, 34, 44-48, 69, 76, 77, 80, 127, 128
Stabistors.....31
Switching.....18, 31, 44, 47, 77
Trigger.....25, 34, 78
Tuning.....91
Tunnel.....31

SEE PAGE 735 FOR INDEX OF MANUFACTURERS

PRODUCTS INDEX

Page

Zener.....19, 74, 75
Fuses.....475
Heat Sink Compound.131
Heat Sinks.....129, 130
Integrated Circuits
CAM's.....119
CMOS/MOS.....14-16, 56, 59-63, 94, 97
Comparators....17, 71, 98, 99, 114, 116, 124
Converters.....71, 98, 114-116, 124
Digital.....5-16, 49-51, 55, 56, 58-69, 94, 97, 99-101, 117-119, 121
Drivers.....17, 116-118, 125, 126
DTL.....13, 14
ECL.....13, 64
EPROM's.....49, 51, 56, 59, 60, 96
Interface.....13, 50, 72, 101, 116, 120, 124
Linear.....17, 70-73, 98, 99, 111-116, 124-126
Low Power TTL.....6-9, 68, 69, 100
LSI.....5
Memory.....12, 13, 49-51, 56, 59, 60, 94-96, 117, 119, 120
MIL.....56, 65
MSI.....12
Operational Amplifiers 17, 70, 71, 98, 99, 111-113, 116, 124
PLL's.....116
PROM's.....13, 60, 119
RAM's.....12, 13, 49-51, 56, 59, 60, 94-96, 119, 120
Schottky.....7-9, 68, 69, 100
SSI.....9-12
Timers.....116
TTL..5-13, 63, 66-69, 99
Voltage Reference.113
Voltage Regulators.17, 73, 98, 99, 116
Optoelectronic.....20, 21, 24, 92, 107-110, 449-451, 456-466
Publications....31, 463
SBS's.....25, 34, 78
SCR's.....26-28, 78-80
SUS's.....34
Tester.....585
Transistors
Arrays.....116
Audio.....90
Chips.....48
Chopper.....123

Page

Complementary Pairs..33
Darlington.....23, 24, 34, 88, 92, 103-106, 109
Duals.....89, 103, 104, 113, 123
Field Effect.....48, 90, 103, 106, 122-124
General Purpose...22, 23, 32, 33, 48, 87-91, 102-106, 122
High Current.....87
High Gain.....91
High Voltage.....87, 88, 102-105
Low Noise.....44, 86, 88, 89, 91, 102, 103, 106
Microwave.....48
MOSFET's.....48, 90, 122, 124
Oscillator.....86, 89, 102-105
Photo.....21, 24, 92, 107, 109, 110
Power.....33, 34, 44, 48, 82-86, 102-106
PUT's.....34, 89
Quads.....89
RF...23, 89-91, 102-106
Silicon.....22, 23, 32-34, 44, 82-92, 107
Switching...23, 33, 34, 86, 88-91, 102-106, 123
Tester.....585
UHF....86, 88, 102-106
Unijunction.....34, 89
VMO's.....124
Thyristors....25-28, 78-81
Transient Suppressors.90, 162, 317, 348
Triacs.....25, 80, 81
Varactors.....91
Varistors.....35
Zener Regulators.....19, 74, 75
Sensitized P.C. Boards..555
Sequence Timer....156, 157
Shielding.....501, 520
Shunts.....598, 608, 686
Silver Oxide Batteries...405
Sinks, Heat.....129, 130
Sleeving.....499-502
Slides, Rack.....412
Slide Switches.....385
Smoke Alarm Batteries.405
SOCKETS
(Also See Connectors)
Cable.....240-245, 248, 280-282
Crystal.....540
IDC.....253

Page

Integrated Circuit....535, 536, 539, 545
Lamp.....445, 469, 470
Low Profile.....535
LSI.....535
Readout.....535
Relay.....324, 325, 345
Strips.....535, 536, 540
Transistor.....539, 550
Wrap Type.....535
Solder.....556
Solder Mask.....540
SOLDERING TOOLS
Adaptors.....558
Cartridges.....561
Cords.....561
Desoldering.....559, 560, 562, 566, 567
Handles....558, 560, 561
Heaters.....558, 560
Irons....559-561, 565, 566
Lubricant.....561
Stands.....559, 560, 565
Stations.....560, 562, 566, 567
Tips.....558, 560-562, 565, 566
Solderless Connectors..... 251-263, 286, 287, 308, 309, 523
Solenoids.....320, 321, 326
SOLID STATE
Meters.....627
Relays.....319, 323, 339-344, 347, 348
Solvents.....556, 557
Spacers.....541, 547, 548
Spaghetti.....499-502
Stabistors.....31
Standoffs.....541, 548, 549
Stands, Soldering Iron..559, 560, 565
STATIONS
Soldering.....560, 562, 566, 567
Work.....420
Stepping Motors.....424
Strippers, Wire....510, 564
STRIPS
Barrier.....283, 284
Distribution.....524, 551
Marker.....285
Outlet.....310-313, 412
Socket.....535, 536, 540
Swager.....544
SWITCHES
Ceramic.....363-366
Custom.....361, 362
Digital.....372-376
DIP.....378
Hardware.....353, 357, 363-366

Page

Heavy Duty.....354, 356, 359, 366, 383
High Capacity....353, 354
Illuminated.....360, 361, 368, 369
Intra-.....539
Keyboards.....367, 376, 379, 380, 384
Keylock.....359
Lever.....364, 370, 371
Limit.....377
MIL.....358, 378
Miniature.....363, 365, 370, 371, 377
Momentary..355-357, 377
Multiconductor.....361
Paddle.....360, 382
Phenolic.....363-365
Plates.....353, 366
Power.....354, 366
Printed Circuit...378, 382
Pushbutton.....355-357, 361, 368, 369, 377, 381
Push-Push.....356
Rocker.....360, 370, 371, 378, 382
Rotary.....356, 359, 362-366, 385
Slide.....385
Subminiature.....357, 358, 365, 366, 381
Thumbwheel.....372-375
Toggle.....351-354, 357, 358, 370, 371, 381-383
Touch.....367
Switching Transistors...23, 33, 34, 86, 88-91, 102-106, 123

T

Tachometers.....633-635, 661, 663, 728
Tantalum Capacitors..... 202-204, 212, 213, 231-233
Tape, Cable Lacing.....502
Tape Head Cleaner.....134
Telephone Relays...329, 336
Temperature Controls...412
Temperature Testers...576, 594, 606, 632, 651-653, 691, 709, 717
TERMINAL
Blocks.....283, 284
Marker Strips.....285
Tools.....536, 544, 553
Terminals.....308, 309, 523, 526, 539, 541, 544, 553
TEST
Adapters.....303, 304, 306, 588, 592, 598, 599, 643, 690, 691, 705

SEE PAGE 735 FOR INDEX OF MANUFACTURERS

PRODUCTS INDEX

Page

Clips.....307, 524, 550
Connectors.....550
Jacks.....550
Kits.....571
Leads.....303-305, 592, 599, 608, 695
Multipliers.....679
Probes.....305, 307, 524, 550, 588, 592, 598, 599, 608, 632, 643, 695
Shunts.....598, 508, 686
Standards.....576
Transducers.....714
Transformers.....588, 608, 618, 654, 686, 725
TEST INSTRUMENTS
(Also See Meters)
Accessories.....588, 592, 598-600, 608, 624, 631, 643, 695
Appliance Testers....691
Capacitor Checkers..583, 594, 621
Chart Recording..671-674, 694
Clamp-On Meters....571, 690, 691, 705, 707, 726
Color TV.....584, 640
Comparator.....583, 621
Counters.....607
Digital Probes....583, 624
Digital Reading.....571, 582, 589-591, 593-597, 601-607, 621, 629, 630, 632, 687, 688, 692, 720-722
Digital System Analyzer..587
Distortion Meter.....641
Frequency Counter...597, 607, 691
Generator, Color Bar.584, 640
Generator, Function.584, 622, 642
Generator, Pulse....577, 583, 622
Generator, Sweep...584, 642
Generators, Video....640
High Voltage Probes..588
Illumination Level....727
Leakage Testers.....694
Logic Monitors.....623
Logic Probes.....583, 624
Microwave Leakage..694
Millivoltmeter.....641
Multimeters.....571, 582, 589-591, 593, 595, 596, 601-605, 629-631, 687-692, 694, 704-708, 720-723
Oscilloscopes....577-581, 636-639, 693

Page

Semiconductor Tester.585
Signature Analyzer...587
Temperature Meters.594, 606, 632, 691
Thermocouples..608, 703
Transistor Testers....585
VOM...571, 582, 589-591, 593, 595, 596, 601-605, 629-631, 687-692, 694, 704-708, 720-723
Wow and Flutter Meter..641
Thermal Compound....131
Thermometers.....717
Thermostats.....412
Thumbwheel Switches.....372-375
Thyristors.....25-28, 78-81
Ties, Cable.....522
Time Delay Relays.....323, 324, 339-342
Timers.....156, 157, 633
Tips, Iron.....558, 560-562, 565, 566
Tong Type Ammeters..571, 592, 598, 690, 691, 705, 726
TOOLS
Cases.....563
Crimping.....237, 270, 271, 523, 536, 564
Cutters.....564
Extractor....536, 545, 560
Hand.....564
Kits....559, 560, 563, 564
Lamp Remover.....452
Soldering 558-562, 565-567
Swager.....544
Tapping.....564
Terminal....536, 544, 553
Wiring.....522, 545, 555
Toroids.....401
Transducers.....714
TRANSFORMERS
Autotransformer.....401
Constant Voltage, Power.396, 401
Control.....402, 403
Converter.....401
CRT.....404
Current.608, 654, 686, 725
Filament.....402, 403
Harmonic Neutralized...396
Inverter.....401
Isolation.....404, 588
Low Voltage.....403
Phase Shifting.....618
Power.....401-404
Printed Circuit.....397
Pulse.....397
Rectifier.....403, 404
Signaling.....404

Page

Step-Down.....401
Step-Up.....401
Test.....588, 608, 618, 654, 686, 725
Toroids.....401
Trigger.....397
Transistor.....401
Universal.....403, 404
Variable.....398, 399
Transient Suppressors...90, 162, 317, 348
TRANSISTOR
Batteries.....405-407
Hardware.....129-131
Heat Sinks.....129, 130
Insulators...129, 130, 550
Pads.....131, 349
Sockets.....539, 550
Testers.....585
Transformers.....401
Transistors—See Semiconductors
Tray Cable.....517
Triacs.....25, 80, 81
Trigger Diodes....25, 34, 78
Trigger Transformers...397
Trimmers.....173-177, 179
Tubing.....499-502
Tunnel Diodes.....31
TV Camera Cable.....511

U

UL/CSA/OSHA Cable.....492-494
Unijunction Transistors..34, 89
Universal Transformers....403, 404

V

Varactors.....91
Variable Capacitance Diodes.....91
Variable Transformers.398, 399
Varistors.....35
Ventilating Equipment..412, 421-423
Voltage Regulators.....19, 74, 75, 159-162, 400
Voltage Standards.....576
Voltage Surge Protectors.90, 162, 317, 348
Voltmeters.....609, 612-614, 616-619, 625-627, 645-651, 661, 662, 666, 667, 677-686, 696-703, 709, 715, 716, 718, 719, 724, 725

Page

VOM's.....571, 582, 589-591, 593, 595, 596, 601-605, 629-631, 687-692, 694, 704-708, 720-723
VU Meters....626, 644, 647, 679, 681, 684, 696, 699, 700, 716

W

Warning Devices.....335, 546, 650
Washers..353, 357, 363, 365
Watch Batteries.....405
Wattmeters.....618, 679, 681, 684, 696, 724
Wick, Solder.....556, 559
WIRE
AC Power...498, 516, 518
Antenna.....520
Audio.....487-490, 505-508, 510, 512, 521
Braiding.....501, 520
Broadcast Audio.....505
Burial.....507
Bus Bar.....502, 520
Bus Cable.....503, 519
Cable Assemblies....503, 519, 536, 537
Camera.....511
Cathode Ray.....520
CB.....510
CCTV.....511
Coaxial.....497, 504, 506, 509, 510, 519, 521
Communication..487, 521
Computer.....486, 503, 512, 519
Control.....489-491, 510, 512, 520, 521
Cords.....498, 516, 518
Data.....487, 503, 504, 507, 508, 512, 519
Direct Burial.....507
Extension Cords..498, 516
Fire Alarm.....517
Flat.....265-269, 519
Harnesses.....522
Hi-Fi.....489, 508
High Temperature...486, 515
High Voltage.....514, 520
Hookup and Lead....485, 486, 513-515
Ignition.....512
Instrumentation.....491, 495, 508, 512, 515, 521
Intercom.....489
Interface.....503
Juke Box.....510
Jumpers.....272-274, 303, 525

SEE PAGE 735 FOR INDEX OF MANUFACTURERS

PRODUCTS INDEX

Page

Kits.....513, 525, 545
Lamp Cord.....498, 516
Low Leakage.....516
Magnet.....518
Microphone.....489, 505, 506, 510
MIL.....485, 486, 496, 497, 514, 515, 520
Multiconductor..487-496, 503, 505-508, 510, 512, 515, 517, 519-521
Phono.....489, 508
Plenum.....504
Point-of-Sale.....503
Power.....520
Power Limited.....517
Primary.....512

Page

Retractile.....510, 513
Ribbon.....265-269, 519
Rotator.....509
Shielded....268, 487-497, 503-512, 515, 518-521
Shielding.....501, 520
Sound.....507, 508, 521
Speaker.....488
Stereo.....489, 508
Teflon.....485, 486, 496, 497, 514, 515
Telephone.....490, 510
Television.....511
Test Lead.....498, 513
Ties.....522
Tinned Solid.....502, 520

Page

Transmission...265, 497, 504, 506, 509, 510, 515, 521
Tray.....517
Tubing.....499-502
TV Camera.....511
Twin Lead.....509
UL/CSA/OSHA...492-494
Video.....506, 510
VTR.....511
WIRING ACCESSORIES
Clips.....243, 522
Cutters.....564
Harness.....522
Heat Guns.....500, 560
Lacing Cord.....502
Markers.....522

Page

Spiral Wrap & Tape..501, 502
Strippers.....510, 564
Terminals.....308, 309, 523, 526, 539, 541, 544, 553
Ties.....522
Tools.....522
Work Stations.....420
Wow & Flutter Meter....641

Z

Zener Diodes.....19, 74, 75
Zinc-Carbon Batteries...405
Zipper Tubing.....501

INDEX TO MANUFACTURERS

A

Alpha Wire
Cable...485-498, 503, 504
Tubing.....499-502
Amphenol
Connectors.....234-249
Tools.....236
Amprobe
Instruments.....571
Analogic
Instruments.....572-576
Ansley
Connectors.....250-265
Tools.....270, 271
Wire....265-269, 272-274
A P Products
Power Supplies.....386
Prototype Equipment.524, 525
Arrow-Hart
Switches.....351-360
Augat
Boards.....527-533
Connectors.....526
Fiber Optics.....526
Racks.....534
Sockets, Plugs....535-540
Tools.....536

B

B & K—Precision
Instruments.....577-588
Beckman
Multimeters.....589-592
Belden
Cable.....505-521
Extension Cords.....516
Boschert
Power Supplies...387-390
Bourns
Dials.....181
Resistor Networks....172
Potentiometers...173-183
Bud Industries
Cabinets, Racks..408-419
Work Stations.....420
Bussmann
Fuses.....473-477

C

Cambion
Coils, Forms.....542
Hardware.....541
Integrated Circuit Holders 545
Jacks, Plugs.....543
Sockets.....545
Terminals.....541, 544
Tools.....544, 545
Centralab
Capacitors.....193-196
Keyboards.....367
Switches.....361-366
Chicago Miniature—General Instrument Lamp Division
Displays.....449, 450
Indicators.....445, 446
LED's.....451
Miniature Lamps.447, 448
Cinch
Connectors.....275-282, 286, 287
Terminals.....282-284
Clare Div., General Instrument Corp.
Relays.....314-317
Clarostat
Controls.....186-188
Dials.....187
Resistors.....184, 185
Corcom
Filters.....391-393
Cornell-Dubilier
Capacitors.....197-201
Corning Glass Works
Capacitors.....202-209
Resistors.....189, 190
Crouse-Hinds—See Arrow-Hart

D

Dale
Resistors.....191, 192
Data Precision
Instruments.....593-600
Data Systems
Disk Drives.....132
Dialco
LED's.....458
Panel Lamps.....452-456
Readouts.....457
Switches.....368-371
Digital Equipment Corp.
Computer Products.....133-136
Digitran
Keyboards.....376
Switches.....372-375
Duracell
Batteries.....405

E

Elco
Connectors.....288-295
Enclosures.....295,296

F

Fairchild Semiconductor
Integrated Circuits...5-17
Microprocessor Systems..137, 138
Optoelectronics....20, 21
Semiconductors.....18, 19, 22, 23
Fluke
Instruments.....601-608

G

General Electric
Capacitors.....210, 211
Optoelectronics.....24
Panel Meters.....609-620
Semiconductors....25-42
General Instrument Lamp Division—See Chicago Miniature
Global Specialties
Instruments.....621-624
Globe Battery.....406
Globe Motors.....429-444
Gordos
Control Systems.....139
Modules, Boards.....140
Relays.....318, 319
Grayhill
Keyboards.....379, 380
Switches.....377, 378
Guardian Electric
Relays.....322-325
Solenoids.....320, 321

H

Hewlett-Packard
Optoelectronics..459-466

SEE PAGE 729 FOR BEGINNING OF PRODUCTS INDEX

INDEX TO MANUFACTURERS

Page

Semiconductors 43-48

I

Intel
Computer Boards... 52-54
Integrated Circuits.. 49-51
Microcomputer Systems.. 141-145
International Instruments—See Sigma

J

J-B-T
Switches..... 381-383
Jewell.....
Panel Meters..... 625-628

K

Keithley
Instruments..... 629-632
Kemet
Capacitors..... 212-214
Kessler—Ellis
Counters..... 633-635
Kester
Flux..... 556, 557
Solder..... 556

L

Leader
Instruments..... 636-643
Lear Siegler
Microcomputer Systems.. 146-149
LFE/API
Instruments..... 644-653
Littelfuse
Circuit Breakers..... 480
Fuses, Holders... 478-482

M

Mallory
Alarms..... 546
Capacitors..... 215-217
Micro Peripherals
Disk Drives..... 150, 151
Midwest
Current Transformers. 654
Modutec
Instruments..... 655-660
Mostek
Integrated Circuits. 55, 56
Microsystems..... 152
Motorola
Integrated Circuits.. 58-73
Micromodules..... 57
Microprocessors. 153, 154
Optoelectronics..... 92
Semiconductors. 69, 74-91
M-Tron
Crystals..... 93

N

National Semiconductor
Computer Boards..... 94
Integrated Circuits. 94-101
Memory Components.. 95, 96
Microcomputers..... 155
Semiconductors.. 102-106
Newport Electronics
Instruments..... 661-670

O

Optron
Optoelectronics.. 107-110

P

Panduit
Wiring Accessories..... 522, 523
Potter & Brumfield
Circuit Breakers.. 483, 484
Relays..... 327-345
Sequence Timer.. 156, 157
Solenoids..... 326
Precision Monolithics
Integrated Circuits 111-115

Q

Qume
Peripherals..... 158

R

Rotron
Fans..... 421-423
Rustrak..... 671
Instruments..... 671-674

S

Sealectro
Connectors..... 297-300
Sigma
Meters..... 675, 676
Relays..... 346, 347
Signetics
Integrated Circuits 116-121
Siliconix
Integrated Circuits 124-126
Semiconductors.. 122-124, 125
Simpson Electric
Panel Meters..... 677-686
Test Instruments.. 687-695
Smith, H. H.
Card Racks..... 550
Hardware..... 547-550
Jacks, Plugs, Clips... 301, 302, 306
Racks..... 550
Test Accessories.. 302-304
Sola
Microcomputer Voltage Regulators..... 159-161
Supplies, Regulators. 394, 395
Transformers..... 396
Voltage Regulators..... 159-161
Sprague
Capacitors..... 218-233
Transformers..... 397
Stackpole
Keyboards..... 384
Resistors..... 191
Switches..... 385
Superior Electric
Binding Posts..... 307
Motor Controls... 425-428
Motors..... 424
Variable Transformers... 398, 399
Voltage Regulators.. 162, 400
Sylvania (GTE)
Pilot Lights..... 467-472

T

Tadiran
Batteries..... 407
Teledyne
Relays..... 348-350
Texas Instruments
Microcomputer Systems.. 163-171
Thermalloy
Heat Sinks..... 129-131
Triad
Transformers..... 401-404
Triplett
Panel Meters..... 696-703
Test Instruments.. 704-709
TRW
Motors—See Globe Motors
Optoelectronics—See Optron

U

Ungar..... 558-562

V

Vaco
Connectors..... 308, 309
Tools..... 563, 564
Varo
Semiconductors.. 127, 128
Vector
Cages..... 552, 554
Terminals, Boards 551-553
Tools..... 553, 555

W

Waber
Outlets..... 310, 311
Power Line Monitors.. 312, 313
Weller
Soldering Tools... 565-567
Weston
Panel Meters..... 710-719
Test Instruments.. 720-728

SEE PAGE 729 FOR BEGINNING OF PRODUCTS INDEX

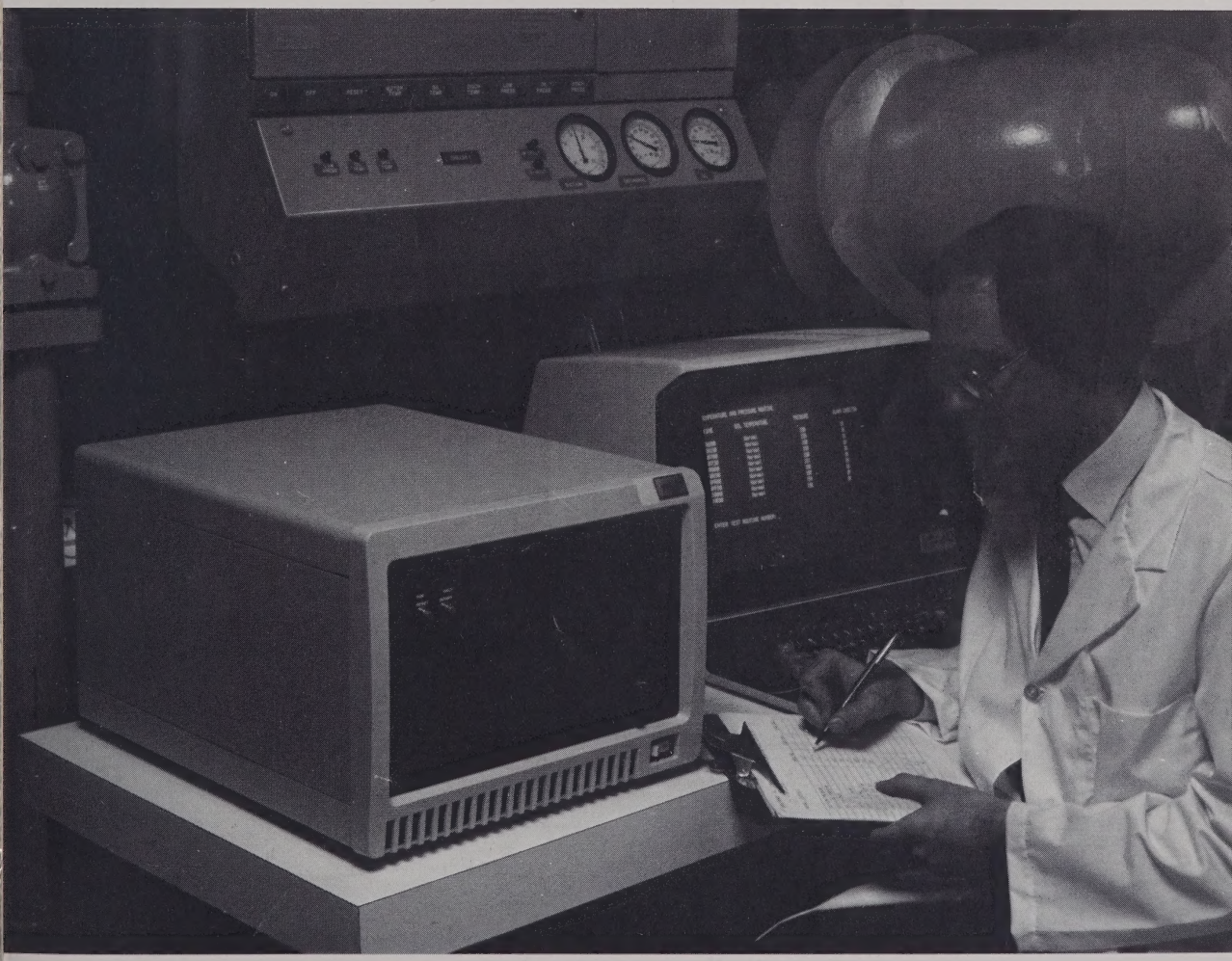
Pioneer-Standard

intel

SYSTEM 86/330

...the only microcomputer system designed to keep pace with VLSI technology.

The Intel SYSTEM 86/330 Microcomputer system is more than just another 16-bit microcomputer system. It was designed for the OEM . . . to bring you immediate access to the latest, powerful, low cost VLSI. The SYSTEM 86/330 is a fully integrated package including VLSI co-processors, RAM memory, fast mass storage, real-time multitasking operating system hardware, software development tools, languages and diagnostics. Plug it in, and start incorporating cutting-edge VLSI into your next product.



See pages 49 thru 54 and 141 thru 145 for Intel products

intel

Pioneer

digital

DIGITAL EQUIPMENT CORPORATION (DEC)

LSI-11 Systems and Boards, Terminal Products, and Accessories Available from PIONEER

Product	Description	DEC Family P/N
Boards	Single Board Computer SCB 11/21	KXT11-
	Microcomputer LSI 11/2 LSI 11/23	KD11- KDF11-
	Memory	MRV11-, MSV11-, MXV11-
	Interface & Communication	AAV11, ADV11, DLV11, DRV11, DUV11, DZV11
Systems	PDP 11/03 Microcomputer	11/03-
	PDP 11/03 Packaged system	SR-VXLLA (RL01) SR-VXSSA (RX01)
	PDP 11/23 Microcomputer	11/23
	PDP 11/23 Packaged system	SR-WXLLA (RL01) SR-WXMMA (RL02) SR-WXSSA (RX02)
Mass Storage	Floppy Disk (RX02)	RXV21 (with controller)
	Hard Disk	RL01, RLV11 (with controller) RL02, RLV21 (with controller)
	Tape Cartridge sub-system	TU-58
Terminals	Video	VT100- VT101- VT103- VT125- VT131- VT132-
	Printer	LA34- LA100- LA120-
	Personal Computer	VT18X-
Software	Operating System	RT11 RSX11
	Languages	Micropower/Pascal FMS Fortran Basic
Accessories	BACKPLANES, CABINETS, CABLES, INTERFACE CHIPS AND KITS, MEDIA, MODEMS, POWER CONTROLLERS, TERMINAL OPTIONS	

See pages 133 thru 136 for Digital products